SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

KNOWLEDGE AND SCREENING PRACTICES OF CERVICAL CANCER AMONG FEMALE HEALTH WORKERS AT GREATER ACCRA REGIONAL HOSPITAL, ACCRA.

BY

KOJO PIETERSON

(10004781)

THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PUBLIC HEALTH DEGREE

OCTOBER, 2017

DECLARATION

I, Kojo Pieterson, hereby declare that except for other people's works which have been duly acknowledged, this work is the result of my own original proposal under supervision.

………………………… ………………..…….

KOJO PIETERSON DATE

(STUDENT)

……………………………..… ………………..…….

PROF. KWASI TORPEY DATE

(ACADEMIC SUPERVISOR)

DEDICATION

This study is dedicated to my mother Augustina Boham, my father Joachim Pieterson and my friend Doris Amoah.

ACKNOWLEDGEMENT

My uttermost thanks go first to Almighty God, through him all this have been possible.

My greatest gratitude to my supervisor Prof. Kwasi Torpey, for the patience, inputs, encouragement and support throughout the study.

To the Dean of the school of Public Health, Prof. Richard Adanu. To Dr. Ernest Maya, I say a big thank you for your countless advice and support.

I will also want to acknowledge the female clinical staff of Greater Accra Regional Hospital for their cooperation without which this work could not have been done.

I owe a special gratitude to the entire staff of the Public Health unit and the matron of the of the Family Planning/Cervicare unit of Greater Accra Regional Hospital for their assistance, support and encouragement.

My sincere thanks go to Rev. Rambel of Coast for Christ Baptist Hospital, Winneba for his encouragement for the success of the programme.

To all individuals who contributed in one way or the other, I say thank you all for being there with your assistance.

ABSTRACT

Background

Cervical cancer is a Public Health threat. The disease imposes economic burden on resources in the form of medical and non-medical expenditure and loss of productivity. Cervical cancer cases are expected to increase in 2030 by 1.5-fold in view of the rising world population. A woman who develops cervical cancer in sub-Saharan Africa has at least 79 percent chance of dying from this malignancy. Cervical cancer risk can be reduced by 80 percent through regular screening. Generally, screening practices among health workers are very low in sub-Saharan Africa. The purpose of this study was to determine the knowledge and screening practices of cervical cancer among female health workers at GARH, Accra.

Methods: The study design was a cross sectional study. A systematic stratified proportional random sampling technique was used to select 166 female health workers from six professional groups in the GARH. Both structured self-administered and interviewer administered questionnaire was used to collect the data. Data was analyzed using STATA version 14 software. Descriptive data analysis technique (frequency, mean and standard deviation), bivariate and logistic regression was used to find out cervical cancer screening practices and its associated factors among female health workers.

Results: Most of the respondents were aged between 25-29 years, and the mean age of 29.7 years (SD=±5.3). The respondents had adequate knowledge on the risk factors, presentation and prevention of cervical cancer. More importantly, majority of the respondents correctly indicated that HPV is strongly associated with more than 95 percent cervical cancer cases (81.3%). Only 18.7 percent of them had screened for cervical cancer. Being informed about cervical cancer screening by healthcare providers was very significantly associated with cervical cancer screening among the respondents than other associated factors.

Conclusion: High level of knowledge on cervical cancer was found among respondents. Unfortunately, this was not supported by high cervical cancer screening practice. However, significant association with screening practices was found with following factors: duration of work, duration at the facility, pelvic exams embarrassment, being informed by someone who has been screened, understanding the screening procedure done in the facility, having experienced pain on previous vagina or speculum exams and being on any form of health insurance.

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LIST OF ABBREVIATIONS

ACOG	America Congress of Obstetrics & Gynaecology
AIDS	Acquired immune deficiency virus
CECAP	Cervical Cancer Prevention
CIN	Cervical intraepithelial Neoplasia
COCs	Combined Oral Contraceptives
CSSD	Central Sterilization Services Department
DNA	Deoxyribonucleic acid only
GARH	Greater Accra Regional Hospital
HBM	Health Belief Model
HIV	Human immunodeficiency virus
HPV	Human Papillomavirus
JHPIEGO	Johns Hopkins Program for International Education in Gynaecology and Obstetrics.
KATH	Komfo Anokye Teaching Hospital
KBTH	Korle Bu Teaching Hospital
MDGs	Millennium Development Goals
SDGs	Sustainable Development Goals
SSA	Sub-Saharan Africa
STI	Sexually Transmitted Infection
UNAIDS	United Nations Programme on HIV/ Acquired Immune Deficiency Syndrome
VIA	Visual Inspection with Acetic acid
VIL	Visual Inspection with Lugol’s Iodine
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Background

Cervical cancer is the malignant neoplasm of the cervix uteri or cervical area(Morema, Atieli, Onyango, Omondi, & Ouma, 2014).Worldwide, Human Papilloma Virus(HPV 16) is the most common HPV type found in the cervix and in cervical cancers, where it is detected in over 50 percent of cases (Domfeh,Wiredu,Adjei,Ayeh-Kumi,Adiku,Tetteh,Gyasi&Armah,2008). Together with HPV18,both cause 70 percent of cervical cancers and precancerous cervical lesions.("WHO Human Papilloma Virus (HPV) and cervical cancer," 2013). HPV-45, the type found to be most prevalent in parts of the Caribbean(Ragin et al., 2009)along with other low risk types are responsible for the remaining 30 percent. In 2012, 527,600 new cases were diagnosed globally with an estimated death of 265,700. In developed countries, 167,900 new cases and 35,500 estimated deaths occurred in 2012. Developing countries recorded 444,500 and 230,200 new cases and estimated death respectively (Ferlay et al., 2015).

According to the 2014 Africa Cervical Cancer Multi Indicator Incidence and Mortality Scorecard, out of the 20 countries globally with the highest incidence of cervical cancer, 16 are African countries(Obi & Ozumba, 2014). More than 85 percent of these deaths occurred in low and middle income countries. In Ghana, the age standardized mortality rate is very high. It is three times higher compared to the global estimate i.e. 27.6/100,000 versus 7.8/100,000 respectively. (William & Amoateng,2012).A study at Korle Bu Teaching Hospital, a 10year review(1991-2000) on cancer mortality pattern shows that cervical cancer was among the four leading causes of cancer death with age standardized cancer ratio of 8.74 % in females (Wiredu & Armah, 2006).

Early detection can be achieved through regular screening which can reduce the risk by 80 percent (Stewart & Kleihues, 2003; Ozgül, 2010). During the past 30 years, cervical cancer cases have fallen in developed countries as a result of screening and control programmes. Cervical cancer screening programme is however rare in developing countries (Tavafian, 2010).

Countries with screening programmes are faced with challenges such as limited available services, inadequate trained health providers, lack of clinical supervision, inadequate essential medical products/ vaccines and refusal of patient to report for follow up. Cervical cancer screening rates in urban and rural areas in Ghana are extremely low i.e. 3.2 percent and 2.2 percent respectively (Summary Report on HPV and Cervical Cancer Statistics in Ghana, 2007).

Health belief models provide additional support for theoretical constructs such as perceived risk, intention, attitudes and self-efficacy as explanations of people's participation in preventive health behaviors (Tarvafian, 2010). In addition, the reasons for women to less likely to participate in screening programmes are: low socio-economic status, lack of sufficient knowledge, pelvic exams embarrassment from socio-cultural background and fear of the result. Other barriers to cervical cancer screening are previous history of trauma like childhood sexual abuse, intimate partner violence, trauma related to medical procedure and obesity/ overweight. There are also perceived barriers which equally affect uptake of cervical cancer programme. These are the cost of the test which may be perceived as expensive which is relative and individual dependant, perceived negative side effects, unpleasant as it pertains to privacy of women's private part and time spent in getting the service. There are equally important cues which increase uptake of cervical cancer screening which are health workers' recommendation and reminder by family members to do the test.

1.1 Problem Statement

Cervical cancer is the most common cancer affecting women in Ghana with 50.5 percent attributable to HPV types 16 and 18(Adanu, Sefa, Duda, Darko, Hill &Anarfi, 2010). It is the cause of 16 percent of mortality due to cancer in Ghana (Adanu et al., 2010). The incidence and prevalence is rising in Ghana. (Adanu et al., 2010). The increasing prevalence is a public health concern.Several studies have indicated that health workers do not have more information and adequate knowledge about several related health issues as expected of them (Arulogun & Maxwell, 2012), including knowledge about cervical cancer.There is lack of institutional care in terms of prevention and screening among health workers. This will affect significantly the role health workers must play to address cervical cancer issue in the general population. Enquires done at the facility and according to the head of the Cervicare unit, shows the female staff as a whole don't patronize cervical cancer screening service in the facility. Considering the low uptake of screening in urban Ghana, it can affect advocacy role the healthcare providers must play to ensure increase uptake. This is because if the health care providers are not screened, it is very unlikely it would be recommended to others.

1.2 Objectives

1.2.1 General Objective

To determine the knowledge and screening practices of cervical cancer among female health workers at Greater Accra Regional Hospital, Accra.

1.2.2 Specific Objectives

1) To assess the level of knowledge of cervical cancer among female health workers at Greater Accra Regional Hospital.

2) To assess the influence of physician advocacy on the uptake of cervical cancer screening among female health workers.

3) To determine the factors that affect the practices of cervical cancer screening among the female health workers.

1.3 Research Questions

1. Do female health workers have adequate knowledge about cervical cancer?

2. What are the factors that affect cervical cancer screening practices among the female health workers?

3. What influence does physician advocacy have on uptake of cervical cancer screening among the female health workers?

1.4 Justification of the study

Knowledge plays an important role in a person's decision to engage in health preventive behaviors and this also pertains to cervical cancer. Cervical cancer knowledge is an integral factor in women's participation in cervical cancer screening and HPV vaccination. Globally, health workers' health seeking behavior significantly affects the general population. There is limited research on knowledge and screening practices of cervical cancer among female health workers in Ghana. Two studies has been done on cervical cancer issues among health workers. The most recent was a qualitative study on the awareness of cervical cancer screening among nurses in Korle Bu Teaching Hospital (Mensah, 2016). This study was restricted to only nurses as well as limited in terms of quantitative component. Additional a study done in Kumasi among female health workers (Adageba et al.) was a descriptive cross-sectional study. Apart from these two studies searches did not find other study among cervical cancer among health workers in Ghana. Of particular importance is regular screening among them. Therefore, the finding of this study could reveal information about the predictors and magnitude of factors that determine cervical cancer screening practices among the female health workers. This can be compared to similar studies in other neighboring countries.

At the national and institutional level, it could lead to policy modification for cervical cancer care for the general population as well as regular screening of their staff.

1.5 Conceptual framework

This conceptual framework incorporates the use of Comprehensive Cervical Cancer Prevention and Control Programme Guidance for Countries 2011, Predictors of Cervical Cancer Screening i.e. Health Belief Model(Tarvafian,2010) and the New WHO Guide to Control and Prevent Cervical Cancer that was adopted in Melbourne in December,2014.

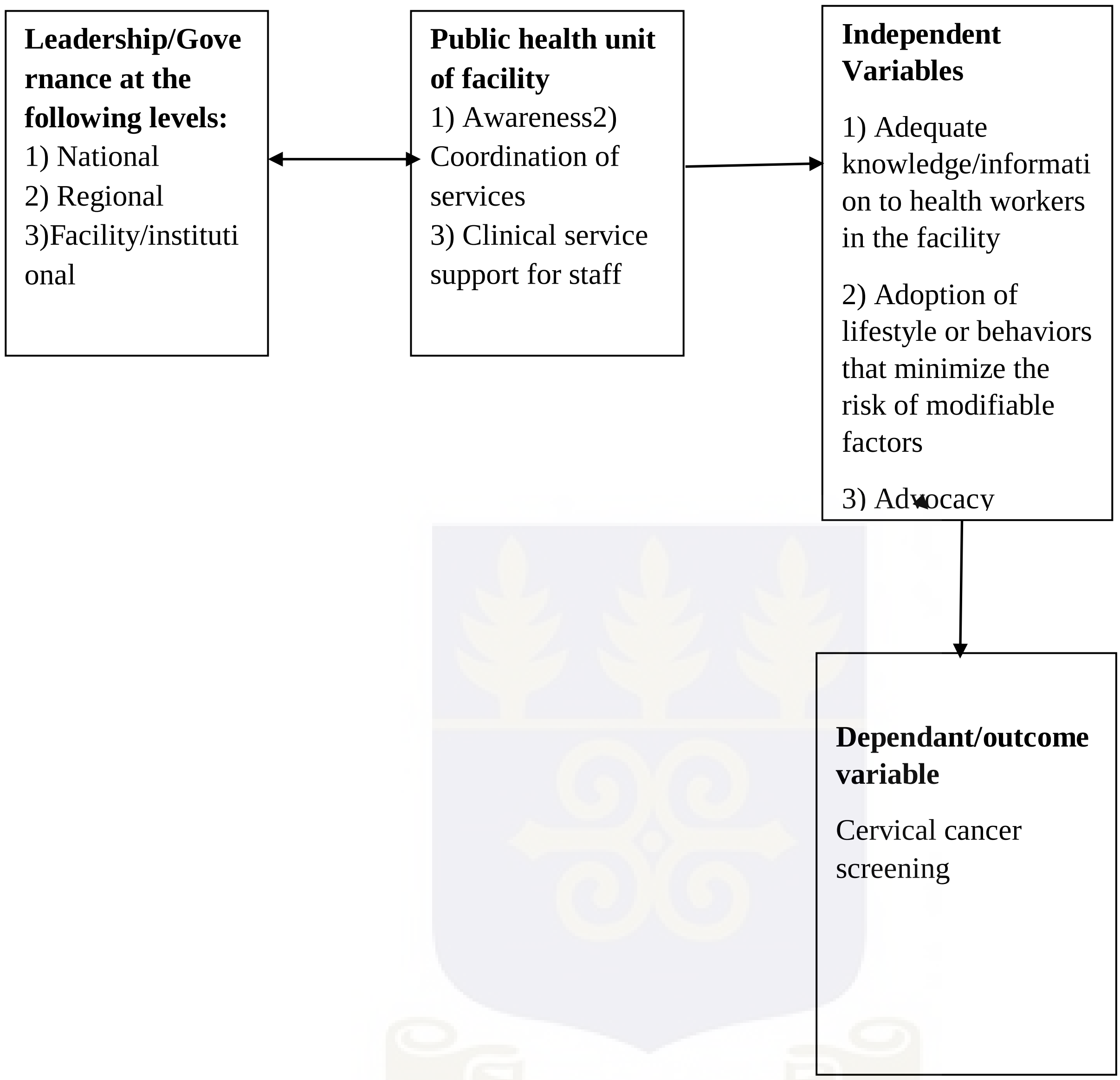

Figure 1: Conceptual Framework

The leadership and governance at national, regional and institutional or facility levels play a key role in cervical cancer activities. At the facility level there is close collaboration between leadership and public health unit. The leadership are involved in policy formulation. The public health unit creates cervical cancer awareness, coordination of services and clinical service support for staff. The clinical support for staff of the public health unit is extremely crucial, significant and important with the outfit involved in history taking with emphasis on risk factor identification. This invariable lead to risk categorization of staff and based on other supporting examination lead to screening of cervical cancer for staff. At the facility level, secondary prevention involves screening all sexually active staff as well as those 30years and above. It can be done by HPV DNA test only, HPV DNA with cytology, visual inspection with acetic acid or lugos iodine VIA/VIL and Papsmear. Aside this, other life style modification which minimize the risk factors are emphasized which also reduce the risk of getting the cervical cancer. Tracking of staff for screening, prompts and arrangement of vaccine which are affordable or subsidized are also done. Through both the public health unit and clinical services support for staff, there is more awareness or education coupled with life style modification and advocacy which all eventually lead to screening for cervical cancer. Those with those with precancerous lesion which may develop into cervical cancer are treated and followed up.

1.6 Conclusion

This chapter gives the background to the study, the research questions, general and specific objectives. The next chapter reviews the relevant related literature to the study and other related areas.

CHAPTER TWO

LITERATURE REVIEW

2.1 Current State of Cervical Cancer in Ghana

The first national policy on cervical cancer prevention was developed in 2005 as part of the National Reproductive Health Policy (MOH, National Strategy for Cancer Control in Ghana, 2012-2016). It entails screening with visual inspection with acetic Acid (VIA), treatment of pre-cancerous lesions with cryotherapy for women aged 25-45 years and cytology screening with pap smear for women aged 45 and above. The strategy involves the following: cervical cancer awareness programme using health communication messages via posters, leaflets and electronic media; both organized screening and opportunistic screening target populations; and screening integrated into the existing health system such as the reproductive health programmes (family planning and STI services).

Until recently, Ghana did not have cancer registry leading to poor documentation. In 2012, the cancer registry was launched in Ghana.An analysis of autopsy records over a 10-year (1991-2000) period in the Department of Pathology, Korle Bu Teaching Hospital (KBTH), showed that the second leading cause of cancer deaths in females was that of cervix (Wiredu & Armah, 2006).

Cervical cancer is one of the priority cancers in Ghana (National Strategy for Cancer Control, 2012-2016). Data on prevalence of the HPV burden in the general population in Ghana is limited. In West Africa, 21.5 percent of women are estimated to harbour HPV infection. A recent study in Accra showed HPV infection rates of 10.6 percent (Domfeh et al., 2008).Women of age 15years and above in Ghana are at risk of HPV infection.

2.2 Determinants of cervical cancer screening

Many determinants have been identified as being related to various types of cancers and it also pertains to cervical cancer, including the invitee's personal characteristics, health-service context, media, financial factors, test characteristics, and the nature of programme interventions in any particular geographical area(Weller, Patrick, McIntosh & Dietrich,2009).The personnel characteristics that determine an individual will screen or not are perceived risk of cervical cancer, perceived self-efficacy, and expressed intention to participate (Champion Skinner &, Hui ,2007). With respect to health service context, health- care provider's reminder or prompts lead to greater uptake of cervical cancer screening among patients (Breen, Wagener & Brown, 2001). In an experimental study conducted by Allen et al. (2008) to measure the impact of a work-site based breast and cervical cancer education programme, they found provider recommendations to be strongly associated with screening participation.

The nature of the test and programme is extremely significant in cervical cancer screening. In this regard, programme strategies that incorporate addressing misconceptions, cultural attitude and beliefs increase cervical cancer screening uptake. Removal of cost which is a barrier improve uptake as well. Thus, financial factors being it free or subsidized service is very crucial determinant in cervical cancer screening (Breen, Wagener & Brown, 2001). Media network or contents on cancer issues particularly screening, general awareness, addressing misconceptions among others impact is short term (Breen, Wagener & Brown, 2001).

Different studies have found out other determinants even thou some are similar such age of the women, their marital status, parity, risk perception, financial constraint, and knowing someone who has cancer of cervix (Butho, Amita, Jeremy, Patricia&Paulina,2015).Coupled with this, other studies also identified awareness level, knowledge level, availability and accessibility as significant determinants in cervical cancer screening. In countries with low level of awareness, poor knowledge, unavailability and inaccessibility of cervical cancer screening service, the uptake is low (Anorlu, 2008).

A study conducted among women in Nigeria by Indoku et al. showed low risk perception as determinant of cervical cancer screening which accounted for 36.3 percent and out of that only 8 percent had ever done pap smear test before. Additionally, 20% of the respondents have not accessed screening because of not knowing where to get this service. Another study done among 18-49-year old women in Kenya, Morema et al. showed a significant association between knowledge level of cervical cancer and screening uptake. A significant proportion of those who gave 5 correct answered on the signs and symptoms of cervical cancer have screened (66.7%) compared to 35.1 percent of those with no correct answers. This same study, respondents who have no knowledge on the signs and symptoms of cervical cancer were 18times more likely to report not having been screened.

2.3 Physician advocacy on the uptake of cervical cancer screening

Advocacy is one of health promotion strategies that have been employed in various programmes, interventions including cervical cancer to increase uptake. The purpose of advocacy, communication, and community mobilization is to empower individuals to make informed decisions on programme design and service utilization. (UNFPA, Comprehensive Cervical Cancer Prevention and Control Programme Guidance for Countries, 2011).It can be employed at three areas namely policy, media and grassroot levels. At the policy level, it entails various inputs and contribution in formulating strategies at the national, regional and facility levels that can eventually influence screening of cervical cancer among individuals in this particular case the female health workers. More significantly, it can be in area of incorporating the screening service as part of condition of service for the staff in the GARH. On the other hand, it can be in the form of free service or subsidized cost as part of health care policy for the staff.

Media advocacy involves campaign using print or electronic means. At the facility level, it can entail using leaflets, posters placed at strategic points and various announcements at staff programmes.

Currently, various strategies have been formulated in advocacy for cervical cancer screening and its prevention, which are standardized. In its usage, it can be modified to fit a particular geographical area or target group. The strategies involve reaching out globally, reaching out regionally and reaching out nationally (Sherris et al.).Organizations such as (WHO), United Nations Population Fund, the U.S. Agency for International Development, and the World Bank strongly influence the breadth and depth with which a particular health issue or group of issues is globally addressed. This also pertains to cervical cancer. Reaching out regionally, entails regional advocacy working with groups of countries that share geographic, economic, and cultural features. However, regions can have high internal diversity. The global and regional advocacy is very essential before it can reflect at the country's national level and subsequently at the facility level. The advocacy even though physicians play a unique role, it involves various stakeholders.

Last but the least, key advocacy and communication tasks involves the following: building awareness about cervical cancer and how it can be prevented, mobilizing investments in cervical cancer programming, including highlighting links with national health and development priorities, updating policies to support services and scale-up, responding to misinformation and addressing hesitancy to be vaccinated or screened, creating individual and community demand for services reducing stigma associated with cervical cancer and encouraging partnerships and collaborative effort(wittet et al.)

2.4 Cervical Cancer Aetiology Update.

Cervical cancer cases are expected to increase in 2030 by 1.5fold in view of the rising population. (Ferlay et al.,2008 &GLOBOCAN, 2008).It is documented that the peak age of incidence is 55–59 years(Sreedevi, Javed, & Dinesh, 2015).HPV infection is the main cause and the most important risk factor for cervical cancer acquisition. Currently there are 200 documented HPV genotypes. Out of this, 18 genotypes are directly related to cervical cancer(Garland, 2009 ;Woodman, Collins, & Young, 2007). As well, fifteen HPV types have strong oncogenic potential which are types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, and 82. These high-risk HPV types are responsible for 95 percent of all cervical cancer cases(McGraw, 2014). Epidemiological evidence shows that in over 90 percent of cervical cancer cases, HPV viral DNA was isolated in the cellular genome of the cervical carcinoma (Ali, Kuelker & Wassie, 2012).

2.5 HPV in Natural History of cervical carcinogenesis

The entire course of HPV infection leading to cancer is well documented. Immunity plays a crucial role in clearing HPV infection. Over 90 percent of HPV 16 infection is cleared within five years in women with good immune system devoid of any treatment (Woodman, Collins &Young, 2007). The likelihood of getting the infection is significantly reduced after 30years of age. Women whose immune system is unable to clear the HPV infection and consistently get re-infection, have a high risk of developing cervical cancer. Before the cervical cancer onset, it is preceded by pre-malignant condition which is graded into three types based on its severity. The grades are CIN1, CIN2 and CIN3.Unlike CIN1 which is self-limiting, the rest are not. Thirty to fifty percent of CIN 3 will progress to invasive cancers(McCredie et al., 2008).Screening test detect the disease at CIN1, CIN2 and CIN3 stages. At this stage, interventions can be employed to prevent subsequent progression to invasive cervical carcinoma.

2.6 Health Systems Challenges in Cervical Cancer Prevention Programme in Africa.

The health systems in Africa are faced with lots of problems and Ghana is no exception. It is recommended that within first 10years of cervical screening programme,70 percent of target population should be covered (Kawonga et al.,2004)but most of the cervical cancer screening programmes in Africa have failed to achieve this target. The problems are similar in all the countries in sub-Saharan Africa. Bradley and her colleagues argue that inadequate staff training in screening, treatment, referral, and record keeping are some of health system challenges which have contributed to failure of health systems in implementing effective cervical cancer screening and treatment programs.(Chidyaonga-Maseko et al., 2015).The issues at stake includes service delivery, health management information system, human resources, clinical supervision, essential medical products/ vaccines and technologies.

2.7 Cervical Cancer Screening

The goal of cervical cancer screening is to identify lesions that can become cancerous and institute early preventive treatment (Duke et al., 2015).Screening has been shown to effectively reduce the incidence of this malignancy in developed countries but in developing countries screening coverage is still low ranging from 2.0 percent to 20.2 percent in urban areas and 0.4 percent to 14.0 percent in rural areas (Karly, Silvia, & Philippe, 2009). The latency period in cervical cancer infection is long. This make screening effective once pre-cancerous lesions are identified which can be managed expectantly on outpatient basis.

The cost involved is inexpensive compared treatment of cervical cancer disease. Moreover, precancerous lesions can be followed up to reduce morbidity and mortality. Screening for specific cancers such as cervical cancer, although available, has been found to be low (Adanu et al.,2015).Only 2.7percent of Ghanaian women regularly screen for cervical cancer(William & Amoateng,2012).In the urban and rural Ghana, cervical cancer screening rates are very low ranging from 3.2 percent and 2.2percent respectively(WHO, 2007).Various methods are available for cervical cancer screening. The commonest is the taking of small sample of cervical tissue during pelvic examination. This is subjected to cytology for analysis(Duke et al., 2015). The high burden of disease is largely attributable to the lack of cervical cancer screening programs (Saxena, Sauvaget, & Sankaranarayanan, 2012) and the inefficiency of cytology based screening programme in developing countries.(Sanghvi , 2008) .

In 2001, Ghana started screening with visual inspection with acetic acid and cryotherapy for pre-cancerous lesions(Sanghvi et al., 2008).This became necessary in Ghana and other developing countries because of challenges in implementing cytology based screening programmes(Catarino, Petignat, Dongui, & Vassilakos, 2015). Visual inspection-based tests constitute more affordable screening methods for developing countries. The focus in low resource setting is to target screening at the time of the peak risk of treatable precancerous conditions. This is necessary because of persistent HPV infection and before the average age at which invasive cancers occur. In that regard, in Sub-Saharan Africa, screening should be targeted to women aged 30 years or above, except the woman is infected with HIV. In cases where the women can be screened in her lifetime once, between 30-45 years is the best age to screen(Arbyn et al., 2012).

New Guidelines for cervical cancer screening stipulates that cervical cancer screening should start at age 21years, women aged 21-29years should have screening every three years and women aged 30-65 years should have a Pap smear test and HPV DNA (co testing) every 5 years(preferred). It is acceptable to have Pap smear every three years (ACOG New Guidelines for cervical cancer screening, 2013). Furthermore, for women aged 30-65, the combination of Pap smear test and HPV DNA can predict whether dysplasia will develop in the next few years even if Pap smear result is normal. It is recommended that women from 65years should discontinue cervical cancer screening on the account of the following: no history of moderate or severe dysplasia or cancer, three negative Pap smear results in a row or two negative co-test results in a row within the past 10years, with the most recent test performed within the past 5 years (ACOG New Guidelines for cervical cancer screening, 2013). For women aged 30-65, the combination of Pap smear test and HPV DNA can predict whether dysplasia will develop in the next few years even if Pap smear result is normal (ACOG New Guidelines for cervical cancer screening, 2013).

2.8 Cervical Cancer Prevention

According to World Health Organization (WHO, 2014), cervical cancer prevention involves three level which are primary, secondary and tertiary prevention. The primary prevention includes the following; giving HPV vaccine to girls between the ages of 9 to 14 years and appropriate health information on the risky behaviors associated with cervical cancer which include delaying sexual debut, increasing condom use, reducing lifetime sexual partners and medical male circumcision. There are two types of cervical cancer vaccine namely Cervix and Gardasil which are bivalent and quadrivalent vaccines respectively. The bivalent vaccine protects against HPV types 16& 18 and the quadrivalent types16,18, 6 &11. The types 6 and 11 causes genital warts. HPV infection is acquired within two years of sexual encounter hence, it is recommended that the vaccine is given before onset of sexual debut and the best age is 9-13years. As at 2014, two doses of HPV vaccine at six monthly intervals has been approved as the vaccination regime. Both sexes are included, the quadrivalent is given to boys and girls from 9-13years and bivalent to girls and boys from 9-14 years. (National Cancer Institute. HPV and Cancer 2015).

Secondary prevention involves early detection and focus on treatment of subclinical, asymptomatic, or early disease in women of 30 years or older, without obvious signs or symptoms of cancer. Furthermore, secondary prevention includes identifying women who are at risk for developing malignancy and implementing appropriate screening recommendations (HPV DNA test and visual inspection with acetic acid(VIA)) which may be followed by cryotherapy to those women with positive test results). Both of these approaches perform as well as or better than cytology based screening for identifying high-grade cervical cancer precursor lesions. Tertiary prevention deals with women with invasive cervical cancer. Irrespective of the age, such women are offered ablative surgery, radiotherapy or chemotherapy.

2.9 Latest Development on Cervical Cancer (Cervical cancer care in the context of SDGs)

The metamorphosis from MDGs to SDGs will impact healthcare in all areas including cancers, infectious diseases, non-communicable diseases and new emerging diseases. The new SDGs offer renewed hope for cancer control in Africa of which cervical cancer is part. It is anticipated that if SDG targets 3.4 and 3.7 are properly pursued, most African countries could benefit immensely. This will be in the areas of national cancer registries, extensive cancer education, HPV vaccinations programmes, routine cancer screenings and development of palliative care systems. Furthermore, oncology as a specialty in medical school will be developed. Additionally, it is expected that it will lead to better access to pathological diagnosis and chemotherapy drugs. Cervical cancer death is expected to rise more than maternal mortality by 2030(WHO, 2015).

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

Currently integrated approach is required in preventing unnecessary cervical cancer death and end AIDS epidemic by 2030.This will require all stakeholders such as the government, multilateral organizations as well as huge and sustainable investment(UNAID report,2016). Cervical cancer risk is increased by 4-5times in women living with HIV compared to counterpart negative HIV women (Global partnership for fighting women's cancers, 2015). Maximizing HIV response and synergizing it with efforts to prevent, diagnose and treat cervical cancer through HPV vaccination, education, screening and treatment is very essential to jointly handle these two menace. Women who have HIV have weak immune system. Thus, when such women are infected with HPV, it is less likely to clear the HPV infection. In this case, such women more likely to develop pre-invasive lesions. If urgent treatment is not offered, it quickly progresses to invasive, life-threatening cervical cancer. In the 2014 guidelines, the WHO has stated the need to fulfill the research gap in the cervical cancer screening and follow-up of HIV-positive women living in developing countries (WHO, A Guide to Essential Practice. 2nd ed.2014) The WHO recommends integrated HIV counselling, testing and treatment into cervical cancer screening programmes, sexual and reproductive health services, treatment of precancerous cervical lesions and invasive and advanced cervical cancer, including through chemotherapy and/ or radiotherapy. Partners from diverse sector are needed to strengthen this HIV/HPV/Cervical cancer integrated service. An important area is integrating cervical cancer screening and vaccination to Adolescent or youth friendly family planning clinics. The latter is very timely in view of Global Strategy for Maternal, Child and Adolescent Health (2016-2030).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter deals with method and the techniques that were used in the study. The chapter entails description of the study design, study area, study population, sample size, sampling techniques, data collection methods, quality control, data processing and analysis, and ethical consideration.

3.1 Study design

The study design was an analytic cross-sectional study using female clinical health workers who are permanent and irrespective of duration of service in the facility and department affiliated to in the GARH. This was a quantitative study that made use of proportional stratified random sampling technique to select study participants. The study was carried out between May and July, 2017.

3.2 Study area

The Ridge Hospital was built in 1929.Originally, it was meant for providing healthcare for the British nationals in the pre-colonial era. At its inception, the bed capacity was 400. Currently, it has been renovated and refurbished. The bed capacity has been increased to 600. The current bed distribution is as follows: Paediatric (72),Medical Unit(100), Surgical(140), Orthopedics and Trauma(50),ICU and HDU(16),Emergency (71),Obstetrics/Gynaecology unit(56),Delivery suit and lying in ward(120) and burns(20).The range of services being rendered are in all specialties.

It is the focus of clinical care at the regional level and serves as the referral hub for health centres and district hospitals within the region. It also provides emergency, outpatient and inpatient services in the four major clinical areas (surgery, internal medicine, pediatrics and Obstetrics/Gynaecology) and other specialties. Other services provided are laboratory, radiology, anesthesia and pharmaceutical services. The supporting units includes social work, biostatistics, administration, estate, clinical engineering unit, transport, security,procurement/stores,diettherapy,hospitality,physiotherapy,CSSD,acconts,internal audit, environmental and mortuary. The hospital is under the Greater Accra Regional Directorate of Health. The hospital is headed by a medical superintendent.

The total staff strength is 1,167 consisting of 966 established staff and 201 temporary staff. The staff distribution in the entire facility are medical doctors (139), nursing staff (476), health assistant (12), Pharmacy (21), anesthesia (21), dental (11), disease control (2), radiology (10), laboratory (12), social work (2), biostatistics (20), administration (19), clinical engineering unit (2), Transport (5), security (4), procurement/store (4), diet therapy (3), hospitality (29), physiotherapy (29), CSSD (2), accounts (14), internal audit (4), environment (25) and mortuary (1).

The GARH was selected for the study on the basis of its upgrade to regional hospital status and the fact that the facility was one of the institution in the country which pioneered CECAP programme in the early 2000.

3.2.1 Family Planning/ Cervicare unit.

The unit is under the department of Obstetrics /Gynaecology. It is also the unit where cervical cancer services are carried out. Cervical cancer screening services started in Ridge Hospital in the early 2000.This center is one of the three centers in Ghana that piloted the JHPIEGO-led Cervical Cancer Prevention (CECAP) programme.The services offered are cervical cancer screening through visual inspection with acetic acid and treatment of precancerous lesions with cryotherapy. The other centers were Kumasi South Hospital and

Amasaman Health center. The CECAP program was integrated into existing services offered at the family planning clinics in each of these centers. This was geared towards reaching large number of clients. At the provision of such services, national policies and recommendations around provision of screening and treatment services was adhered to. Nurses and midwives (thirteen in number) who work in the family planning unit were trained for providing this service. The nurses embarked on outreach services to surrounding communities in the area to create awareness of the available service. Women were also encouraged to report to the clinic for screening service. The nurses at the inception of the programme doing the single visit approach were able to integrate this service into a very hectic and busy family planning clinic. The vision of the unit is to provide consistent, dedicated and quality reproductive health services to all women in reproductive age including adolescents living in the Greater Accra Region in order to help reduce maternal mortality and morbidity by providing the following services: Family planning, cervical cancer screening using VIA and Pap smear, cryotherapy (treatment for pre-cancerous lesions), Breast cancer screening, STI management and counseling, vaccination against cervical cancer (cervarix vaccine) and training of service providers. The unit has staff strength of six (6) comprising of three principal nursing officers, two senior midwifery officers and one orderly.

3.3 Study Population

The target groups were female health workers in the facility, specifically clinical staff irrespective of duration of service in the hospital facility.

3.3.1 Inclusion criteria

All female health workers both permanent and casual within the reproductive age range 15-49 years and above the reproductive age were included in the study.

3.3.2 Exclusion criteria

All female health workers who were not staff of the facility either permanent or temporary. This included mainly

a) Students who were doing their clinical rotation in the facility b) students who were doing their national service in the facility c) Foreign students who were doing any form of attachment in the facility.

3.4 Sample size determination

The sample size for the study was determined by using Cochran (1977) sample size formulae. The formula is denoted by:

$$n=z^2pq/d^2$$

Where n=minimum sample size required for the study

Z= desired confidence level at 95% (standard value of 1.96)

P=estimated proportion with condition of interest

The screening practices among health workers in Kumasi in 2011 was 11.6 %(Adageba et al.).This was used in calculating the sample size)

q=1-p

d= precision (=5% which is expressed as 0.05)

$$\frac{(1.96)^2 \times (0.1160) \times (0.884)}{(0.05)^2} = 158$$

5% non-response rate was expected. Therefore, the adjusted sample size was 158 x5/100=7.9 Adding the 5% non-response rate i.e. (158+7.9=165.9). The sample size was increased to 166.

3.5 Sampling Method

The study participants were heterogeneous population. In order to obtain the sample size of 166, a proportional stratified random sampling technique was used using list of staff names of the professional groups for the study. In order to do this, the hospital has a record of clinical and non-clinical female healthcare staff. The total number of female staff in the facility was 609, constituting 52.1 percent of the entire staff population in the facility. The total number of female clinical staff was 515.This constituted 88 percent of entire female staff population in the facility. The distribution of female health workers and the number of participants selected from each professional group are as depicted on the table below.

Professional Groups	**Staff strength**	**Number of Participants for the study**
Nursing	417	134
Doctors	68	22
Pharmacy	11	4
Physician assistants	10	3
Physiotherapy staff	6	2
Laboratory staff	3	1
Total	**515**	166

The sample size of 166 was assigned to the six groups (6) professional groups. To get the representation of each professional group, first we divided the total number of female health workers to select respondents from by the minimum sample size required. This is illustrated by 515 divided by 166 which give 3.0. This means that for every three-female staff, we chose one person as a respondent for the study. The respondents in each professional group were chosen proportional to the number of individual groups forming that body. The nursing staff has the highest population followed by the medical doctors. Using the staff list for each professional group, in the case of the medical doctors and the nursing staff, using the list of each category under them, the first name on each list was chosen as a reference point or the first respondent. Subsequently, the respondent was chosen based on the professional group sampling interval.

In the event of first name on the list refusing to take part in the study, the second name on the list was chosen as reference point or first respondent and subsequently the remaining the respondents was selected on the basis of sampling interval.

3.6 Data collection and study instruments

A structured questionnaire with mostly closed ended questions was administered to participants. It was both self-administered as well as administered by a research assistant. Respondents were contacted for incomplete filling of questionnaire. The questionnaire was pretested using female health workers from Korle Bu Teaching Hospital Polyclinic department. Each objective had structured question under 3 separate section of the questionnaire.

3.7 Quality Assurance

The following measures were employed:

a) The research assistant engaged were trained for the study.

b) The collected data was checked at the point of collection for completeness and accuracy.

c) Any errors detected was discussed with the research assistant for instant correction and ensured that it was not repeated subsequently.

d) Mistakes or errors detected in questionnaire which cannot be rectified were excluded from the study.

e) Unannounced regular visits were carried out to the study site to ensure the right steps are have been followed.

g) Some of the study participants were from time to time approached to verify how the questionnaire was administered, was it really administered to them and whether they got ample time or understood the questions well before answering them.

3.8 Variables

Two variables were considered in the study: the outcome /dependent variable and the independent variable.

The Dependent/outcome variables

The Dependent/outcome variable for this study was cervical cancer screening.

The Independent variables

The following were considered in this study: Socio-demographic characteristics(age, marital status, educational level, duration of work ,religious affiliation,),risk factors (HIV Co-infection ,Coital habits/sexual promiscuity, Smoking ,COC(Long term use of greater than 5 years),male partner with multiple sexual partners), individual factors(Inadequate knowledge, low level or no cervical cancer screening practices) and Health facility factors(staff healthcare policy, Cost of service, sex of service provider),advocacy, adequate information or knowledge through the public health unit or clinical support services for staff and life style/behavior modification that minimize the exposure to risk factors.

3.9 Data processing and analysis

Administered questionnaires were retrieved, cleaned, coded and entered into Microsoft Excel. The data was then exported to STATA version 14 for analysis. Descriptive data analysis technique (frequency, mean and standard deviation) was used to describe knowledge of cervical cancer and screening practices among the female health workers in the Greater Accra Regional Hospital. The female health workers knowledge on cervical were assessed by scoring and classified as Poor, fair and good knowledge. In this case, eleven questions were asked on risk factors of cervical cancer, three questions on HPV infection, eight questions on presentation, and six questions on its prevention.

All the responses were scored and summed. Each was given a score of one for correct answers and zero for incorrect answers. The total number of questions was twenty eight. The score of each respondent was multiplied by factor ten in order to rate the score over 10.Using similar scoring system in a recent studies the cut-offs were defined based on previous knowledge studies using mean scores. Respondents were rated over ten; respondents who scored between 0 and 4 points were categorized as having poor knowledge, those who scored 5–7 points were grouped as having fair knowledge, and those who scored 8–10 points were classified as having good knowledge of cervical cancer (Idowu, Olowookere, Fagbemi & Ogunlaja, 2016). Cross- tabulation and regression analysis (binary regression analysis) was employed to assess the factors that influence screening practices among the health workers. Confidence level was set at 95%, and <0.05(at 5% level of significance) was considered as significant. The results were presented in tables, graphs and charts.

3.10 Ethical consideration

Approval was sought from the Ethics Review Committee of the Ghana Health Service in Accra. Additionally, a letter of introduction from School of Public Health was sent to the Greater Accra Regional Director of Health Services. Subsequently, approval letter from the regional directorate of health was sent to Ridge hospital to conduct the study in the facility. Respondents who agreed to participate signed or thumbprint a written consent form after detailed explanations.

Participation in this study was entirely voluntary. Participants had the option to discontinue their participation without any adverse consequences. Participants were assured of anonymity and confidentiality. Participants were assured of the fact that this work is purely for academic purposes and that no harm is intended.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results generated from the data collected from the respondents. The results consist of the socio-demographic characteristics of the respondents, knowledge on risk factors, presentation and prevention of cervical cancer, physician advocacy and factors that determine screening practices.

4.2 Socio-demographic characteristics of the respondents

Table 4.1 presents the socio-graphic characteristics of the respondents. The study recruited 166 female health workers at the Greater Accra Regional Hospital. Most of the respondents were aged between 25-29 years, and the mean age of 29.7 years (SD=±5.3). A high proportion of the respondents were Christians (88.6%) and mostly married (52.4%). More than half of the respondents had completed a three-year post Senior High School education (65.1%), and mostly practicing nurses (81.4%). Majority of the respondents had worked as health professional for less than 5 years, while 35.0% of them had practiced between 5-9 years.

Table 4.1: Socio-demographic characteristics

Characteristics	Frequency	Percent
Age	N=166	
20-24	23	13.9
25-29	68	41.0
30-34	51	30.7
35-39	13	7.8
≥40	11	6.6
Marital Status		
Single	75	45.2
Married	87	52.4
Divorced	3	1.8
Widowed	1	0.6
Level of Education		
University	58	34.9
Other Training	108	65.1
Profession		
Medical doctors	22	13.2
Nursing	135	81.4
Pharmacist/Dispensing technician	4	2.4
Laboratory technologist/technician	1	0.6
Physician assistant	2	1.2
Physiotherapist/Physiotherapy assistant	2	1.2
Duration of Work		
Less than 5years	93	56.0
5-9years	58	35.0
10-14years	8	4.8
15-19years	2	1.2
Greater than 24years	5	3.0
Religion		
Christianity	147	88.6
Islam	19	11.4

4.3 Knowledge on cervical cancer

The study enquired about respondents' knowledge about the risk factors, presentation and prevention of cervical cancer.

4.3.1 Knowledge on Risk Factors for Cervical Cancer

Table 4.2 gives a summary of respondents' knowledge on risk factors for cervical cancer. Most of the respondents correctly indicated early coitarche (74.7%), early childbirth (53.6%), multiple child births (64.5%), and drinking alcohol (51.8%) as risk factors for cervical cancer. Furthermore, a high proportion of the respondents were aware that being infected with HPV (88.0%), having multiple sexual partners (89.8%), having male partners with HPV infection (80.7%), HIV co-infection (74.7%) and family history of cervical cancer put one at risk of getting cervical cancer. However, most of the respondents were not aware that smoking (51.8%), and using combined oral contraceptives for more than 5 years (59.6%) could make one prone to cervical cancer. Majority of the respondents correctly indicated that HPV is strongly associated with more than 95% cervical cancer cases (81.3%) and that males could also be infected with HPV (68.1%), but more than half of them did not know males could be vaccinated against the HPV (52.4%).

Table 4.2: Knowledge on Risk Factors for Cervical cancer

Statements	Yes, n (%)	No, n (%)
Early Coitarche	124(74.7)	42(25.3)
Early Childbirth	89(53.6)	77(46.4)
Multiple Child birth (High Parity)	107(64.5)	59(35.5)
HPV Infection	146(88.0)	20(12.0)
Multiple Sexual Partners	149(89.8)	17(10.2)
Male Partners with HPV Infection	134(80.7)	32(19.3)
Smoking	80(48.2)	86(51.8)
COC use(>5years)	67(40.4)	99(59.6)
Drinking alcohol	86(51.8)	80(48.2)
HIV co-infection	124(74.7)	42(25.3)
Family history of cervical cancer	137(82.5)	29(17.5)
HPV strongly associated with cervical cancer (>95% of cases)	135(81.3)	31(18.7)
Males acquire HPV infection	113(68.1)	53(31.9)
Males can be vaccinated against HPV infection	79(47.6)	75(52.4)

4.3.2 Knowledge on presentation and prevention of cervical cancer

Table 4.3 presents respondents' knowledge on presentation and prevention of cervical cancer. Most of the respondents said cervical cancer presents with no symptoms (72.9%), but could presents with offensive vaginal discharge (91.0%) and urinary symptoms (66.3%). Furthermore, a high proportion of the respondents indicated that irregular bleeding (88.6%), bleeding after douching (81.3%), inter-menstrual bleeding (89.2%), post-coital bleeding (91.6%), and post-menopausal bleeding (84.9%) could be signs/symptoms of cervical cancer.

On the prevention of cervical cancer, majority of the respondents were aware that screening all sexually active women and those 30 years and above (91.0%), and vaccination in adults (60.8%) as well as vaccination of girls between 9-13years with 3 doses of HPV vaccine prior to sexual intercourse (56.6%) are beneficial in preventing cervical cancer. Also, about 75% of the respondents indicated that treating of precancerous lesion could prevent the development of cervical cancer. However, half of the respondents (50.0%) indicated access to cancer treatment and management of women of any age including surgery, chemotherapy and radiotherapy, as a tertiary preventive measure for cervical cancer.

Table 4.3: Knowledge on Presentation and Prevention of cervical cancer

Presentation of cervical cancer	**Yes, n (%)**	**No, n (%)**
Asymptomatic	121(72.9)	45(27.1)
Offensive vagina discharge	151(91.0)	15(9.0)
Irregular vaginal bleeding	147(88.6)	19(11.4)
Bleeding after douching	135(81.3)	31(18.7)
Inter-menstrual bleeding	148(89.2)	18 (10.8)
Post-coital bleeding	152(91.6)	14(8.4)
Post-menopausal bleeding	141(84.9)	25(15.1)
Urinary symptoms	110(66.3)	56(33.7)
Prevention of cervical cancer		
Vaccination of girls between 9-13years with 3 doses of HPV vaccine prior to initiation of sexual intercourse	94(56.6)	72(43.4)
Vaccination is also beneficial in adult	101(60.8)	65(39.2)
Screening all sexually active women and those 30years and above	151(91.0)	15(9.0)
Treatment of precancerous lesion which may develop into cervical cancer	124(74.7)	42(25.3)
Access to cancer treatment and management of women of any age including surgery, chemotherapy and radiotherapy	83(50.0)	83(50.0)

4.3.3 Overall scores on knowledge of risk factors, HPV infection, presentation and prevention of cervical cancer

Table 4.4 presents respondents' overall knowledge on cervical cancer. Most of the respondents demonstrated Good knowledge (56.6%).

Table 4.4: Respondents' overall knowledge on cervical cancer

Score category	Number of respondents	Percentage of respondents (%)	Knowledge level
0-4	19	11.4	Poor
5-7	53	32.0	Fair
8-10	94	56.6	Good

4.4 Physician advocacy on cervical cancer screening practices

Table 4.5 presents information on physician advocacy on cervical cancer screening practices. About 39 percent of the respondents had reported sick to a health facility in the past 3 years, and among them 73.9 percent had reported sick 1-3 times in that period. Most of them consulted a general practitioner (59.1%) and an Obstetrician/Gynaecologist (33.3%) upon their visit to the health facility. However, most of them (72.3%) were not informed about cervical cancer screening by their healthcare providers.

Among all the respondents, only 18.7 percent of them had screened for cervical cancer. Among those who had screened for cervical cancer, most of them had screened before being told by their healthcare providers. They cited being at risk (38.7%), wanting to know their status (35.5%) and healthcare provider recommendation (22.6%) as what prompted them to undergo the screening(Figure 2) Most of the respondents agreed (50.0%) and strongly agreed (49.4%) that health workers recommendations and reminder helped increase screening practices among female workers (see Table 4.5).

Table 4.5: Physician advocacy on cervical cancer screening practices

Statement	Frequency	Percent
Reported sick to a health facility in the past 3 years		
Yes	65	39.2
No	101	60.8
How many times for the past 3 years		
1-3	48	73.9
4-6	14	21.5
7-9	3	4.6
Healthcare provider visited		
Specialist Obstetrician/Gynaecologist	22	33.3
General practitioner	39	59.1
Physician assistant	1	1.5
Others	3	4.6
Healthcare provider tell you about cervical cancer screening		
Yes	18	27.7
No	47	72.3
Had cervical cancer screening		
Yes	31	18.7
No	135	81.3
When was screening done		
Before being told by healthcare provider	17	54.8
After being told by healthcare provider	14	45.2
Reason for screening for cervical cancer		
At risk	12	38.7
Healthcare provider recommendation	7	22.6
Want to know my status	11	35.5
Other	1	3.2
Colleague health workers recommendations and reminder help increase screening practices among female workers		
Disagree	1	0.6
Agree	83	50.0
Strongly agree	82	49.4

4.5 Socio-demographic factors associated with cervical cancer screening

A bivariate analysis was carried out to examine the relationships between the socio-demographic factors and cervical cancer screening. The results are shown in Table 4.6. The number of years respondents had worked was significantly associated with cervical cancer screening ($p<0.001$). There were significant differences between the number of respondents who had worked for less than 5 years (10.8%), 5-9 years (24.1%), 10-14 years

(25.0%), 15-19 years (100.0%) and more than 24 years (60.0%) who had screened for cervical cancer compared to those who have worked for less than 5 years (89.3%), 5-9 years (75.9%), 10-14 years (75.0%), 15-19 years (0.0%) and more than 24 years (40.0%) who had not screened for cervical cancer. There was however no relationship between the age, marital status, religion, level of education and profession of the respondents, and cervical cancer screening (see Table 4.6).

Table 4.6: Socio-demographic factors associated with cervical cancer screening

Factors	**Screened for cervical cancer, n (%)**		**Chi-square**
	Yes	**No**	***P*-values**
Age			
20-24	2(8.7)	21(91.3)	
25-29	9(13.2)	59(86.8)	
30-34	12(23.5)	39(76.5)	0.061
35-39	3(23.1)	10(76.9)	
>=40	5(45.5)	6(54.5)	
Marital Status			
Single	14(17.7)	65(82.3)	
Married	17(19.5)	70(80.5)	0.764
Level of Education			
University	14(24.1)	44(75.9)	
Other Training	17(15.7)	91(84.3)	0.186
Profession			
Medical doctors	3(13.6)	19(86.4)	
Nursing	28(20.7)	107(79.3)	
Pharmacist/Dispensing technician	0 (0.0)	4(100.0)	
Laboratory technologist/technician	0(0.0)	1(100.0)	0.729
Physician assistant	0(0.0)	2(100.0)	
Physiotherapist/Physiotherapy assistant	0(0.0)	2(100.0)	
Duration of Work			
Less than 5years	10(10.8)	83(89.3)	
5-9years	14(24.1)	44(75.9)	
10-14years	2(25.0)	6(75.0)	0.001*
15-19years	2(100.0)	0(0.0)	
Greater than 24years	3(60.0)	2(40.0)	
Religion			
Christianity	27(18.4)	120(81.6)	
Islam	4(21.0)	15(79.0)	0.777

*p<0.05

4.6 Other factors associated with the screening of cervical cancer

The study sought to examine other factors that are associated with cervical cancer screening. Table 4.7a presents the results. A bivariate analysis revealed that knowing about the availability of a screening procedure at the facility was associated with the screening for cervical cancer ($p<0.022$). A significant proportion of respondents who knew of any screening procedure done at the facility (22.8%) had screened for cervical cancer compared to those who did not know (7.0%). Perceived time consuming ($p<0.022$) and pelvic examination being embarrassing ($p<0.003$) associated with cervical cancer screening procedure were found to be related to cervical cancer screening among the respondents. There were significant number of respondents who indicated that cervical cancer screening procedure was not time consuming who had undergone screening (22.3%) compared to those said otherwise (5.6%). Likewise, a significant number of those who said pelvic examination was not embarrassing had screened for cervical cancer (27.7%) compared to those who said otherwise (9.6%) (see Table 4.7a).

Table 4.7a: Factors associated with the screening of cervical cancer

Factors	Screened for cervical cancer , n (%)		Chi-square
	Yes	**No**	***P*-values**
Know of any screening procedure done in the facility			
No	3(7.0)	40(93.0)	
Yes	28(22.8)	95(77.2)	0.022*
At risk of getting cervical cancer			
No	12(15.6)	65(84.4)	
Yes	19(21.3)	70(78.7)	0.342
All women should undergo cervical cancer screening			
No	1(8.3)	11(91.7)	
Yes	30(19.5)	124(80.5)	0.340
Barrier to cervical cancer screening			
Is expensive (cost)			
No	21(20.8)	80(79.2)	
Yes	10(15.4)	55(84.6)	0.383
Have negative side effects			
No	29(20.9)	110(79.1)	
Yes	2(7.4)	25(92.6)	0.101
Unpleasant and inconvenient			
No	9(21.4)	33(78.6)	
Yes	22(17.7)	102(82.3)	0.596
Time consuming			
No	29(22.3)	101(77.7)	
Yes	2(5.6)	34(94.4)	0.022*
Pelvic exams embarrassment			
No	23(27.7)	60(72.3)	
Yes	8(9.6)	75(90.4)	0.003*
Male service provider			
No	21(24.1)	66(75.9)	
Yes	10(12.7)	69(87.3)	0.058
Speculum exams is painful/unpleasant			
No	9(19.1)	38(80.9)	
Yes	22(18.5)	97(81.5)	0.922
Fear of results			
No	9(27.3)	24(72.7)	
Yes	22(16.5)	111(83.5)	0.157
Family member request or reminder of cervical cancer screening			
No	25(17.2)	120(82.8)	
Yes	6(28.6)	15(71.4)	0.213

*p<0.05

There was a relationship between recommendation from someone who has previously screened and cervical cancer screening (p<0.001). The majority of respondents (88.8%)

who had not received recommendation from someone who has previously screened had not screened for cervical cancer. Furthermore, there were significant differences between respondents who have screened for cervical cancer who reported no pain (16.0%) and pain (43.8%) on previous vaginal/speculum examination compared to those who have not screened for cervical cancer who reported no pain (84.0%) and pain (56.2%) on previous vaginal/speculum examination ($p<0.007$). Additionally, being on any health insurance had a relationship with cervical cancer screening ($p<0.031$). A significant proportion of respondents who were on a health insurance (23.6%) had screened for cervical cancer compared to those who were not on any health insurance (10.0%) (see Table 4.7b).

Table 4.7b: Other factors associated with the screening of cervical cancer

Factors	Screened for cervical cancer, n (%)		Chi-square
	Yes	No	*P*-value
Healthcare provider tell you about cervical cancer screening (n=65)			
No	12(25.5)	35(74.5)	
Yes	11(61.1)	7(38.9)	0.007*
Recommendation from someone who has previously screened			
No	12(11.2)	95(88.8)	
Yes	19(32.2)	40(67.8)	0.001*
Pain on previous vaginal/speculum examination			
No	24(16.0)	126(84.0)	
Yes	7(43.8)	9(56.2)	0.007*
Bleeding on previous vaginal/speculum examination			
No	27(17.7)	126(82.3)	
Yes	4(30.8)	9(69.2)	0.244
On any form of contraception			
No	19(15.4)	104(84.6)	
Yes	12(27.9)	31(72.1)	0.071
On any health insurance			
No	6(10.0)	54(90.0)	
Yes	25(23.6)	81(76.4)	0.031*
Insurance cover cervical cancer screening (n=106)			
No	8(32.0)	17(68.0)	
Yes	17(21.0)	64(79.0)	0.257
Received education on cervical cancer from the facility			
No	15(14.9)	86(85.1)	
Yes	16(24.6)	49(75.4)	0.115

*p<0.05

4.7 Logistic regression of factors associated with cervical cancer screening among respondents

A simple logistic regression analysis was performed to further investigate the strength of the associations at the bivariate analysis. The results are shown in table 4.8. Female health workers who had practiced for 5-9 years (OR=2.64; 95% CI=1.08-6.43) and more than 24 years (OR=12.45; 95% CI=1.85-83.71) were at increased odds of screening for cervical cancer than those who have worked for less than 5 years. When compared to female workers who did not know of any screening procedure done at the facility, there was a higher odd of cervical cancer screening among those who knew of a screening procedure done at the facility (OR=3.93; 95% CI=1.13-13.67). There were reduced odds of cervical cancer screening among female health workers who perceived cervical cancer screening procedure as time consuming (OR=0.20; 95% CI=0.05-0.90) and pelvis examination as embarrassing (OR=0.28; 95% CI=0.12-0.67) compared to those who indicated otherwise. Among female health workers who received recommendations from others who have previously screened (OR=3.76; 95% CI=1.67-8.47) and were informed about cervical cancer screening by healthcare providers (OR=4.58; 95% CI=1.45-14.51), there were respectively 3.76 and 4.58 higher odds of cervical cancer screening compared to those who did not received any recommendation from a previously screened person and were not informed by healthcare providers. Furthermore, the odd of cervical cancer screening was 4.08 times higher among female workers who reported of pain on previous vaginal/speculum examination compared to those who reported no pain (OR=4.08; 95% CI=1.39-12.02) (see Table 4.8).

In a multiple logistic regression adjusting for all significant factors, being informed about cervical cancer screening by healthcare providers (OR=35.94; 95% CI=2.10-606.79) was independently associated with cervical cancer screening (see Table 4.8).

Table 4.8: Logistic regression of factors associated with cervical cancer screening

Factors	Crude OR (95% CI)	*P*-value	Adjusted OR (95% CI)	*P*-value
Duration of Work				
Less than 5years	1		1	
5-9years	2.64(1.08-6.43)	0.032*	18.56(0.93-374.11)	0.056
10-14years	2.77(0.49-15.60)	0.249	0.54(0.02-14.08)	0.708
15-19years	-	-	-	-
Greater than 24years	12.45(1.85-83.71)	0.009*	-	-
Know of any screening procedure done in the facility	3.93(1.13-13.67)	0.031*	8.94(0.41-194.16)	0.163
Cervical cancer screening is time consuming	0.20(0.05-0.90)	0.036*	0.47(0.04-6.21)	0.564
Pelvic exams embarrassment	0.28(0.12-0.67)	0.004*	0.27(0.04-1.96)	0.195
Healthcare provider tell you about cervical cancer screening	4.58(1.45-14.51)	0.010*	35.94(2.10-606.79)	0.013
Recommendation from someone who has previously screened	3.76(1.67-8.47)	0.001*	1.90(0.33-10.82)	0.471
Pain on previous vaginal/speculum examination	4.08(1.39-12.02)	0.011*	15.94(0.96-263.60)	0.053
On any health insurance	2.78(1.07-7.22)	0.036*	0.78(0.06-10.57)	0.849

*p<0.05

CHAPTER FIVE

DISCUSSION

5.1 Introduction

Knowledge is very essential in making informed decision for service utilization. The latter is influenced by series of factors i.e. predisposing, enabling and need factors by people patronizing particular service (Azfredrick, 2016). Adequate and up to date cervical cancer knowledge by health workers will go a long way to help educate the general population. This should be coupled with uptake of screening services to achieve desired impact.

5.2 Overview of major findings

This study was designed to find out the knowledge and screening practices of cervical cancer among female health workers at Greater Accra Regional Hospital, Accra**.** Majority of the respondents had a good knowledge about cervical cancer (56.6%).

Physician advocacy on cervical cancer education by medical doctors, Obstetrician /Gynecologist, Physician Assistant and other health workers is very low. The screening uptake is below 20 percent by the respondents. Most of them who screened were not related to healthcare provider encounter. Almost the entire respondents agreed that colleague health worker recommendation or reminder will increase the screening practice and its uptake among them. Being at risk is the major reason the respondents screen for cervical cancer. Furthermore, there was association between screening for cervical cancer and the following: the duration of work, knowing that screening procedure is done in the facility, female health workers who received recommendations from others who have previously screened and being informed about cervical cancer screening by healthcare providers. Last but not the least, being informed about cervical cancer screening by healthcare providers was independently associated with cervical cancer screening(AOR;35.94, 95%CI; 2.10-606.79).

5.3 Consistency with other research

The findings compare favourably with three other research in SSA and in India**.** A recent study in 2015 among female health workers in hospitals in Hawassa city and Siadama of Southern Ethiopia showed a good knowledge of cervical cancer i.e. 89.6 percent and 87.5 percent knew about the risk factors and symptoms, respectively (Dulla, Daka & Wakgari ,2017). 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 percent of the respondents mentioned visual inspection with acetic acid as a screening method. Only 11.4 percent of the respondents have screened for cervical cancer.

Secondly, study in 2013 among female healthcare providers at Health Posts and Emergency Obstetric Care Centers in Chennai Corporation,India.100 percent of the female HCPs were aware of cervical cancer(Anantharaman, 2013).Overall,85 percent of the respondents had a good knowledge on cervical cancer risk factor and symptoms. About 92 percent of the healthcare providers believed that cervical cancer can be prevented.58.9 percent of the healthcare providers had adequate knowledge on cervical cancer screening. 95.3% were aware of the screening procedure done in their facility.42.1 percent of the female HCPs perceived themselves as not at risk. Only 18.7 percent of the respondents had done cervical cancer screening for themselves.

Thirdly, a study conducted in 2011 among female health workers at the Komfo Anokye Teaching Hospital (KATH), Suntreso and Manhyia District hospitals all in the Kumasi metropolis(Adageba, Danso, Ankobea, Zawumya, & Opoku, 2011) revealed these findings: good knowledge of the risk factors and symptoms of cervical cancer among participants.55 percent of the respondents said the cause of cervical cancer was related to sexual activity.55 percent and 58 percent also knew at least three of the risk factors and symptoms of cervical cancer. Majority of the participants, (77.0%) said cervical cancer was a preventable disease. Only 11.6% of respondents had ever been screened for cervical cancer.16.1% mentioned Pap smear and 4.4% mentioned VIA as screening methods for cervical cancer.

Last but not the least, a study among the medical workers of Mulago Hospital, Uganda (Mutyaba, Mmiro, & Weiderpass, 2006) showed the following:less than 40% knew the risk factors for cervical cancer and only 19% had screened for cervical cancer.

Among health workers who deliver healthcare, their knowledge in this area should be above the general population. This is because the health workers in one way or the other have either learnt about cervical during their formal education or their encounter with patients have made them acquired this knowledge. On the other hand, their high educational level may have necessitated making them responsible in seeking health information on cervical cancer through any form.

The screening of cervical cancer which was 18.7 percent among female health workers in the Greater Accra Regional Hospital is alarming. This is very low in view of good and fair knowledge which is 55.6 percent and 32.0 percent respectively demonstrated by the respondents. This is very serious since cervical cancer is the commonest female gynecological cancer in Ghana**.** The various screening types i.e. Pap smear with cytology and VIA or VIL are readily available and accessible to female health worker in the facility and the country.

The screening practice in the study also compare to these studies: Port Harcourt study on female health care providers which showed only 12.8 percent (Adda, Ojule & Feibai,

2012) whiles a similar study among female health workers in Sokoto Northwestern Nigeria showed only 4.4%(Nwobodo & Malami ,2005). Another study by Dim, Ekwe, Madubuko, Dim &Ezegwui (2008) reported that only 17.75 percent female medical practitioners have undergone cervical cancer screening. The female health workers in all these studies don't get any positive cue as a reason to screen for cervical cancer. As a result, most of them have not attached urgency and importance to benefit from a service provided in their respective facilities.

Physician advocacy on cervical cancer screening from the study was very low and not encouraging. From the study, about 28 percent of the respondents who reported sick in the past three years and attended to by healthcare provider were told about cervical cancer and its screening. This is extremely low. This may emanate from the fact that the healthcare providers have not made cervical cancer screening advocacy as part of their routine care even to their colleague female health workers. The workload and the hospital environment settings may make it difficult to talk about cervical cancer especially if the female worker complaint or presentation does not pertain to that. This trend is worrying as strategy for cervical cancer prevention and control include advocacy and communication efforts. This is to be carried out by health care providers including physicians, nurses, midwives and school health workers. (Comprehensive Cervical Cancer Prevention and Control Programme, Guidance for Countries, February, 2011). Moreover, the hospital is a secondary health facility with well-established reproductive healthcare center. In early 2000, Ghana started prevention programme in cervical cancer using a single-visit approach with visual inspection with acetic acid (VIA) with cryotherapy for pre-cancerous lesions. The services were provided by nurses. The service became integral part of reproductive health services. Among the facility is Greater Accra Regional hospital(Sanghvi et al., 2008).However, the national cancer control programme in Ghana strategy more or less emphasis cervical cancer education as preserve of the reproductive healthcare unit(National Strategy for Cancer Control in Ghana, 2012 – 2016).

The study also revealed that health worker recommendations accounted for 22.6 percent of those who have screened .This is very significant and consistent with the health belief model on the fact of influence of cues for action in cervical cancer screening uptake (Tavafian, 2010). Research also shows that health care provider recommendation is a strong predictor of cervical cancer screening for the general population. Thus, it is reinforcing the fact that if healthcare workers don’t recommend test to colleague’s female and general population, the uptake will be very low. Furthermore, reminder by health workers to screen will increase screening practices among the workers. The finding from the study also of being at risk being a reason for screening which is consistent with literature. Perceived risk for screening for cervical cancer is simultaneous with what other studies have come up with. From the health belief model, screening practices are influenced by individual perception of their own susceptibility to the disease. “Perceived risk” has been documented as a key determinant of health behaviour of people. In fact, another recent study have found a positive association between risk perception and uptake of screening for certain cancers(Iowa, Olowookere, Fagbemi, & Ogunlaja, 2016). This include cervical cancer. Majority of the respondents in the study in GARH knew about screening procedure done in the facility (74%).

The study also showed that even though 74.10 percent indicated that they at risk of getting cervical cancer, only 18.7% have screened for cervical cancer. Thus, perceived risk alone does not translate into going for screening. This is contradictory particularly among health workers. This may be due to complacency and general poor health seeking behavior among the health workers.

Barriers to cervical cancer screening affects its uptake. It is not unique to only health workers but similarities with the general population. When asked about cost as a barrier, 39% indicated as a barrier. Cost was not statistically significantly associated with screening as barrier. Most probably, the socioeconomic status of the respondent is contributing factor to this. For those who cited cost as a barrier, the implications of not screening far outweigh the amount to be spent. It was clear from the study that time consuming and pelvic exams embarrassment poses a great barrier to screening uptake by the respondents. The latter is debatable, because it is expected that as staff of facility they can have their screening done without wasting time since they will be given preferential treatment. On the other hand, is possible that attitudes of staff toward each other is not healthy, thus preference will not be given to staff when they need such services. Pelvic exams embarrassment is possible as some female staff may not feel comfortable for OBS/GYNAE doctors who are mainly male to render such service to them. However, male service provider of such service was not statistically significantly associated with screening uptake (P>0.05). These two findings are contradictory. Currently, most of the service providers for these screening services are females. At the inception of this service in 2001, female nurses were trained and provide this service mainly. Invariable, this is partly consistent with HBM on cervical cancer screening service.

5.4 Strengths and limitation of the study

The findings from this study has provided latest information on knowledge and screening practices of cervical cancer among female health workers in Greater Accra Regional Hospital. Additionally, the findings will provide useful information on female health workers attitude to their own health. This will inform policy change at both national and institutional level in order increase the overall success of cervical cancer programme which is a global health issue. The study has some limitations. First, since this was a cross-sectional study design, cause and effect relationship could not be assessed. In view of this, the barriers to cervical cancer screening could not be explored in detail. Secondly, advocacy was limited to only staff who reported sick and were attended to in the facility i.e. patient physician interaction during consultation. This provided a narrow view on physician advocacy which makes use it very limited.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

The study was set out to assess the following: the level of knowledge of cervical cancer and the influence of physician advocacy on the uptake of cervical cancer screening among female health workers at GARH.Additionally, it was to determine the factors that affect the practices of cervical cancer screening among the female health workers. It was clear that majority of the female clinical health workers had good knowledge, however screening uptake was low.

Significant association with screening practices was however evident with these factors: duration of work(COR; 12.45,95%CI;85-83.71), time consuming (OR;0.47,95%CI;0.04-6.21), pelvicexams embarrassment(OR;0.27,95% CI;0.04-1.96),being informed by someone who have screen(OR;1.90, 95% CI;0.33-10.82), knowing of screening procedure done in the facility(OR; 8.9, 95% CI;40.41-194.16),having experienced pain on previous vagina or speculum exams(OR;15.94 ,95% CI; 0.96-263.60) and being on form of health insurance(OR;0.78, 95% CI;0.06-10.57).These can be analyzed critically to increase uptake.

6.2 Recommendation

There should be stakeholder's meetings involving the hospital management team, heads of the various departments to collaborate how to roll out sustainable screening services for staff already working in the facility and new employers that will be employed subsequently. This will involve areas of financing even though cost did not come up as a major issue.

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APPENDICES

Appendix A: Informed Consent Form

Project Title: Knowledge and Screening practices of cervical cancer among female health workers Greater Accra Regional Hospital, Accra.

Principal Investigator:

Kojo Pieterson, Department of Population, Family and Reproductive Health, School of Public Health, College of Health Sciences, University of Ghana, P. O. Box LG 73, Legon

Contact: Mobile 0241437771; Email kojo.pieterson@yahoo.com

General information about the study

This is a research study being undertaken as a requirement in the University of Ghana, School of Public Health, in pursuance of masters of Public Health. This study will help verify health seeking behavior in relation to cervical cancer in the Greater Accra Regional Hospital. More importantly, the factors that affect screening practices among them will be very essential to find out. Equally, the uniqueness of the screening practices among them will reflect the general population attitude and how it compares as well as its impact on National cervical cancer screening programme.

Procedures

Female health workers both clinical and non-clinical staff, will be used in this study. If you are eligible and agree to participate, you will be required to complete structured questionnaire. We will ask you questions about your background, cervical cancer knowledge, socioeconomic factors and screening practices.

Possible Risks and Discomforts

The study will not involve any risk. Anticipated is some discomfort during the process answering sensitive and intimate questions due to the nature of the topic. Some of the questions focus directly on your personal income and experience with vaginal examination. You may feel some discomfort answering those questions. You are free to ignore any questions you are not comfortable with.

Possible Benefits

There is some indirect benefit to the participants of this study. The findings of this study will go a long way to institute cervical cancer services into female staff healthcare policy in the facility. If possible, this can be replicated in other facility. Additionally, it can form the basis for modification in National cervical cancer screening programme. Especially, the physician advocacy components depending on the outcome can be exploited as a positive cue to increase cervical cancer screening uptake among the healthworkers and Ghana as a whole.

Voluntary Participation and Right to Refuse

Your participation in this study is voluntary. During the filling of the questionnaire, you can choose to ignore any questions that you are uncomfortable with and also at liberty to withdraw from the study at any time. However, we will encourage you to participate and complete the questions since your opinions are very important to us.

Confidentiality

Though we would be glad if you take part in the study, neither you nor the study will be affected or suffer if you decide not to take part in the study. All the information will be kept confidential and the data will be stored in a locked cabinet. Access will be limited to only the researcher and research supervisor. Your name, identity are not needed for the study. However, the information you would be treated strictly confidential. We assure you that your name shall not appear or be mentioned in any report that might come out from this study.

Contact for Additional Information

If you have questions later, you may contact: Kojo Pieterson

Department of Population, Family and Reproductive Health, University of Ghana School of Public Health

College of Health Sciences

P. O. Box LG 73, Legon

Mobile 0244830005

Email kojo.pieterson@yahoo.com

Your rights as a Participant

If you have any questions about your rights as a research participant, you can contact the Administrator of the GHS Ethical Review Committee at the following address:

Hannah Frimpong

GHS-Ethical Review Committee

Research and Development Division

Ghana Health Service

P. O. Box MB 190

Accra

Office: 0302 681 109

Mobile: 024 451 6482 Email: Hannah.Frimpong@ghsmail.org

Participant voluntary consent

I ___________________________________, declare that the above document describing the purpose, procedures as well as risks and benefits of the research titled Knowledge and Screening Practices of Cervical Cancer among Female Health Workers at Greater Accra Regional Hospital, Accra has been thoroughly explained to me in English language. I have been given the opportunity to ask any questions about the research and answered to my satisfaction. I hereby voluntarily agree to participate as a subject in this study.

____ ______/_____/_________

Signature of Participant …………………… Date…………………………….

Interviewer's statement

I, ____, certify that the nature and purpose, the potential benefits and possible risks associated with participating in the study have been explained to the above individual in the English language. The participant has freely agreed to participate in the study.

__________________________________ _______/_____/__________

Signature of person who obtained consent Date

University of Ghana
School of Public Health

Appendix B: Questionnaire

Project Title: Knowledge and Screening practices of cervical cancer among female health workers Greater Accra Regional Hospital, Accra.

Participant instructions

Do not write your name, tick one response and more than responses where applicable

Date of Interview (dd /mm/yy) ___/___/___/ Study Locations:

Name of interviewer …… ….. Supervisor: ....

Unique ID…………………

PART A: SOCIODEMOGRAPHIC CHARACTERISTICS

1) Age (As at last birthday**)** …………………

2) Marital Status: a) Married [ ] b) Divorced [ ] c) Single [ ] d) Widowed[ ] e)others, please specify…………………..

3**)** Level of Education a) University [ ] b) Nurse's Training College /Midwifery [ ] c) Health Assistant Training school [ ] d) Community Health Training School [ ]

e) Pharmacy Training Institution [ ] f) Allied Health Training Institution [ ] f) Basic Education[] g)Secondary Education[]h Others please, specify……………………………

4) What is your Profession? a) Medical Doctor [ ] b) Nurse [ ] c) Pharmacist/Dispensing technician[]d)Laboratorytechnologist/technician[]e)Physicianassistant f)Physiotherapist/Physiotherapy staff g)Others, specify………………………………

5) How long have you been working? a) <5yrs [ ] b) 5-9yrs [ ] c) 10-14yrs [ ] d) 15-19yrs [ ] e) 20-24 [ ] f)>24 [ ]

6) Religious affiliation? a) Christianity [ ] b) Islam [ ] c) Traditional [ ] d) Others, specify…………………

PART B: KNOWELDGE ON RISK FACTORS FOR CERVICAL CANCER

7) Which of the following are the risk factors for cervical cancer**?**

a) Early coitarchy Yes [ ] No [ ] b) Early child birth Yes [ ] No [ ] c) Multiple childbirth (high parity) Yes [ ] No [ ] d) HPV Infection Yes [ ] No [ ]

e) Multiple sexual partners Yes [ ] No [ ] f) Male partner with HPV infection Yes [ ] No [ ] g) Smoking Yes [ ] No [ ] h) COC use (>5years) Yes [ ] No [ ] i) Drinking alcohol Yes [ ] No [ ] j) HIV infection coinfection YES [ ] NO [ ] k) Family history of cervical cancer Yes [ ] No [ ]

8) HPV Infection is strongly associated with cervical cancer than any other factors (>95% of the cases) Yes [ ] No [ ] Don't know [ ]

9) Can males also acquire HPV infection? Yes [ ] No [ ] Don't know[ ]

10) Can males be vaccinated against HPV infection? Yes [ ] No [ ] Don't know [ ]

PART C: KNOWELDE ON PRESENTATION OF CERVICAL CANCER

11) Which of the following are the ways cervical cancer patients presents?

a) Asymptomatic Yes [ ] No [ ] b) Offensive vaginal bleeding Yes [ ] No [ ]

c) Irregular bleeding Yes [ ] No [ ] d) Bleeding after douching Yes [ ] No [ ]

e) Intermenstrual bleeding Yes [ ] No [ ] f) Postcoital bleeding Yes [ ] No [ ]

g) Postmenopausal bleeding Yes [ ] No [ ] h) Urinary symptoms Yes [ ] No [ ]

PART D: KNOWELDGE ON PREVENTION

12) How can cervical cancer be prevented?

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

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

c) Recently, vaccination is also beneficial in adult [ ]

d) Screening, all sexually active women and those 30years and above [ ]

e) Treatment of precancerous lesion which may develop into cervical cancer [

f) Access to cancer treatment and management of women of any age including surgery, chemotherapy and radiotherapy [ ]

PART E: PHYSICIAN ADVOCACY ON CERVICAL CANCER SCREENING PRACTICES

13) Have you reported sick in your facility or any other facility for the past three years? Yes [ ] No [ ]

14) If Yes, How many times for the past 3 years? 1-3x [ ] 4-6x [ ] 7-9[ ] >10x [ ]

15) Which healthcare providers attended to you?

a) Specialist OBGYN [ ] b) General Practioneer [ ] c) Physician assistant [ ] d) Others, specify……………………………………………………………

16) Did the healthcare provider who attended to you tell you about cervical cancer screening? Yes [ ] No [ ]

17) Have you done any cervical cancer screening procedure? Yes [ ] No [ ]

18) When was the screening done?

Before being told by healthcare provider [ ] after being told by healthcare Provider [ ] Not done it yet [ ]

19) What is the reason for doing cervical cancer screening test? (Only applicable to those who have screened) -At risk [ ] Healthcare provider recommendation [ ] Part of facility routine staff screening test [ ] want to know it [ ] Facility render service free or subsidized [ ] others-specify……………………………………

20) Do you think colleague health worker recommendations for cervical cancer screening and reminder will increase screening practices among people working in health facilities? Strongly agree [ ] Agree [ ] Disagree [ ] strongly disagree [ ]

PART F: FACTORS DETERMINING SCREENING PRACTICES

21) Do you know of any screening procedure done in your facility? Ye s [ ] No [ ]

Don't know [ ]

ii) If yes, specify the type……………………………………

22) Do you think you are at risk of getting cervical cancer? Yes [ ] No [ ]

Don't know [ ] Not sure [ ]

23) Do you think that you should undergo screening for cervical cancer

Yes [ ] No [ ] Don't know [ ] Not sure [ ] I have already screened [ ]

24) Do you think all women should undergo screening for cervical cancer?

Yes [ ] No [ ]

25) What are the barriers for cervical cancer screening? Cost (Is expensive) Yes [ ] No [ ] Have negative side effects Yes [ ] No [ ]Unpleasant /inconvenient Yes [ ] No [ ] Time consuming Yes [ ] No [ ] Pelvic exams embarrassment Yes [ ] No [ ] male service provider Yes [ ] No [ ] Speculum exams is painful/unpleasant Yes [ ] No [ ] Fear of result Yes [ ] No [ ]

26) Have any family member reminded or ask you to do cervical cancer screening before?

Yes [ ] No [ ]

If Yes, Specify……………………………………………………………………………

27) Has anyone talked to you about cervical cancer screening before who have also undergone the screening procedure? Yes [ ] No [ ]

If Yes, specify………………………………………………………………………………

28) Have you experienced any of the following in previous vaginal examination before? Pain Yes [ ] No [ ] Bleeding Yes [ ] No [ ]

29) Are you on any form of contraception? Yes [ ] No [ ]

30) Are you on any form of health insurance? Yes [ ] No [ ]

If Yes, specify type……………………………..

31) Does your insurance cover for cervical cancer screening?

Fully cover [ ] Part of cost [ ] Husband's work place health benefits cover cervical cancer screening [ ]

32) Have you had education on cervical cancer in your facility Yes [ ] No [ ]

Appendix C: Ethical Approval Letter

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted.

My Ref. GHS/RDD/ERC/Admin/App/17/326
Your Ref. No.

Your Health - Our Concern

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Tel: +233-302-681109
Fax + 233-302-685424
Email: ghserc@gmail.com

Kojo Peterson
School of Public Health
University of the Ghana
Legon
C/0 Dept. of Obstertrics/Gynaecology
P. O. Box 72, Korle Bu Teaching

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	**GHS-ERC: 40/12/2016**
Project Title	"Knowledge and Screening Practices of Cervical Cancer among Female Health Workers at Greater Accra Regional Hospital"
Approval Date	14th March, 2017
Expiry Date	13th March, 2018
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report **after completion** of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED...
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra