SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA

KNOWLEDGE AND SCREENING PRACTICES ON CERVICAL CANCER AMONG HEALTH WORKERS IN ASIKUMA ODOBEN BRAKWA DISTRICT

BY

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JULY, 2019
DECLARATION

I, Juliet Nyamekye, declare that this work was independently done by me under the supervision of Prof Alfred E. Yawson and that references made to works done in relation to this subject area have been duly acknowledged, I further declare that this work has not been submitted for the award of any degree in this university or elsewhere either in part or as a whole.

.................................................. ..................................................
JULIET NYAMEKYE DATE

(STUDENT)

17th October 2019

PROF ALFRED E. YAWSON DATE

(SUPERVISOR)
DEDICATION

I dedicate this work to God almighty, my wonderful parents Mr. Ebenezer Nyamekye and Miss Josephine Aba Fosu as well as my ever supportive siblings who have always stood by me through thick and thin. I could not have come this far without your words of encouragement and massive support.
ACKNOWLEDGEMENT

I wish to thank the almighty God for the opportunity to attain this milestone. I also wish to thank my family for all the love and support during this hectic period. To my supervisor Prof Alfred Yawson, thank you for your guidance and support for making this work possible. To Madam Paulina Essuman, Mad Mavis Aidoo, Mr Stanley Ametewee, Mr Emmanuel Harriage Arthur, you are amazing. A big thanks also goes to Prince Kwesi Boah for all your help. My greatest gratitude also goes to all the participants who made this work possible. Finally to all Young People’s Guild (Ascension Congregation) executives especially Grace Kumi, thank you for the immense support. God richly bless each and every one.
ABSTRACT

Background: Although cervical cancer is preventable, thousands of women continue to be infected and thousands still die from the disease every year. Cervical cancer prevention can be achieved through comprehensive programs involving education or awareness creation, vaccination, screening and early treatment of pre-cancerous lesions. Health workers have a vital role to play in achieving this, hence they must be adequately equipped with the requisite knowledge on the condition since they are a source of information to their clients and the whole community. The main objective of this study was to determine the knowledge and screening practices on cervical cancer among health workers in the Asikuma Odoben Brakwa district of the central region. The study further assessed factors influencing their decisions to screen.

Methods: This was a cross sectional study. The study employed a stratified sampling technique in selecting the health facilities and simple random sampling to select 164 female health workers for the study. Data was collected from the participants with structured questionnaires and analyzed using STATA version 15. Descriptive data analysis technique, bivariate and logistic regression were used to assess the knowledge and screening practices and factors influencing screening among female health workers.

Results: In all, 97% of the respondents had heard of cervical cancer. Most of them had average knowledge on its risk factors and symptoms. Despite this knowledge, screening practice among these health workers was low. Only 16% of the respondents had screened for cervical cancer. Majority of them were however willing to recommend screening to others. Cost of screening was significantly associated with screening.
**Conclusion:** The study found average knowledge on cervical cancer among participants but with low knowledge on screening methods and an even lower screening practice. There is the need to increase awareness on the screening and institute measures to increase screening uptake.
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<table>
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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
</tr>
<tr>
<td>AOB</td>
<td>Asikuma Odoben Brakwa</td>
</tr>
<tr>
<td>CDC</td>
<td>Center for Disease Control and Prevention</td>
</tr>
<tr>
<td>DHMT</td>
<td>District Health Management Team</td>
</tr>
<tr>
<td>GHS</td>
<td>Ghana Health Service</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>HPV</td>
<td>Human Papilloma Virus</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IUD</td>
<td>Intrauterine Device</td>
</tr>
<tr>
<td>PAHO</td>
<td>Pan American Health Organisation</td>
</tr>
<tr>
<td>PPMED</td>
<td>Policy, Planning, Monitoring and Evaluation Division</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>VIA</td>
<td>Visual Inspection with Acetic acid</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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CHAPTER ONE

INTRODUCTION

1.0 Background

Several trillions of living cells make up a human body. These cells expand, increase and expire in a controlled manner in a normal healthy body. In an individual’s initial years of life, the cells increase rapidly to enable the body grow. Later in life, these cells only divide to succeed cells that are destroyed or dying (Mayo Clinic, 2015).

The reproductive well-being of women is not only a personal priority to women; it must be a concern for families as a whole. Since women play very important roles, they need to be healthy to be at their best performance. Women’s health must thus be approached from an angle that embraces all biological, psychological and social buildup of women (Pinn, 2008).

The cervix which is part of the female reproductive system, is also known as the neck of the uterus, and connects the uterus to the vagina. It has an outer and inner surface, the outer surface opens into the vagina whiles the inner surface unrolls into the uterus.

Cancer of the cervix is caused by persistent high risk Human papilloma virus (HPV) infection. It begins in the cells that lines the cervix at the lower portion of the uterus, which links to the vagina (Mayo Clinic, 2015). These cells do not immediately develop into cancer, they progress slowly into pre-cancerous cells in the transformation zone. These pre-cancerous cells may develop into cancer in some women while in others, the pre-cancerous cells will resolve without any treatment (American Cancer Society, 2015).
Worldwide, it is the second deadliest cancer, leading to over 273,000 mortalities annually. It causes 2.1% of all mortalities and 9% of female cancer related deaths (Soerjomatara et al, 2012). Cervical cancer has become the commonest cause of cancer deaths among women across the world and has become a burden to many women. The rate of cervical cancer incidence is a source of concern to many developing and least developed countries, where the burden of cervical cancer is quite high (Ntekim, 2012). This is possible because in the developed countries, screening facilities are widely available and so many women are able to screen for the possibility of cancer and also have regular checkups; as such there is a wide variance between the mortality rates measured in the developed and developing nations. In Ghana, as in many developing countries, cervical cancer is the common cause of cancer related deaths among women. The screening is often done in some major teaching and regional hospitals in Ghana as well as some private health institutions.

A study found the Human Papilloma Virus (HPV) prevalence rate among a sample of women attending a gynecology clinic in Accra to be 10.7% (Edwin, 2010). The World Health Organization estimates that, worldwide, over 11 million people are diagnosed with cancer every year. Cancer accounts for 7 million deaths annually or 12.5% of the 58 million deaths worldwide – a figure more than the deaths caused by HIV/AIDS, TB and malaria combined. It is also predicted that by the year 2020, there will be 15 million cases of cancer every year, of which approximately 70% will likely occur in developing countries (WHO, 2013).

Health workers are a good source of health-related knowledge. Their knowledge and practices of healthful events and activities influence the larger communities within which they reside and practice their profession. Any research targeted at assessing and improving health workers’ knowledge on an important non-communicable condition such as cervical cancer will have an
added benefit of seeking to improve the knowledge of patients and community members. Both governmental and non-governmental organizations can adopt the research findings in planning appropriate interventions and strategies concerning cervical cancer screening. It again provides information to stakeholders for effective educational programs. This can inform policy formulation and improve knowledge and practice among educationists and health practitioners and ultimately reduce the incidence of cervical cancer among women in Ghana.

The Asikuma Odoben Brakwa (AOB) district is one of the rural districts in Ghana and increasing occurrence of gynecological cases prompted Management of Our Lady of Grace Hospital in Breman Asikuma to establish Gynecological Clinic with resident Gynecologist for early detection of gynecological cancers such as Cervical Cancer. The aim of this research was to examine the knowledge and screening practices of health workers in the Asikuma Odoben Brakwa district on cervical cancer, and their experiences regarding screening. It was also to explore factors that influence cervical cancer screening among health workers in AOB district as well as the significance of the relationship of the variables.

1.1 Problem Statement

Globally, cervical cancer ranks as the fourth cause of cancers in women and the second in women between 15 to 44 years old (Bruni, Barrionuevo-Rosas, Albero et al, 2015). Despite the fact that it is preventable through vaccination and screening for the detection and treatment of pre-cancerous lesions, over 250,000 women continue to die annually from the condition worldwide. The World Health Organization (WHO) approximates that every year, more than 520,000 diagnosis of cervical cancer is made with over 260,000 associated deaths (Bruni et al,
2015). Most of these mortalities are from developing countries, where detection and treatment of pre-cancerous lesions are either unavailable or of limited access.

In Africa, cancer of the cervix is the commonest cancer in women causing 22% of all female cancers and also accounting for 12% of newly diagnosed cancer. The World Health Organization (WHO) has stated that an estimated 68,000 cases of cervical cancer are caused by HPV each year. Out of every 100,000 African women, 34 are diagnosed with the disease and 23 deaths out of these 100,000 women occur (WHO, 2017).

Cervical cancer currently stands as the leading cancer among Ghanaian women. There was an estimated 3052 new diagnosis of cervical cancer and 1556 deaths in 2012 in Ghana. It was approximated that 6.67 million women over age 15 were at risk of developing cervical cancer in Ghana (Soerjomatara et al, 2012).

The international agency for cancer research deduced that lack of information and knowledge on the disease contribute to the high mortality rate. Improvement in patient outcome in low to middle income countries can be achieved through awareness creation to reduce risk and promote early diagnosis. (Nartey, Hill, Amo-Antwi, Nyarko, Yamey & Cox, 2016).

A research by Ali et al in 2010, revealed that a greater number of health professionals do not have adequate knowledge regarding cervical cancer. Again, a study of the knowledge and practices of female health professionals concerning screening for cervical cancer conducted in Sokoto, a state in northern Nigeria, showed that despite the fact that respondents were knowledgeable and aware of the procedures for screening, they did not access screening services because of the belief that they were not at risk of getting the disease (Oche, Kaoje, Gana, & Ango, 2013).
Health workers are mostly considered as role models by many people in the community in which they live, hence are expected to exhibit good behaviors worth emulating in all aspects of life especially concerning health such as cervical cancer screening. However, researches have shown otherwise. Cervical cancer screening in AOB started in April 2018 but currently, only 1.3% of the women screened are health workers (Cervical Cancer Screening Unit Annual report, 2018).

1.2 Objectives

1.2.1 General Objective

The main aim of this research was to examine health workers’ knowledge on cervical cancer, screening practices and factors influencing screening among health workers.

1.2.2 Specific Objectives

The study was guided by the following specific objectives;

i. To assess the knowledge of health workers on cervical cancer.

ii. To examine the perceptions of health workers on cervical cancer.

iii. To assess the screening practices and testing experiences of health professionals in cervical cancer.

iv. To examine the factors that affect cervical cancer screening among health workers in AOB district.

1.3 Research Questions

The aim of the research was achieved by answering the following questions;

i. What is the knowledge of health workers in Asikuma Odoben Brakwa district on cancer of the cervix?

ii. How do the health workers’ perceive cervical cancer?
iii. What are the screening practices and testing experiences of health workers in AOB?

iv. What are the factors that influence cervical cancer screening?

1.4 Justification of the Study

The justification for this study emanates from major health concern for women across the world. Studies show that women in developing and under-developed economies are more prone to cervical cancer than those in developed countries. Cervical carcinoma is of major concern to both developed and developing countries but with a higher incidence in developing countries (Arbyn et al, 2011). It has become a major health concern for women all over the world with implications on governments, families and individuals. Further research shows that the incidence and deaths associated with cervical cancer continues to increase in developing countries, as opposed to the decrease identified in developed countries (Murthy, Li, Azzam, Narasimhadevara, & Yezzo, 2010). In spite of the statistics indicating high prevalence, not much measures and programs to promote cervical cancer prevention are in place in Ghana.

Health workers have a vital responsibility in efforts to prevent cervical cancer, hence it is important that their understanding of the problem be assessed as a first step in addressing the issue. Again, assessing and improving the knowledge base of health workers on this condition is expected to have an added advantage of seeking to improve the knowledge of patients and community members through health workers.

Furthermore, the findings of this research can serve as basis for further research, policy formulation, health educational programs and decision making purposes. It also serves as a basis for further research on improving the patronage of cervical cancer screening services in AOB district, Ghana and Africa. It is therefore necessary to evaluate the level of knowledge and
practices among health workers in Asikuma Odoben Brakwa district in the Central Region of Ghana on cervical cancer as a first step towards increasing screening uptake.

1.5 Conceptual Framework

This framework tries to explain the determinants of cervical cancer screening and suggests some possible interventions to increase screening and reduce the number of preventable deaths related to cervical cancer.

There are certain determinants of screening for cervical cancer among women. These determinants include socioeconomic factors such as educational status, occupation and level of income of the woman or family, knowledge of the condition itself determines if a woman will screen or not. Also, the availability and accessibility of these services, and fear of finding out about positive status also negatively affects screening. A person’s beliefs and perceptions about a condition also influences her decision of screening or not. Whether or not a woman has screened before (screening practices) and her previous experience is also believed to affect her decision to screen. Some interventions can however be put in place to change people’s attitude and prevent the cancer. For instance stake holder involvement, training of health workers to render these services and additional screening centres set up to increase accessibility. In addition, the public must be made aware of this condition through increased public education. When these interventions are put in place, it will lead to a positive attitude and increase uptake in screening. The interventions will also help prevent cervical cancer and reduce its incidence.
Figure 1.1 Conceptual Framework

Determinants of cervical screening
- Socioeconomic factors
- Knowledge
- Availability of screening service
- Accessibility
- Fear of positive results
- Perception and beliefs

Factors
- Previous testing experience
- Screening practice

Outcome
Cervical cancer screening
CHAPTER TWO

LITERATURE REVIEW

2.0 Understanding of Cervical Cancer

Cervical cancer has currently become the commonest cause of cancer related mortality in women all over the world and a burden to many. The rate of cervical cancer incidence is a source of worry to many developing and under developed countries, compared to developed countries where the incidence and burden of the disease is quite low (Ntekim, 2012).

Cervical cancer is an invasive disease of the cervix in women. It often presents in their fifth or sixth decade of life, at about the age of 54. But there can be a pre-cancerous stage in younger women below 40 years (Owoeye & Ibrahim, 2013). It is named after the part of the body where it actually starts from. Cervical cancer, like other cancers, is a disease that occurs when the body’s cells grow uncontrollably. It specifically develops from a ring of mucosa in the cervix called the transformation zone, commonly due to persistent Human Papilloma Virus (HPV) infections of women mostly in their first ten years of sexual activity (most frequently, HPV types 16 and 18 are associated with the premalignant and malignant stages of cervical cancer (WHO, 2013).

In the initial stages, cervical cancer usually shows no symptoms. The only way to detect these premalignant cells, which are potentially cancerous is to conduct a test for cervical cancer. Symptoms when present, usually include:

i. Post-menopausal vaginal bleeding or bleeding between periods
ii. Post coital bleeding or bleeding after sexual intercourse
iii. Pain during sexual intercourse
iv. Unpleasant vaginal discharge
v. Abnormal menstrual bleeding.

Figure 2.1 Process Flow Diagram of HPV infection in cervical cancer development.

Figure 2.1 shows the progression of the disease from the state of a normal cervix to a cancerous cervix. A normal or healthy cervix gets infected with the high risk type of HPV mostly type 16 and 18. The virus is cleared in some cases when the individual is healthy and there is no compromise in her health. If this happens, the cervix returns to its previously healthy state. However, if the virus is not cleared, it results in the persistent infection of that high risk HPV. This continuous high-risk HPV infection leads to the formation of pre-cancerous lesions. If these lesions are detected early through screening and treated appropriately, the cervix returns to a healthy state. If these lesions are left undetected, they progress to malignant cancerous lesions.

2.1 Causes and Risk Factors

A risk factor changes an individual’s probability of acquiring a particular condition for instance cancer. There are different risk factors for different conditions. Having a risk factor however, or even several others, does not guarantee getting the disease. Cervical cancer is associated with several risk factors. Although these risk factors increase the odds of a woman developing the disease, some do not develop it. Women who have none of these risk factors will hardly get cervical cancer. When a woman develops cervical cancer or experiences pre-cancerous changes, it is difficult to attribute it to a particular risk factor.
Cancer of the cervix is caused by persistent infection with the HPV. The human papillomavirus (HPV), is sexually transmitted and it is so common that, most sexually active men and women at a certain point in their lives get infected (CDC, 2014). More than 100 types of HPV exist and most of them do not lead to any problems or show any signs, while others cause conditions like genital warts (CDC, 2014). According to the World Health Organization (WHO), HPV types 16 and 18 cause about 70% of cervical cancer cases across the world (Bruni, Barrionuevo-Rosas, Albero et al, 2015).

The most important contributory factor to cervical cancer development is irregular testing or the absence of it. Other risk factors include early age of first sexual intercourse, exposure to human papilloma virus (HPV), early marriage (less than 20 years), multiple sexual partners, polygamy, multiparity and lack of awareness of the disease itself (Kumar et al, 2007). Other risk factors include smoking, a young age at first pregnancy, using oral contraceptives for a prolonged period, and immunosuppression (Cancer Council Australia, 2014).

2.2 Cervical Cancer Prevention

Cervical cancer prevention can be tackled through awareness creation. Awareness creation or education can be formal and informal. However, effectiveness of education depends on several factors. These include the medium for awareness creation, the target group, the content of the message, the language of the message and the person creating the awareness. The active role of each agent is crucial to reduce the menace of cervical cancer. A study carried out revealed that nurses have a vital role to play in cervical cancer education and prevention (Ertem, 2009). This emphasizes the relevance of awareness as an important variable in the management of cervical cancer.
cancer. Health workers have an important part to play because they have access to details in the world of health, thus they should be in control of enlightening women on such issues. Cervical cancer is totally avoidable and treatable, without much cost and danger, through testing for prompt detection and treatment of precancerous ulcerations in women without any symptoms, as well as proper diagnosis, treatment and follow-up (Parham et al, 2014). The current initiative of vaccinating girls with the HPV vaccine is a good way of preventing cancer of the cervix in adults. The prevention of cervical cancer can be categorized into three; primary, secondary and tertiary preventions. Since primary prevention alone may not always be adequate in preventing cervical cancer, it is imperative to incorporate secondary and tertiary prevention into all programs aimed at preventing cervical cancer (Parham et al, 2014).

- Primary prevention involves preventing HPV infection. The practical way to do this is through HPV vaccination and lifestyle modification to minimize the risk factors of cervical cancer.
- Secondary prevention involves preventing the cancer from occurring even if there is HPV infection. The effective way to do this is through cervical cancer testing and appropriate treatment of pre-malignant lesions.
- Tertiary prevention focuses on prompt diagnosing and treatment of cervical cancers to prevent complications.

2.3 Cervical Cancer Screening

In Ghana, there is currently no national screening programme for cervical cancer, despite the development of plans for an increase in a national visual inspection with acetic acid (VIA)-based
screening programme, and also a confirmation of the safety and social acceptability of VIA (Quentin et al, 2011). VIA is one of the methods in testing for cervical cancer aside testing for HPV. A test is positive if there is a well-defined, dull aceto-white lesions on the cervix. Other methods or procedures of screening include Pap smear and colposcopy. These tests are currently being conducted in some primary health facilities in Ghana and the number of these facilities keep increasing as a result of the efforts of the cervical cancer prevention and training centre located at Catholic Hospital, Battor in the Volta Region.

Follow up of screened positive women should be within a short time with smear, and/or colposcopy to establish if the disease actually exists. Those with abnormal cells are followed up for rescreening every year for at least five years and then they can resume following the routine screening schedule. The previous recommendation from WHO stated that in women between the ages of 35 and 40, the frequency and interval of screening after the initial, should be every ten years and then subsequently 5 yearly. For women aged 30–60 years, screening is done 5 yearly or as resources permit. Till date, there is no available data to suggest revising these recommendations. However, different approaches have made other suggestions, such as screening every 5 years from the age of 35 for a total of three tests in a lifetime. Increasing the frequency of screening, and extending it to younger females, does not however make up for deficiencies in laboratory quality or population coverage (Arbyn et al, 2010).

In planning the future of cervical cancer, good medical facilities, financial stability and the role of the community at large is essential to promote screening strategies. Again, as a standard of care, HPV testing as a primary screening method will be expected, and Healthcare Professionals should increase awareness creation on HPV vaccines and new cervical cancer tests. It is further recommended that health workers employ evidence-based recommendations to avoid over-
treatment of lesions that may usually resolve in a few months as some of these treatments may increase the risk of complications in pregnancy. There may also be unnecessary psychological distress such as fear, anxiety, and stigma (Arrossi, Silvina, Paolino et al, 2010).

There has been some criticism for estimate methods used by International Agency for Research on Cancer (IARC) study group, to justify relatively infrequent screening frequencies. The assumption of frequency of screening is based on the success of the program in Finland which was based on 5-yearly cytology screening for those aged 35–59 years (Ferlay, Soerjomataram, Ervik, 2013).

Whatever the decision on the interval and frequency of screening, it is important that women be followed up and reminded to rescreen when their next test is due.

2.4 Knowledge on Cervical Cancer

Knowledge is the level of information one has regarding cervical cancer. Adequate knowledge on cervical cancer includes knowing the cause, predisposing or risk factors, symptoms, testing centers, and testing process as well as preventive measures. Since the study concerns the knowledge of cervical cancer among women and its influence on cervical cancer testing, it will be suitable as part of the study to find out the sources and medium of the knowledge. It is expected that having adequate knowledge on cervical cancer could influence a person’s decision to screen.

A study by Awodele et al, (2011) on screening for cervical cancer among nurses in a Teaching Hospital in Lagos, Nigeria showed that 99% of the nurses who took part in the research knew of cervical cancer and 92% of them also knew the causative organism to be human papillomavirus. In that study, electronic media was the main source of information (43.9%) and health
professionals also accounted for 37.4% of the source. Again, 91% of participants had knowledge on Pap smear being a screening method for cervical carcinoma. The study also revealed that most respondents did not know colposcopy as one of the methods of screening. Finally, the study showed that though most nurses had good knowledge on cervical cancer, their understanding of cervical cancer screening methods was limited.

In Ethiopia, another study revealed that 319 representing 86.9% of respondents had adequate understanding of cancer of the cervix. Most of them, 341 (92.9%), were aware of cervical cancer. The highest source of information 232 (63.2%) was from school, 107 (29.2%) from the media and 80 (21.8%) learning from friends and colleagues. The same study showed that, most of the respondents, 329 (89.6%), 321 (87.5%), and 295 (80.4%), had knowledge about the risk factors, symptoms, and outcomes of cervical cancer, respectively. Over two thirds of the participants, 283 (77.1%), had knowledge on screening methods that pick up precancerous cells of the cervix and 138 representing 37.6% indicated visual inspection with acetic acid as a procedure for testing (Dulla, Daka & Wakgari, 2015).

In another research among staff of a teaching hospital in South-South Nigeria on their perspectives as well as screening practices of cervical cancer, majority of the respondents (both males and females) were aware of cervical cancer but the knowledge level of female respondents was higher. Most participants, 84.2% were below 40 years of age and only 29% had good knowledge on cervical screening (Eze, Obiebi & Umuago, 2018).

Ali et al (2010), in their study done to examine knowledge and awareness on cervical cancer among interns and nursing staff in Pakistan, 1.8% of the research participants did not know about cancer of the cervix. Approximately, 23.3% knew it to be the commonest gynecological cancers and 26% also knew it ranks second in mortality. Also, 78% were aware that the common cause
of cancer of the cervix is infection. Of these, 62% knew that a virus is the cause and 61% of them knew the virus to be Human Papilloma Virus (HPV). Majority admitted that HPV is sexually transmitted but only 41% knew that it can be detected by PCR. Only 26% of the participants had knowledge of one or more risk factors. 37% recognized Pap smear as a screening method and only 37 of the 400 participants knew of the HPV vaccine.

Similarly, less than half of the respondents in a Tanzania research which assessed knowledge of nurses on cervical cancer had adequate understanding of the disease. According to the research, a relationship existed between their knowledge on cervical cancer causes, age and HPV transmission. Knowledge was found to be more sufficient among young nurses (p = 0.027) and varied remarkably between cadres. Registered nurses were found to be more knowledgeable than enrolled nurses (p = 0.006). Most of them had no knowledge on screening intervals and a few knew of HPV vaccine (Urasa & Darj, 2011).

Shah et al, 2012, further carried out a study which revealed that 69% of the participants had some knowledge on cervical carcinoma. Concerning knowledge on symptoms, 94.2% mentioned vaginal discharge as a symptom. Also, 86.9% indicated abnormal menstrual bleeding and 66.6% mentioned pain as a symptom. Only 8 (11.5%) of them knew of multiple sexual partners as a predisposing factor of cervical cancer. Out of the 69 participants with some knowledge on cervical cancer, 61 (88.4%) of them had knowledge on Pap smear as a preventive measure.

Out of 225 respondents in a study in Northern Ethiopia among female nurses, 80 (35.6%) mentioned HPV as an essential predisposing factor for cervical cancer. Also, 38.1% and 26.6% of participants were aware of age and multiple sexual partners respectively as predisposing factors. Regarding signs and symptoms of the condition, 45.8% of the study participants identified vaginal bleeding as one of the signs. Also, 171 (76.4%) knew of at least one preventive
measure of cervical cancer. However, only 43.1% knew that avoidance of predisposing factors is a preventive measure for cervical cancer (Gebreegziabher, Asefa & Berhe, 2014).

2.5 Perceptions and Beliefs on Cervical Cancer

Cervical cancer is preventable, despite this fact however, certain factors contribute to sustaining the problem of high mortality associated with this disease. Some of these factors include ignorance, poor attitude as well as a low level of knowledge of the disease and its prevention. A good and positive perception of cervical cancer and an equally good practice of screening is important in any effort to reduce the disease incidence and burden. Bad beliefs and perceptions could lead to a poor attitude towards cancer of the cervix and its screening.

Ofori, Ebu, John and Siakwa (2014) found out that study respondents had poor attitude to cervical screening which may be credited to certain beliefs and opinions about the screening.

Mihret, Asefa, and Berhe (2014) in their study to assess the determinants of cervical cancer screening practice among nurses in Northern Ethiopia, found that out of a total of 225 respondents, majority 144 (63.1%) have positive attitudes towards cervical cancer screening.

A related survey on cervical cancer screening among nursing staff working in a Teaching Hospital in Lagos, indicated that the interviewees were highly knowledgeable about Pap smear (91%) being a method of cervical cancer test and majority (89%) have good attitudes towards Pap smear. The study further showed that the greater number of respondents (85.5%) were aware that cervical cancer is preventable and detectable (95%) (Awodele et al, 2011).

Similarly, in another research by Dulla et al. (2017), 299 (81.5%) of the participants knew cervical cancer to be preventable and 140 (38.1%) were aware of the preventive measures. Also, 223 representing 60.8% and 133 that is 36.2% had knowledge on early testing and vaccination against HPV as preventive measures, while 291 (79.3%) of them stated the use of holy water and
271 (73.8%) also mentioned prayers as preventive measures. An outstanding number of them, 296 (80.7%), perceived the disease to be treatable at the initial stage.

### 2.6 Screening Practices and Experiences

Screening refers to all procedures and methods employed to identify certain diseases or conditions in an individual who shows no sign of the disease. Screening tests are applied to large populations, therefore they should be relatively inexpensive, convenient, painless and safe. Cervical cancer screening involves looking for antecedents, abnormal growth of cervical intraepithelial cells, in an asymptomatic person. Early identification of abnormal tissues or cancer can make treatment easier. Screening programs are introduced worldwide for cervical cancer and a variety of methods are available, even in limited resource settings to help reduce morbidity and mortality associated with this disease (Arbyn et al., 2013).

Screening practices in this context involve whether or not one has tested for cancer of the cervix and the number of health professionals who have ever tested for it. Various researches have shown that despite their knowledge on cervical cancer, health workers’ attitude towards cervical screening is poor. These health professionals who have the responsibility and duty of getting women screened seem reluctant screening themselves.

Ofori, Ebu, John and Siakwa (2014) found in their study that being knowledgeable about screening methods for cervical cancer may not necessarily launch into patronizing the services. Participants were found to have poor attitude towards screening despite having adequate understanding of cervical cancer.

In a related work by Shah et al. (2012) in India, out of the 100 nurses who participated in the study, 61 of them were aware of the Pap smear test. However, only 5(5%) of the participants had ever tested.
In another study in Ethiopia to assess female health care workers’ knowledge about cervical cancer screening and its practice, only 42 (11.4%) of the study participants had undergone some screening test for cervical cancer (Dulla et al, 2017). Gebreegziabher, Asefa and Berhe (2014) revealed in their research in Northern Ethiopia among female nurses that out of the 225 participants, only 24 (10.7%) reported ever being screened for cervical cancer in the last five years preceding the research. The results revealed that among the nurses, the screening practice for cervical cancer was poor.

A study conducted for staff of a teaching hospital in Nigeria revealed that only 18 (11%) of the total females interviewees had ever undergone screening for cervical cancer. Out of this 18 who had screened, 15 (83%) had screened once (Eze, Obiebi & Umuago, 2018). In a similar research on nurses’ knowledge and practice of testing for cancer of the cervix in a regional hospital in Tanzania, 116 out of 137 participants had not tested for the disease before. Among the 21 interviewees who had screened, 13 (61.9%) did so on their own while 8 (38.1%) screened on the advice of a medical personnel (Urasa and Darj, 2011). A related study in Lagos University Teaching Hospital indicated that though majority (91%) had knowledge of Pap smear as a method of screening, and have good attitudes (89%) towards it, most of them (88%) have never had a Pap smear before, bringing the percentage ever screened to 12% (Awodele et al, 2011).

According to Eze, Obiebi and Umuago (2018), more than half of all participants in their study below age 40 showed a positive attitude to testing for cervical cancer, while 61.2% of those above 40 years had a negative attitude towards cervical cancer screening. The study further revealed that positive attitude toward screening had a significant association with working in a clinical department (p < .001); approximately three-quarters (75.2%) of participants from the nonclinical departments had a poor attitude towards cervical cancer screening.
2.7 Factors Affecting Cervical Cancer Screening

Some relationship has also been shown to exist between a woman’s level of knowledge and the probability of getting screened for cervical cancer. Adanu, Seffah, Darko Hill & Anarfi (2010), propounded adequate levels of formal education and a good socioeconomic status can more likely cause a woman to have a Pap smear. This implies that affordability of the screening and a woman’s level of knowledge may influence her decision to screen.

Again it has been shown that there is currently no national cervical cancer screening programme, and the absence of such a programme influences people’s decision to screen. Women who undergo screening therefore do so through opportunistic screenings using general gynecological consultations (Arrossi, Silvina, Paolino et al, 2010).

A research in Northern Ethiopia to determine factors that influence screening for cervical cancer in nurses revealed that among a variety of justifications for not screening, some common reasons mentioned by the nurses were carelessness (17.9%), dread of positive result (16.4%), as well as pain (10.9%) (Gebreegziabher, Asefa & Berhe, 2014).

In another study in Tanzania, the determinants of screening included lack of knowledge on testing centers, fear of procedure and results, and lack of motivation. The most common reasons for not screening were given as not knowing where to go for the test (54.7%), not seeing any reason for the test (13.1%), fear of the test process (9.5%) and fear of bad results (7.3%) (Urasa & Darj, 2011).

Furthermore, reasons stated for not having screened for cervical cancer in a recent study by Dulla, Daka and Wakgari (2017), included fear of the result (26.5%), ignorance of screening (24.9%) and fear of the testing procedure (21.8%) which accounted for significant percentages.
A notable association was found between screening for cervical cancer and certain factors such as marital status, age of respondent, profession, and years of experience, educational level, and knowledge of outcome of the disease, as well as working in screening centers. Physicians were found to be 88% less likely to be tested for cervical cancer compared to other health workers (adjusted odds ratio (AOR =0.12, 95% CI: 0.02 - 0.79). Also, those who work in screening centers were found to be 86% improbable to test for cancer of the cervix than others (AOR =0.14, 95% CI: 0.03 - 0.68).

The outcomes of Awodele et al.’s (2011) study showed that some study participants (17%) had not done a Pap smear because it was expensive. The study also established significant associations (p≤0.05) between age, participants’ marital status, and awareness and patronage of cervical cancer screening.
CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section is a brief account of the study design, study area, study population, sampling method and detailed calculation of sample size, data collection, data management as well as analysis. It also includes ethical issues and limitations of the study.

3.1 Study Design

The study employed a cross-sectional design and used quantitative methods to collect data from female health workers in the district. A cross sectional study was adopted as data was collected only once from the participants within a brief span of time. In a cross sectional study a variable of interest to the researcher in a given population is measured once at a specific point in time.

3.2 Study Site

The study was conducted in the Asikuma Odoben Brakwa (AOB) district. The AOB district is one of the rural districts in the Central Region of Ghana. Situated on the north-central portion of the Region, it is bordered on the North by Birim South District of the Eastern Region, on the South by Ajumako-Enyan-Essiam District, on the West by Assin North and Assin South Districts and on the East by the Agona East District. The district covers a land area of about 884.84sqkm and the district capital is Breman Asikuma. It has a population of approximately 132,000 with 183 towns and villages according to PPMED of GHS 2017 population estimate. The district is divided into six sub-districts with a total of 37 health facilities. There are approximately 591 health workers of which an average of 70% are females.
Figure 3.1 Map of Asikuma Odoben Brakwa District

Source: (DHMT, 2017).
Table 3.1: Details of Health Statistics.

<table>
<thead>
<tr>
<th>Total District Population</th>
<th>132,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Health workers</td>
<td>591</td>
</tr>
<tr>
<td>Number of Female Health Professionals</td>
<td>325</td>
</tr>
<tr>
<td>No. of Health Sub-Districts</td>
<td>6</td>
</tr>
<tr>
<td>No. of Health Facilities</td>
<td>37</td>
</tr>
<tr>
<td>Government</td>
<td>34 (1 Polyclinic, 3 Health Centers, 30 CHPS Compounds)</td>
</tr>
<tr>
<td>Quasi-Government</td>
<td>1</td>
</tr>
<tr>
<td>Mission</td>
<td>1</td>
</tr>
<tr>
<td>Private</td>
<td>1</td>
</tr>
</tbody>
</table>


3.3 Study Population

The population for the study were the female health professionals within the AOB district. According to Bowling (2012), a research population is a collection of people or objects eligible to be included in that study.

3.4 Inclusion Criteria

The study included female health professionals in the Asikuma Odoben Brakwa district who are both permanent and casual workers operating in areas such as nursing, medicine, pharmacy and other allied health professions.
3.5 Exclusion Criteria

Health workers who are not permanently living and working in the district such as national service personnel and students on attachment were excluded from this study.

3.6 Sampling Method

The study employed a stratified sampling technique in selecting the health facilities and simple random sampling to select the participants. The existing sub-districts served as the strata, and a quota was calculated from each of the sub-districts and various health facilities in the sub-districts, based on the number of health workers in these sub-districts. Then simple random sampling was applied to draw the 164 participants from the various facilities in accordance with the population of health workers per facility.

3.7 Sample Size Estimation

A minimum sample size of 158 was considered for the study and Cochran’s sample size estimation was employed to establish this sample size. The formula is shown below;

Where;

\[ n = \frac{(Z_\alpha)^2 p (1 - p)}{d^2} \]

- \( n \) is the minimum sample size required.
- \( \alpha \) is the confidence level.
- \( p \) = prevalence of screening from a previous study = 11.6% = 0.116 (Adageba et al, 2011)
- \( d \) = the margin of error.

If \( \alpha \) is 1.96 (using a confidence level of 95%), \( p \) is 0.116 and \( d \) is 0.05 (5%),
assuming a 95% response

Therefore, calculated sample size for the study was 158 participants. The sample size was increased to 180 to allow for nonresponse. However, 164 completed questionnaires were retrieved.

3.8 Methods of Data Collection and Instrument

The study considered only primary source of data. The data was collected using structured questionnaire from the selected female health workers within the district. Respondents were presented with printed copies of questionnaires on which they were to answer all questions and comments regarding the study.

The questionnaire was made up of open and closed-ended questions (multiple choice type) to ensure the collection of quantitative data. The questionnaire covered the following areas of study:

i. Socio-demographic data of respondents

ii. Knowledge on cervical cancer

iii. Beliefs and perceptions on cervical cancer.

iv. Screening practices and experiences.
3.9 Quality Control

The questionnaire was pre-tested to ensure quality of data. The developed questionnaire by the researcher, was tested on 20 selected female health workers in Ajumako District Hospital. The pre-testing was done to confirm if it is suitable for the intended purpose. It also enabled the researcher redesign and modify it to estimate the amount of time and money needed for effective data collection and processing. The pre-testing process also pointed out some challenges and inadequacies in the data collection process. Again, it helped to ensure that questions asked are easy to understand and not ambiguous. Also, information from the respondents was kept confidential during and after data collection. Research assistants who assisted in data collection were trained before collecting data.

3.10 Study Variables

The study explored the relationship that exists between the following variables;

i. **Dependent**

   Cervical cancer screening.

ii. **Independent Variables**

   Knowledge on cervical cancer
   Perceptions and beliefs on cervical cancer
   Testing experiences
   Factors influencing screening eg cost of screening

3.11 Data Analysis Procedures

The data analysis procedure includes method of organizing, summarizing and presenting the data in a convenient manner. The data collected was organized, coded and entered using Excel and
then it was exported to Stata version 15 for analysis. The data analysis employed descriptive and inferential statistics. The descriptive statistics includes frequency counts, percentages, and other parameters to answer the research questions. The data was analyzed and presented in tables and diagrams. The graphical technique used in the study is charts and tables. The summary of the data consists of percentages, cross tabulations, frequencies and charts.

Respondents’ knowledge on cervical cancer was assessed with 10 questions such as awareness of cervical cancer, source of information, sex and age group affected, risk factors, causative organism and its transmission, symptoms, knowledge of screening centers and screening methods. To effectively measure overall knowledge of participants, scores were allocated to each question and a composite score allotted to each participant. The total score for all right answers was 100, a composite score of 70-100 depicted good knowledge, 40-69 was average knowledge and a score of 0-39 was poor knowledge.

Perceptions and beliefs on cervical cancer was assessed using 6 questions with mostly ‘Yes’ or ‘No’ responses. Respondents’ screening practices was assessed with questions like whether respondent had undergone screening for cervical cancer before as well as the frequency of screening and whether they will recommend screening to a client or friend.

3.12 Ethical Consideration

Ethical clearance was obtained from the Ethics Review Committee of the Ghana Health Service before beginning the study. Permission was also obtained from the District Director of Health Services and the heads or management of all institutions concerned, such as health centers and CHPS compounds. Written consent was also obtained from all study respondents after the purpose of the research had been explained to them and they had been allowed to ask questions,
before administering the questionnaires. Data collected is kept under lock and key, the principal investigator being the only one with access to it.

Again, all procedures pertaining to the ethical standards of the Christian Health Association of Ghana and Ghana Health Service were adhered to.

3.12.1 Consenting Process

All potential participants received information about the research through the participants’ information sheet which was also explained to them, to enhance understanding and cooperation. They were given ample time to reflect on the information given and ask questions where necessary. The participant information sheet contained information on possible risks and discomforts, possible benefits, voluntary participation and withdrawal and contact persons for additional information. Participants were required to give their consent by signing an informed consent form.

3.12.2 Potential Risks and Benefits

Participants were informed about potential risks or discomforts and benefits associated with this study. The potential risk or discomfort was due to the sensitive nature of some questions. There were also potential emotional and psychological upset owing to the sensitivity hence necessary counselling was made available for those who may require it. Potential benefits of this study is that it will contribute towards knowledge and also will help in developing interventions concerning cervical cancer to help health workers and community members in this district and beyond.
3.12.3 Privacy and Confidentiality

All information shared by participants during this study was kept confidential and used only for the intended purpose. Therefore participants’ name was not required, instead serial numbers were used. Information received was not shared with anyone under any circumstance before, during or after the successful completion of the study.

3.12.4 Voluntary Participation and Withdrawal

Participating in this research was non-mandatory. Participants were given the choice to answer the entire questionnaire or part of it if they so wish. They could choose to withdraw from the study at any point in time. They could also choose not to answer any question they were uncomfortable with. They were also made aware that their decision to not participate in the study will not affect them in any way.

3.12.5 Compensation

Participants who agreed to be part of the study did not receive any form of payment or compensation for partaking in this study.

3.12.6 Data Storage and Usage

Data collected for the study has been stored electronically on laptop computers, pen drives, external hard disk drive and google drive. All these are protected with passwords which is known only to the principal investigator. Hard copies of the information is also kept under lock and key with only the principal investigator having access to it. The information stored will be kept for approximately a year after the dissertation has been submitted and approved, after which it will be destroyed.
3.12.7 Funding Information
This study was funded solely by the principal investigator.

3.12.8 Data Ownership
The principal investigator has sole ownership of the data collected during the study. Hence access to the data is exclusive to the principal investigator.

3.12.9 Conflict of Interest
This study was not associated with any conflict of interest.

3.13 Dissemination of Results and Publication
After the research report is approved by the authorities of University of Ghana, it will be communicated to the health workers and the District Health Management Team. The findings of this research will be submitted to the DHMT for presentation during the annual performance review of the district. It will also be published in a peer reviewed journal.
CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the outcome of the analysis of the information gathered from the respondents.

The findings consist of socio-demographic characteristics of participants, knowledge of respondents on cervical cancer, perceptions and beliefs, screening practices and experiences as well as factors influencing testing for cervical cancer. The results are presented using statements, tables and figures.

4.1 Socio-Demographic Characteristics

One hundred and sixty-four female health workers were recruited for the study, the age group of the respondents ranged from 18 to 60 years. Majority of them 112 (68.3%) are between the ages 18-30, 41 (25%) are between 31 and 40, 4 (2.4%) and 7 (4.3%) are between 41-50 and 51-60 years respectively. Also, 98.2% (161) were Christians with the remaining 1.8% (3) being Muslims. More than half of the respondents 97 (59.2%) were unmarried, 66 (40.2%) were married and only 1 (0.6%) was divorced. 52% worked with the Christian Health Association of Ghana (CHAG), 47.2% in GHS and 0.6% in the private sector. The highest group of professionals was general nurses with 36 representing 22.8%, registered mental health nurses formed the least group with 6 (3.8%). Other professionals including laboratory technicians, records officers and claims officers accounted for 14.6% of the study sample. Refer to Table 4.1
Table 4.1 Socio-Demographic Characteristics of Respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency (N=164)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-30</td>
<td>112</td>
<td>68.3</td>
</tr>
<tr>
<td>31-40</td>
<td>41</td>
<td>25.0</td>
</tr>
<tr>
<td>41-50</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>51-60</td>
<td>7</td>
<td>4.3</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christian</td>
<td>161</td>
<td>98.2</td>
</tr>
<tr>
<td>Muslim</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>97</td>
<td>59.2</td>
</tr>
<tr>
<td>Married</td>
<td>66</td>
<td>40.2</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Agency of Employment</strong></td>
<td>N=161</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Ghana health service</td>
<td>76</td>
<td>47.2</td>
</tr>
<tr>
<td>CHAG</td>
<td>84</td>
<td>52.2</td>
</tr>
<tr>
<td><strong>Professional Qualification</strong></td>
<td>N=158</td>
<td></td>
</tr>
<tr>
<td>Community health nurse</td>
<td>28</td>
<td>17.7</td>
</tr>
<tr>
<td>Enrolled nurse</td>
<td>32</td>
<td>20.3</td>
</tr>
<tr>
<td>General nurse</td>
<td>36</td>
<td>22.8</td>
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<tr>
<td>Mental nurse</td>
<td>6</td>
<td>3.8</td>
</tr>
<tr>
<td>Midwife</td>
<td>33</td>
<td>20.9</td>
</tr>
<tr>
<td>Others</td>
<td>23</td>
<td>14.6</td>
</tr>
<tr>
<td>Sexually Active</td>
<td>N=159</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>-------</td>
<td>---</td>
</tr>
<tr>
<td>Yes</td>
<td>134</td>
<td>84.3</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>13.2</td>
</tr>
<tr>
<td>Don’t know</td>
<td>4</td>
<td>2.5</td>
</tr>
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<table>
<thead>
<tr>
<th>Age of First Sex</th>
<th>N=135</th>
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<tr>
<td>&lt;12</td>
<td>5</td>
<td>3.7</td>
</tr>
<tr>
<td>13-19</td>
<td>23</td>
<td>17.0</td>
</tr>
<tr>
<td>20-24</td>
<td>58</td>
<td>43.0</td>
</tr>
<tr>
<td>&gt;25</td>
<td>49</td>
<td>36.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Partners</th>
<th>N=150</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>18</td>
<td>12.0</td>
</tr>
<tr>
<td>1</td>
<td>79</td>
<td>52.7</td>
</tr>
<tr>
<td>2</td>
<td>34</td>
<td>22.7</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>9.3</td>
</tr>
<tr>
<td>4 or more</td>
<td>5</td>
<td>3.3</td>
</tr>
</tbody>
</table>

4.2 Knowledge on Cervical Cancer

To measure participants’ knowledge, questions were asked on if they had ever heard about cancer of the cervix and 159 (97%) respondents answered “yes” and 5 answered “no”. Also, 160(97.6%) knew it affected women and 77(49.7%) knew it to affect adults. On the sources of knowledge, more than half of the respondents 52.8% mentioned that their source of information was school, 23% had heard of cervical cancer from the media and only 10.6% had heard from fellow health workers. Refer to Table 4.2.
4.2.1 Knowledge on Risk Factors and Cause

Majority of the study participants had knowledge on more than one risk factor, 29(17.9%) knew of two risk factors and 94(57.9%) were aware of three and more risk factors. Also, 5(3.1%) had no knowledge on risk factors. The majority 122(77%) of the participants knew that it is caused by a virus and 118(76.6%) knew the virus to be HPV. Again, 123(79.9%) knew HPV to be transmitted through sexual contact. Refer to Table 4.2.

4.2.2 Knowledge of Signs and Symptoms and Screening

The study also assessed participants’ understanding and awareness of signs and symptoms of the disease and also knowledge on screening. Out of the total number of respondents, 8(5.1%) knew abnormal menstrual bleeding and 12 (7.6%) knew unpleasant vaginal discharge as symptoms. However most of them 30 (18.9%) and 100(63.4%) had knowledge on two, and three or more symptoms of cervical cancer respectively. Regarding knowledge about screening centres, 104(65%) of the respondents confirmed knowing a centre. Less than half of the respondents 62(40.8%) knew of Pap smear, 13 (8.6%) were aware of VIA and 17 (11.2%) colposcopy as screening methods. Further, 37 (24.4%) knew of two methods and 21 (13.8%) had knowledge of all three means of screening.

Results on the knowledge of study participants on the condition is illustrated in Table 4.2 below.
<table>
<thead>
<tr>
<th>Questions</th>
<th>Response</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you heard of cervical cancer</td>
<td>Yes</td>
<td>159 (97)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5 (3)</td>
</tr>
<tr>
<td>Sources of Information (N=159)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Which sex can be affected</td>
<td>School</td>
<td>85 (52.8)</td>
</tr>
<tr>
<td></td>
<td>Media</td>
<td>37 (23.0)</td>
</tr>
<tr>
<td></td>
<td>Co-workers</td>
<td>17 (10.6)</td>
</tr>
<tr>
<td></td>
<td>Friends and Family</td>
<td>2 (1.2)</td>
</tr>
<tr>
<td></td>
<td>Multiple responses</td>
<td>15 (9.2)</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>5 (3.1)</td>
</tr>
<tr>
<td>Which age group can be affected</td>
<td>Adult</td>
<td>77 (49.7)</td>
</tr>
<tr>
<td></td>
<td>All age groups</td>
<td>36 (23.2)</td>
</tr>
<tr>
<td></td>
<td>Adolescent</td>
<td>30 (19.4)</td>
</tr>
<tr>
<td></td>
<td>Children</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>2 (1.3)</td>
</tr>
<tr>
<td>What are the risk factors?</td>
<td>Early age of sexual intercourse</td>
<td>153 (95.6)</td>
</tr>
<tr>
<td></td>
<td>Multiple sexual partners</td>
<td>6 (3.8)</td>
</tr>
<tr>
<td></td>
<td>Genital infection</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td></td>
<td>Multiple responses</td>
<td>123 (75.8)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>5 (3.1)</td>
</tr>
<tr>
<td>Is HPV the main cause of cervical cancer?</td>
<td>Yes</td>
<td>118 (76.6)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>13 (8.44)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>23 (14.9)</td>
</tr>
<tr>
<td>Mode of HPV transmission</td>
<td>Sexual contact</td>
<td>123 (79.9)</td>
</tr>
<tr>
<td></td>
<td>Non-sexual contact</td>
<td>10 (6.5)</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>2 (1.3)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>18 (11.7)</td>
</tr>
<tr>
<td>Signs and Symptoms of cervical Cancer</td>
<td>Unpleasant vagina discharge</td>
<td>130 (82.3)</td>
</tr>
<tr>
<td></td>
<td>Abnormal menstrual bleeding</td>
<td>8 (5.1)</td>
</tr>
<tr>
<td></td>
<td>Bleeding between menstrual period</td>
<td>4 (2.5)</td>
</tr>
<tr>
<td></td>
<td>Itching of the vaginal</td>
<td>0 (0)</td>
</tr>
<tr>
<td></td>
<td>Multiple responses</td>
<td>0 (0)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>12 (7.6)</td>
</tr>
</tbody>
</table>
4.2.3 Overall Knowledge Levels

To assess the level of knowledge of participants, scores were assigned to all the questions measuring knowledge and a composite score calculated for each participant. The total expected score was 100; a score of 0-39 was “poor knowledge” 40-69 was “average” and 70-100 was scored as “good knowledge”. Out of all the respondents, 43(26.2%) had poor knowledge, more than half 110(67.1%) had average knowledge and only 11(6.7%) had good knowledge.

Figure 4.1: Pie Chart of the Scored Level of Knowledge of Study Participants.
Table 4.3 Table on Level of Knowledge Compared to Professional Qualification

<table>
<thead>
<tr>
<th>Professional Qualification</th>
<th>Poor (%)</th>
<th>Level of Knowledge</th>
<th>Good (%)</th>
<th>Average (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Nurse</td>
<td>6</td>
<td>20</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Enrolled Nurse</td>
<td>10</td>
<td>22</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>General Nurse</td>
<td>8</td>
<td>25</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mental Nurse</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Midwife</td>
<td>5</td>
<td>23</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>8</td>
<td>14</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

4.3 Perceptions and Beliefs on Cervical Cancer

In assessing the perception of the study participants on cervical cancer, some questions were asked on if they thought cervical cancer was curable, preventable, some preventive measures, if respondents thought they were at risk, if they think screening is effective in reducing incidence and also if they think poor personal hygiene causes cervical cancer. Of the total number of respondents, 158 answered the question on whether cervical cancer is curable. 99 of them representing 62.7% answered yes, 46 (29.1%) said it is not curable and 13 of them (8.23%) said they did not know if it was curable or not. Most of the respondents (92.6%) believed cervical cancer is preventable while only 3.7% said it is not. Also, 17.2% agreed that education alone helps in prevention, 12.9% knew only screening helps and only 3.1% selected vaccination alone as a preventive measure. However, most respondents knew of more than one preventive measure. Participants were asked if they believed themselves to be at risk of cervical cancer. More than half of the respondents 93 (58.5%) answered yes, 56 (35.2%) answered no and 10 (6.3%) did not have an idea if they are at risk or not. In addition, 153 respondents representing 95.6% agreed
that screening is effective in the reduction of cervical cancer incidence and 66.3% thought poor personal hygiene causes cervical cancer while 25.6% said it does not cause. The results on perception is shown in the Table 4.4 below.

**Table 4.4 Respondents’ Perception on Cervical Cancer**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Response</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can cervical cancer be cured</td>
<td>Yes</td>
<td>99 (62.7%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>46 (29.1%)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>13 (8.2%)</td>
</tr>
<tr>
<td>Is cervical cancer preventable</td>
<td>Yes</td>
<td>151 (92.6%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>6 (3.7%)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>4 (2.5%)</td>
</tr>
<tr>
<td>How can cervical cancer be prevented</td>
<td>Education</td>
<td>28 (17.2%)</td>
</tr>
<tr>
<td></td>
<td>Screening</td>
<td>21 (12.9%)</td>
</tr>
<tr>
<td></td>
<td>Vaccination</td>
<td>5 (3.1%)</td>
</tr>
<tr>
<td></td>
<td>Multiple response</td>
<td>106 (65.1%)</td>
</tr>
<tr>
<td>Do you think you are at risk of getting cervical cancer</td>
<td>Yes</td>
<td>93 (58.5%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>56 (35.2%)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>10 (6.3%)</td>
</tr>
<tr>
<td>Do you think screening is effective in reducing incidence of cervical cancer</td>
<td>Yes</td>
<td>153 (95.6%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>6 (3.8%)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>1 (0.6%)</td>
</tr>
<tr>
<td>Do you think personal hygiene causes cervical cancer</td>
<td>Yes</td>
<td>106 (66.3%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>41 (25.6%)</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>13 (8.1%)</td>
</tr>
</tbody>
</table>
4.4 Screening Practices and Testing Experiences

This section sought to examine the screening practices of the study participants. This was simply measured by whether participant has ever been screened or not and how many times or how often. It also assessed respondents’ willingness to recommend screening to others. Only 25 (16.0%) of the respondents, indicated that they had ever been screened for cervical cancer. Further, 23 out of this number have screened once. Most of the participants 119 (76.3%) indicated that a person is supposed to screen for cervical cancer once in every year. 17 (10.9%) and 12 (7.7%) indicated 3 years and 5 years respectively as being the interval for screening.

Majority of the respondents (93.1%) said they will screen if it is free, 5% said no and 1.9% were undecided. Interestingly, 66% were willing to accept screening by a male provider. Despite the low uptake of screening among the respondents, majority of them 154 (95.1%) will recommend screening to others. Of the number who have tested, 14 of them shared their experiences. 6(42.9%) said the process was uncomfortable, 21.4% said the experience was “normal”, and 14.3% were nervous. Figure 4.2 shows participants who have screened and those who have not.
Figure 4.2 Pie Chart of Respondents Screened and Not Screened

4.5 Factors Influencing Screening

Respondents were given a variety of reasons for not screening or some factors that affect cervical cancer screening. Some of the factors were ignorance about cervical cancer screening, high cost of screening (29.2%), unavailability of screening centre (29.2%), partner objection and shyness due to the procedure (20%).

Bivariate Analysis

In the bivariate review employing Pearson’s Chi-Square of significance, only knowledge about screening centers was observed to be significantly associated with testing for cancer of the cervix ($X^2=6.43$, $p=0.011$). The information is shown in the table 4.5 below.
Table 4.5 Bivariate Analysis of Knowledge of Screening Center and Cervical Cancer

**Screening**

<table>
<thead>
<tr>
<th>Ever screened for cervical cancer</th>
<th>Knowledge of screening center</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>79</td>
<td>49</td>
</tr>
<tr>
<td>No</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>52</td>
</tr>
</tbody>
</table>

Pearson chi² (1) = 6.4389   Pr = 0.011

**Multivariate Analysis**

In the multivariate analysis, multiple logistic regression was fitted with the outcome variable and identified risk factors. Statistically, there is 0.17 times reduced odds that participants screened by male service providers compared to those not screened by male service providers will seek cervical cancer treatment (Adjusted Odds Ratio [AOR] = 0.17 (95% Confidence interval (CI) 0.07, 0.44)). With respect to the amount to be paid for the screening, offering the service at a cost of 30-50 cedis increases the odds of seeking cervical cancer screening by 11.0 times compared to offering the service at 50-100 cedis after adjusting for other factors (AOR=11.0; 95%CI 4.23, 28.60).
<table>
<thead>
<tr>
<th></th>
<th>Cervical Cancer Screening</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COR (95% CI)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>18-30 years</td>
<td>ref</td>
</tr>
<tr>
<td>31-40 years</td>
<td>0.51 (0.14, 1.85)</td>
</tr>
<tr>
<td>41 years and above</td>
<td>0.39 (0.04, 3.67)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>ref</td>
</tr>
<tr>
<td>Married</td>
<td>1.71 (0.58, 4.98)</td>
</tr>
<tr>
<td><strong>Professional qualification</strong></td>
<td></td>
</tr>
<tr>
<td>Community health nurse</td>
<td>ref</td>
</tr>
<tr>
<td>Enrolled nurse</td>
<td>0.91 (0.23, 3.66)</td>
</tr>
<tr>
<td>General nurse</td>
<td>0.64 (0.15, 2.71)</td>
</tr>
<tr>
<td>Mental nurse</td>
<td>0.47 (0.09, 2.34)</td>
</tr>
<tr>
<td>Mid wife</td>
<td>2.12 (0.51, 8.86)</td>
</tr>
<tr>
<td><strong>Amount (¢)</strong></td>
<td></td>
</tr>
<tr>
<td>20-30</td>
<td>ref</td>
</tr>
<tr>
<td>30-50</td>
<td>47.31 (9.32, 240.15)</td>
</tr>
<tr>
<td>50-100</td>
<td>6.34 (0.49, 82.84)</td>
</tr>
<tr>
<td><strong>At risk of cervical cancer</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>ref</td>
</tr>
<tr>
<td>No</td>
<td>1.58 (0.60, 4.16)</td>
</tr>
<tr>
<td><strong>Effectiveness of screening</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>ref</td>
</tr>
<tr>
<td>No</td>
<td>1.82 (0.22, 14.83)</td>
</tr>
<tr>
<td><strong>Male service provider</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>ref</td>
</tr>
<tr>
<td>No</td>
<td>0.09 (0.02, 0.38)</td>
</tr>
<tr>
<td><strong>Screening center awareness</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>ref</td>
</tr>
<tr>
<td>No</td>
<td>1.32 (0.48, 3.60)</td>
</tr>
<tr>
<td><strong>Prevention</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Ref</td>
</tr>
<tr>
<td>No</td>
<td>3.36 (0.57, 19.85)</td>
</tr>
</tbody>
</table>

COR=Crude Odds Ratio; AOR= Adjusted Odds Ratio; CI=Confidence Interval; Ref=Reference category
CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter sums up all major outcomes in this research based on the study objectives. Awareness and adequate understanding of cervical cancer is crucial in the fight against the menace. The perception a person has about a certain condition or situation may influence their attitudes and practices towards that condition, hence examining the participants’ knowledge of cervical cancer is important. Health workers are in most cases role models especially in issues concerning health, it is therefore important that they set a good pace for the community members and others who look up to them.

5.1 Socio-Demographic Characteristics

The age group of the respondents varied as their ages spanned from 18 to 60 years. More than half of them however were between the age of 18-30 with least being between 41 and 50 years. This characteristic is similar to the findings of other studies. For instance, Eze, Obiebi and Umuago (2018) found that majority 266 (84.2%) of their respondents were below 40 years. Also a study in Nigeria by Awodele et al revealed that the highest age range (38.5%) of nurses in Lagos University Teaching Hospital was between 20 and 29 years. It is however contradictory to the findings of Shah et al, (2012) conducted in India where more than half of the respondent (52%) were between age 41 and 50. This difference could be as a result of the location and level of the facilities in both studies. The current study took place in a district with primary health facilities while the other took place in a tertiary hospital. The highest cadre of health workers in this current study were general nurses.
5.2 Knowledge on Cervical Cancer

The study revealed high level of knowledge of cervical cancer among the health personnel in Asikuma Odoben Brakwa district who participated in the study. 97% of the participants knew of cervical cancer as a disease. This is supported by similar findings in Awodele et al (2011), where the results showed that 99% of the respondents had heard about cervical cancer. The most ranked source of information in this current study was school (52.8%), similar to (53.3%) which showed that nursing school was the commonest information source on cervical cancer, followed immediately by the media (47.4%) in Urasa & Darj (2011).

According to Urasa and Darj (2011), a notable association existed between the cadre of nurses and nurses’ understanding of cervical cancer symptoms; 43.3% of the registered nurses had satisfactory understanding of signs of cervical cancer as against 21.4% of the enrolled nurses. This corroborates the findings of this current study where 25% of general nurses had average knowledge as compared to 22% in enrolled nurses.

However, the overall level of knowledge among the respondents was average as more than half of them (67.1%) had “average” knowledge. These results are comparable to the findings of Shah et al, (2012) where 69% of staff nurses who participated in their research in India had some knowledge related to cervical cancer. In contrast, a Southern Ethiopia study among female health professionals found that majority of them (86.9%) had a good level of knowledge on cervical cancer (Dulla et al, 2017) as compared to the current study where only 11 (6.7%) had good knowledge. Though there are some similarities in socio demographic data in terms of age, the vast difference in their knowledge level could be due to the level of professional qualifications of the study population in both researches. Whereas most of the participants in this study are nurses
(enrolled, community health nurse etc), the study population in the Ethiopian study includes medical doctors, and other specialists as well as nurses. In this study, almost two thirds of the respondents knew a screening center, 61.1% recognized Our Lady of Grace Hospital, the District Hospital as a screening center.

5.3 Perceptions and Beliefs on Cervical Cancer

The results of this current survey indicate that a greater number of the respondents perceived cervical cancer to be curable (62.7%) and preventable (92.6%). However only 5 (3.1%) thought that vaccination was a preventive measure. More than half of participants (58.5%) believed they were at risk of cervical cancer and almost all of them 153 (95.6%) believed screening is an effective means of reducing cervical cancer incidence. About two thirds wrongly believed poor personal hygiene can cause cervical cancer. A related study on cervical cancer testing among nurses in a Teaching Hospital in Lagos, indicated that the respondents have good attitudes (89%) towards Pap smear. The study further showed that most of the interviewees (85.5%) knew that cervical cancer is avoidable and detectable (95%) (Awodele et al, 2011) and this supports this current study. Similarly, another research by Dulla et al, (2017), established that 299 (81.5%) of the participants knew that cervical cancer can be prevented and detectable (95%) and 140 (38.1%) were aware of the preventive measures (Awodele et al, 2011). An outstanding number of them, 296 (80.7%), perceived cervical cancer to be treatable at an early stage (Dulla et al., 2017). None of the participants in this study attributed the condition to spiritual factors. On the contrary, respondents in another study revealed religious and spiritual factors as causing cervical cancer, with 291 (79.3%) of them using holy water and 271 (73.8%) praying to god as preventive measures (Dulla et al, 2017).
5.4 Screening Practices and Experiences

Of all the respondents who knew about cervical cancer in this research, only 16% had ever tested for cervical cancer. This low magnitude of screening practice is consistent with several studies such as Awodele et al, (2011) where 12% of the respondents had screened, and 15.3% in Tanzania (Urasa and Darj, 2011). In another study done in South - South Nigeria, 18 (11%) of the women who participated in the survey had undergone screening for cervical cancer (Eze, Obiebi & Umuago, 2018). Other studies by Dulla et al, (2017) and Gebreegziabher, Asefa and Berhe (2014) also showed equally low patronage 11.4% and 10.7% respectively among health workers. The figure in the current study is slightly higher than the finding by Shah et al, (2012) in India, where only 5% had screened. The finding is not encouraging as health workers who should be the role models and know about the disease are not screening. This supports the assertion that knowledge on cervical cancer may not necessarily result in screening. Despite the low level of screening among the health workers, 154 (95.1%) of them will recommend screening to others. Out of the number who have tested, 14 shared their testing experiences. 6 (42.9%) said the screening process was uncomfortable due to a variety of reasons, 21.4% also stated that they felt “normal” and 14.3% said they were nervous and anxious due to the unknown outcome of the test.

5.5 Factors Influencing Cervical Cancer Screening

From this research, the leading reason cited for not screening among those who have not screened are high cost of screening (29.2%) and unavailability of screening centers also (29.2%). This was followed by shyness or embarrassment due to procedure (20%). These results agrees with results from other surveys. The outcomes of the study by Awodele et al, (2011), revealed that some respondents (17%) had not done a Pap smear because it is expensive.
Adanu, Seffah, Darko Hill and Anarfi (2010) also implied that affordability of the screening and a woman’s level of knowledge may influence her decision to screen.

At the adjusted level, significant determinants of cervical cancer screening among study participants were; offering the screening service at a cost of (30-50 cedis) \( [(AOR=11.0; 95\% CI 4.23, 28.60)] \) and being screened by a male service provider \( [(AOR= 0.17; 95\% CI 0.07, 0.44)] \).

This is supported by the findings of Munthali, Ngwira and Taulo (2015) study in Malawi where respondents mentioned that using male service providers can be a barrier for women to access screening services. In another study on community perceptions of cervical cancer and its screening, most respondents considered screening acceptable as long as it was done by female health care providers (Ansink et al., 2008). This could be due to the embarrassment of exposing their private parts to males.

5.6 Limitations to the Study

Due to time constraints, in-depth interviews could not be carried out which could have thrown more light on the reasons given for not screening as well as the testing experiences.
CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study was carried out to assess the knowledge of health workers in AOB district and also examine their screening practices on cervical cancer. It was also to discover the factors that affect and influence their decision to screen. The study revealed that awareness of cervical cancer is high, the overall level of knowledge however was average. It was evident that most of the health workers who took part in this research did not have adequate knowledge on methods of testing for cervical cancer. Most importantly, notwithstanding the average level of knowledge among the participants, their screening practice is poor as most have never been screened. However most are willing to screen for free. Cost of screening, and provision of screening services by a male were found to be significantly associated with screening.

6.2 Recommendations

Following the findings of the research, the underlisted recommendations were made.

Government

The government through the National Health Insurance Authority should consider the possibility of adding cervical cancer screening to the insurance package to make it affordable and accessible to majority of Ghanaians. There should also be a national program on cervical cancer prevention, introducing interventions such as vaccination and screening. More health workers must be trained to render these services and more screening centres set up to increase accessibility.
District Health Directorate and Facilities

There should be workshops and sensitization programs in the district to create more awareness especially on the screening. Also, health facilities should develop and implement suitable programs to increase screening uptake. There should be stakeholder involvement in decisions and interventions concerning this condition. Community outreaches are also important if we are to reach and screen a lot of women.

Health Professionals

Health professionals considering their role in the campaign against cervical cancer; should update their knowledge on it since they are a source of information to their clients and the whole community, so they can help educate the general public. In view of the fact that less number of the respondents stated health workers as their source of information, public education by health workers should be intensified.
REFERENCE


Arrossi, Silvina, Paolino, Melisa, & Sankaranarayanan, Rengaswamy (2010). Challenges faced by cervical cancer prevention programs in developing countries: a situational


APPENDICES

Appendix A: Participants’ Consent Form

Participants’ Information Sheet

Research Topic: knowledge and screening practices on cervical cancer among health workers in Asikuma Odoben Brakwa district

Introduction: I am Juliet Nyamekye, a postgraduate student of the school of public health, University of Ghana pursuing Master of Public Health (MPH). I am conducting a research on “knowledge and screening practices on cervical cancer among health workers in Asikuma Odoben Brakwa district” in partial fulfillment for the award of my MPH degree and will like to invite you to participate, you do not need to decide immediately though. The details of this study will be explained to you so you know what it entails.

Background and Purpose of Research: Cancer of the cervix is the second most common cancer among women worldwide (Shafi, 2012). According to WHO, there was an estimated 570,000 new cases of cervical cancer in 2018 representing 6.6% of all female cancers. Approximately 90% of deaths from cervical cancer occurred in low- and middle-income countries. The high mortality rate from cervical cancer globally could be reduced through a comprehensive approach that includes prevention, early diagnosis, effective screening and treatment programmes (WHO, 2019). Previous studies have showed that though most health workers are aware and have knowledge of cervical cancer, this knowledge does not translate into screening for this condition.

Nature of Research: Health workers are a good source and resource of knowledge to their community members and the world at large. Therefore this study aims to explore the knowledge of health workers in Asikuma Odoben Brakwa district as well as their screening practices as a step towards designing interventions concerning cervical cancer in the district. This research is to determine the knowledge level of health workers, their perceptions on cervical cancer and their attitude towards screening. The category of people who will be involved in this study are female health workers, of all areas of the health profession. In all, about 158 workers are expected to take part in the study.
Participants’ Involvement: Your involvement in this research is fully voluntary. If you agree to be part of this study, you will be required to answer a structured questionnaire that asks questions on cervical cancer.

Duration /What is Involved: The questionnaires will be given to you to fill and then I will collect them. The study will be conducted in a period of about ten months but the collection of data is expected to be done between May and July 2019 and the questionnaire will take 20-30 minutes to fill.

Potential Risks: In participating in this study, I will be asking you to share some personal views and experiences concerning cervical cancer and also concerning sensitive topics like your sex life and you may feel uncomfortable talking about some of the topics. You do not have to answer a question if you are uncomfortable with it. There may also be emotional and psychological upset owing to the sensitivity hence necessary counselling will be provided if/when required. In the event of severe emotional upset, a psychologist is ready to counsel you.

Benefits: By participating in this research, you will be contributing towards knowledge and also your contributions and response will help in developing interventions concerning cervical cancer to help health workers and community members in this district.

Costs: You will not have to spend money to participate in this study. If you agree to participate in the study, you will be required to fill a questionnaire which will take about 20-30 minutes of your time to answer.

Compensation: You will not be given any compensation for participating in this research.

Confidentiality: No information shared with me will be disclosed to any of your colleagues or to anyone who is not part of the study team. The information that I will collect from you will be used only for academic purposes. To ensure confidentiality, your identity will not be required, the questionnaires will be coded to make it anonymous.

Voluntary Participation/Withdrawal: Participation in this study is completely voluntary and you are free to withdraw your participation at any time if you so wish without giving me any reasons. You will have the opportunity to review your responses, and you can ask to change any response that you want.
Outcome and Feedback: Data collected will be kept under lock and key, the researcher will be the only one with access to it. Feedback and findings will be given to participants and all health workers at the annual district performance review.

Feedback to Participant: The findings of this study will be disseminated and communicated to you and all health workers in the district through the District Health management team during the annual performance review for the district any peculiar and confidential information concerning a participant will be done privately to the participant.

Funding Information: This research is being funded solely by the researcher.

Sharing of Participants Information/Data: Data collected will be kept under lock and key, the principal investigator being the one with access to it and it will not be shared with anyone who is not part of the study team. The soft copy of the data will be protected with a password known only to the researcher.

Provision of Information and Consent for Participants: You will be given a copy of the Information sheet and consent form after it has been signed or thumb-printed to keep.

Who to Contact for Further Clarification/Questions: If you have any questions about this research, you can ask them now or later. If you wish to ask questions later, you may contact me, Juliet Nyamekye at School of Public Health, College of Health Sciences, University of Ghana, Legon, or on this number 0249532921 or via email: jaynyamekye8@gmail.com. You can also contact the Ghana Health Service-Ethics Review Committee Administrator, Madam Hannah Frimpong, on 0507041223 for any clarifications on ethical issues and your right as participants.
PARTICIPANTS’ STATEMENT

I acknowledge that I have read the purpose and contents of the Participants’ Information Sheet and all questions satisfactorily explained to me in a language I understand (English language). I fully understand the contents and any potential implications as well as my right to change my mind (ie withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant…………………………..   ID Code …………………………………

Participants’ Signature ……… …………………….

Date:………………………………….

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that adequate information has been given to the participant on this study and ample time has been allowed for her to understand the study. All questions and concerns raised by the participant have been addressed.

Researcher’s name………………………………………………

Signature …………………………………………………

Date………………………………………………………….
Appendix B: Questionnaire

UNIVERSITY OF GHANA
SCHOOL OF PUBLIC HEALTH

Research Topic: ‘Knowledge and Screening Practices on Cervical Cancer among Health Workers in Asikuma Odoben Brakwa District’

Date:…………………… Serial Number:……………………

I would be most grateful if you could take time off your busy schedule to answer this questionnaire as candid as you can.

Please answer all sections, however, you can choose not to answer questions you are not comfortable with. Please tick the appropriate response(s) as indicate [ √ ] where applicable.

Thank you.

SECTION A: SOCIO - DEMOGRAPHIC CHARACTERISTICS

1. How old are you (age at last birthday)?
   a. 18-30 [ ]
   b. 31-40 [ ]
   c. 41-50 [ ]
   d. 51-60 [ ]
   e. ≥ 61 [ ]

2. Religious affiliation?
   a. Christianity [ ]
   b. Muslim [ ]
   c. Traditionalist [ ]
   d. Others, please specify ………………………………………………………………………………………………………..

3. Marital Status
   a. Single [ ]
   b. Married [ ]
   c. Divorced [ ]
   d. Widowed [ ]
4. Agency of Employment
   a. Private institution [ ]
   b. Ghana Health Services [ ]
   c. Christian Health Association of Ghana [ ]
   d. Others, Specify…………………………………………………..

5. Professional qualification
   a. Community health nurse [ ]
   b. Enrolled nurse [ ]
   c. Registered general nurse [ ]
   d. Registered mental nurse [ ]
   e. Registered midwife [ ]
   f. Others (please specify)………………………………………

6. Have you ever had sexual intercourse before?
   a. Yes [ ]
   b. No [ ]

7. If yes to question 6, how old were you when you had your first sexual intercourse?
   a. ≤12 years [ ]
   b. 13-19 years [ ]
   c. 20-24 years [ ]
   d. > 25 years [ ]

8. How many sexual partners have you had?
   a. None [ ]
   b. 1 [ ]
   c. 2 [ ]
   d. 3 [ ]
   e. ≥ 4 [ ]
SECTION B: KNOWLEDGE ON CERVICAL CANCER

9. Have you ever heard about Cervical Cancer?
   a. Yes [   ]
   b. No [   ]
   c. Don’t Know [   ]

10. If yes to question 9, where did you hear about cervical cancer?
    a. Media [   ]
    b. Co-Worker [   ]
    c. Learnt about it in School [   ]
    d. Friends and family [   ]
    e. Others, Specify…………………………………………………………

11. Who can be affected with cervical cancer?
    a. Men [   ]
    b. Women [   ]
    c. All Sexes [   ]
    d. None [   ]
    e. Don’t Know [   ]

12. What age group can be affected with cervical cancer?
    a. Children [   ]
    b. Adolescent [   ]
    c. Adults [   ]
    d. All age groups [   ]
    e. Don’t know [   ]

13. What are the risk factors of cervical cancer? (kindly tick as many as applicable)
    a. Early age of first intercourse [   ]
    b. Multiple sexual partners [   ]
    c. Increased parity [   ]
    d. Immunosuppression [   ]
    e. Genital infections [   ]
    f. Don’t Know [   ]
14. What causes Cervical Cancer?
   a. Virus [ ]
   b. Fungus [ ]
   c. Bacteria [ ]
   d. Spiritual factors [ ]
   e. Others, Specify…………………………………………………………
20. Which screening methods do you know?
   a. Pap smear
   b. Visual inspection with acetic acid (VIA)
   c. Colposcopy
   d. Others, please specify

SECTION C: PERCEPTIONS AND BELIEFS ON CERVICAL CANCER

21. Can cervical cancer be cured?
   d. Yes
   e. No
   f. Don’t Know

22. Is cervical cancer preventable?
   a. Yes
   b. No
   c. Don’t Know

23. If yes to 22, how can it be prevented?
   a. Education
   b. Vaccination
   c. Screening
   d. Others, please specify

24. Do you think you are at risk of getting cervical cancer?
   a. Yes
   b. No
   c. Don’t know

25. Do you think screening is effective in reducing incidence of cervical cancer?
   a. Yes
   b. No
   c. Don’t know
26. Do you think poor personal hygiene causes cervical cancer?
   a. Yes [ ]
   b. No [ ]
   c. Don’t know [ ]

**SECTION D: SCREENING PRACTICES AND EXPERIENCES**

27. Have you ever screened for Cervical Cancer?
   a. Yes [ ]
   b. No [ ]
   c. Don’t Know [ ]

28. If Yes to question 27, how many times have you screened?
   a. Once [ ]
   b. Twice [ ]
   c. > two [ ]

29. If No to question 27, why have you not screened for Cervical Cancer?
   a. Don’t know about screening [ ]
   b. High cost of screening [ ]
   c. Unavailability of screening center [ ]
   d. My partner does not agree to it [ ]
   e. I feel shy due to the procedure [ ]
   f. Others, please specify……………………………………………………………………

30. How often should one be screened?
   a. Once a year [ ]
   b. 3 years [ ]
   c. 5 years [ ]
   d. Once in a lifetime [ ]
   e. When symptoms appear [ ]
   f. Others, please specify……………………………………………………………………
31. Will you voluntarily screen if it is free?
   a. Yes [ ]
   b. No [ ]
   c. Don’t Know [ ]
32. Will you accept screening by a male provider?
   a. Yes [ ]
   b. No [ ]
33. Will you recommend screening to a client or friend?
   a. Yes [ ]
   b. No [ ]
   c. Don’t know [ ]
34. How much are you willing to pay for screening?
   a. 10-20 cedis [ ]
   b. 30 – 50 cedis [ ]
   c. 60-100 cedis [ ]
   d. >100 cedis [ ]
35. If you have screened before, how was the experience?
   .................................................................
   .................................................................
   .................................................................
   .................................................................
   .................................................................
36. Any other comment
   ........................................................................
   ........................................................................
   ........................................................................
   ........................................................................
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.

MyRef. GHS/RDD/ERC/Admin/App
Your Ref. No.

Juliet Nyamekye
University of Ghana
School of Public Health
Legon

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

<table>
<thead>
<tr>
<th>GHS-ERC Number</th>
<th>GHS-ERC 050/04/19</th>
</tr>
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<tbody>
<tr>
<td>Project Title</td>
<td>Knowledge and Screening Practices on Cervical Cancer among Health Workers in Asikuma Odoben Brakwa District</td>
</tr>
<tr>
<td>Approval Date</td>
<td>8th July, 2019</td>
</tr>
<tr>
<td>Expiry Date</td>
<td>7th July, 2020</td>
</tr>
<tr>
<td>GHS-ERC Decision</td>
<td>Approved</td>
</tr>
</tbody>
</table>

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