

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**COLLEGE OF HEALTH SCIENCES**  
**SCHOOL OF PUBLIC HEALTH**  
**DEPARTMENT OF HEALTH PROMOTION, EDUCATION AND**  
**DISABILITY STUDIES**

**CERVICAL CANCER SCREENING OPTIONS FOR FEMALE TERTIARY**  
**STUDENTS AND ATTITUDE TO NATIONAL PRIMARY PREVENTION**  
**STRATEGY IN BONO AND AHAFO REGIONS**

**BY**  
**REBECCA DORCAS COMMEY**

**NOVEMBER, 2019**

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**DEGREE OF MASTER OF PUBLIC HEALTH (MPH) IN HEALTH**

**PROMOTION AND EDUCATION**

**NOVEMBER, 2019**

## DECLARATION

I hereby declare that except for references to other people's work which have been duly acknowledged, this work is the result of the original research work taken by me under supervision. It contains no materials previously published by another person which has been accepted for the award of any degree elsewhere

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(Head of Department)	Signature	Date

## **DEDICATION**

I dedicate this thesis to the Almighty God who has been my source of strength and wisdom. To my senior brother Stephen Commey for his encouragement and support.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

HPV	-	Human Papilloma Virus
MOH	-	Ministry of Health
WHO	-	World Health Organization
IARC	-	International Agency for Research on cancer
HIV	-	human immunodeficiency virus
CDC	-	Centers for Disease Control and Prevention

## **ABSTRACT**

Cervical cancer is the second most common cancer worldwide after breast cancer. Every year, around 494,000 develop cervical cancer globally and almost 49.5% (233,000) die from the disease annually with about 80% (376,000) in developing countries. Little evidence exists on the extent of knowledge about cervical cancer screening among female tertiary students in Bono and Ahafo regions.

The aim of the study was to assess knowledge, risk perceptions, level of accessibility and intention or willingness to take cervical cancer screening among female tertiary students in the Bono and Ahafo regions.

The study adopted a cross-sectional study design and a quantitative approach. A cluster sampling technique was used to select 250 respondents for the study. Data was collected using a structured questionnaire and analyzed using descriptive statistics with the help of STATA software v14.

The knowledge of cervical cancer among the female tertiary students was generally average (48%) for signs and non-signs and 64% on risk factors, although 58% have not heard about a preventive vaccine. Level of accessibility to cervical cancer was low. 59.8% do not know where to get cervical cancer screening services, 62% do not have accessibility to cervical cancer services and reproductive health facilities in the regions under study. Also, on risk perception, 82% use condom as a means of protection during sexual intercourse of which the majority 54.6% used condom to prevent pregnancy. 50.6% do not believe they can get HPV from infected boyfriend. The intention or willingness to take cervical cancer was influenced by perceived susceptibility, perceived benefits, perceived barriers, perceived severity and cues to action on development of cervical cancer of which 59% indicated they are not susceptible, 60.3% indicated cost, lack of information and others personal barriers to take the screening. Approximately 85% indicated high benefits in taking the screening as it provides early detection and can save life. About 50% also indicated external cues from significant others can influence their intention to take cervical cancer screening.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background**

Cancer is a disease that is characterized by the abnormal cells growth that can then invade adjoining parts or organs (WHO 2018). There are various kinds of cancer that affect women, five affect the reproductive system namely, cervix, ovary, uterus, vagina and vulva. Of these, the most common ones are breast cancer and cervical cancer. Infection with high risk Human Papilloma Virus (HPV) causes about 99.7% of cervical cancer. There are various types of HPV but 16 as well as 18 (onco genic types) are the ones responsible for cervical cancer (WHO 2014).

Cervical cancer is considered as a public health concern that is causing high morbidity and mortality among women. Of the female reproductive system cancers cervical cancer is found to be the most common cancer in sub-Saharan African women and the fourth most common cancer among women worldwide (IARC 2012). According to Ferlay et al., (2012)., it was found to be a common female cancer in many low-income countries. It is a preventable disease; it is a cancer found in the cells of the cervix.

In a related study by WHO (2012) about 500,000 women are diagnosed globally every year and its responsible for more than 280,000 deaths annually. 80% of incidence of cancer of the cervix across the globe of cases occurs in developing countries. Screening for cancer of the cervix compared with other cancers, is the most effective, it has the ability to detect pre-cancerous stage and high-risk type Human Papilloma Virus (HPV) which causes 70% cervical cancers through Pap smear.

The risk factors for cancer of the cervix; include persistent infection by human papillomavirus (HPV) high-risk (HPV-hr), especially HPV-16 and HPV-18 virus.

Cervical cancer is preventable, and effective screening programs reduce associated mortality and morbidity. Prevention of cancer of the cervix includes primary, secondary and tertiary prevention methods. Primary prevention involves vaccination and avoiding exposure to risk factors; secondary prevention involves detection of precancerous disease and treatment. Tertiary prevention includes measures to reduce, recurrence or progression to invasive disease (Couture et al 2009).

## **1.2 Statement of the problem**

According to a report from WHO (2018) low and middle income countries experience about 90% of deaths from cancer of the cervix. It is important to put measures into reducing the incidence, morbidity and mortality rates because cervical cancer is preventable. In most developed countries, the strategies employed are to screen and vaccinate women against the HPV virus. The introduction of Papanicolaou smear-based screening since the fifties, mortality in 70% of developed countries has declined, and incidence in the Nordic countries is about half the incidence in the sixties.

On a related study by Bruni et al., (2010) cancer of the cervix cervical is a dynamic condition and has the highest incidence rate in young adults. In sub-Saharan Africa, cervical cancer is the most common cancer of female reproductive system. In West African countries, such as Ghana cervical cancer accounts for an estimated 20–25% of all new cancers among women (est. IARC 1990). Effective screening and treatment services are scarce in these countries with limited resources. having

knowledge and understanding of the condition, modes of transmission and prevention can be helpful.

### **1.3 Rationale of the study**

Cervical cancer is the second most common cancer in Ghana. Despite this high prevalence, it has not received much attention as breast cancer. The purpose of the study is to explore knowledge, level of accessibility, risk perceptions, and factors affecting intention or willingness to take cervical cancer screening in the Bono and Ahafo Regions in Ghana with the focus on female tertiary students. Findings from this study will be useful to supplement knowledge and awareness on cervical cancer, which can serve as a base for appropriate intervention as well as create opportunities for both the Ministry of Health and Ministry of Education to produce policies and programmes.

The identification of preventive practices and knowledge deficit can serve as a guide for the development of health promotional programs.

Also, evidence and strategies generated could be used by health professionals and learners to improve the prevention of cervical cancer.

### **1.4 Research questions**

The following research questions were formulated to guide the investigation;

1. What is the level of knowledge on cervical cancer screening among female tertiary students?
2. What is the level of accessibility to cervical cancer and reproductive services to female tertiary students in the Bono and Ahafo regions?
3. What are the risk perceptions of female tertiary students on cervical cancer?

4. What are the factors associated with intention/wiliness to take screening for cervical cancer?

### **1.5 Study Objective**

To assess the knowledge and factors associated with the intention to take up cervical cancer screening.

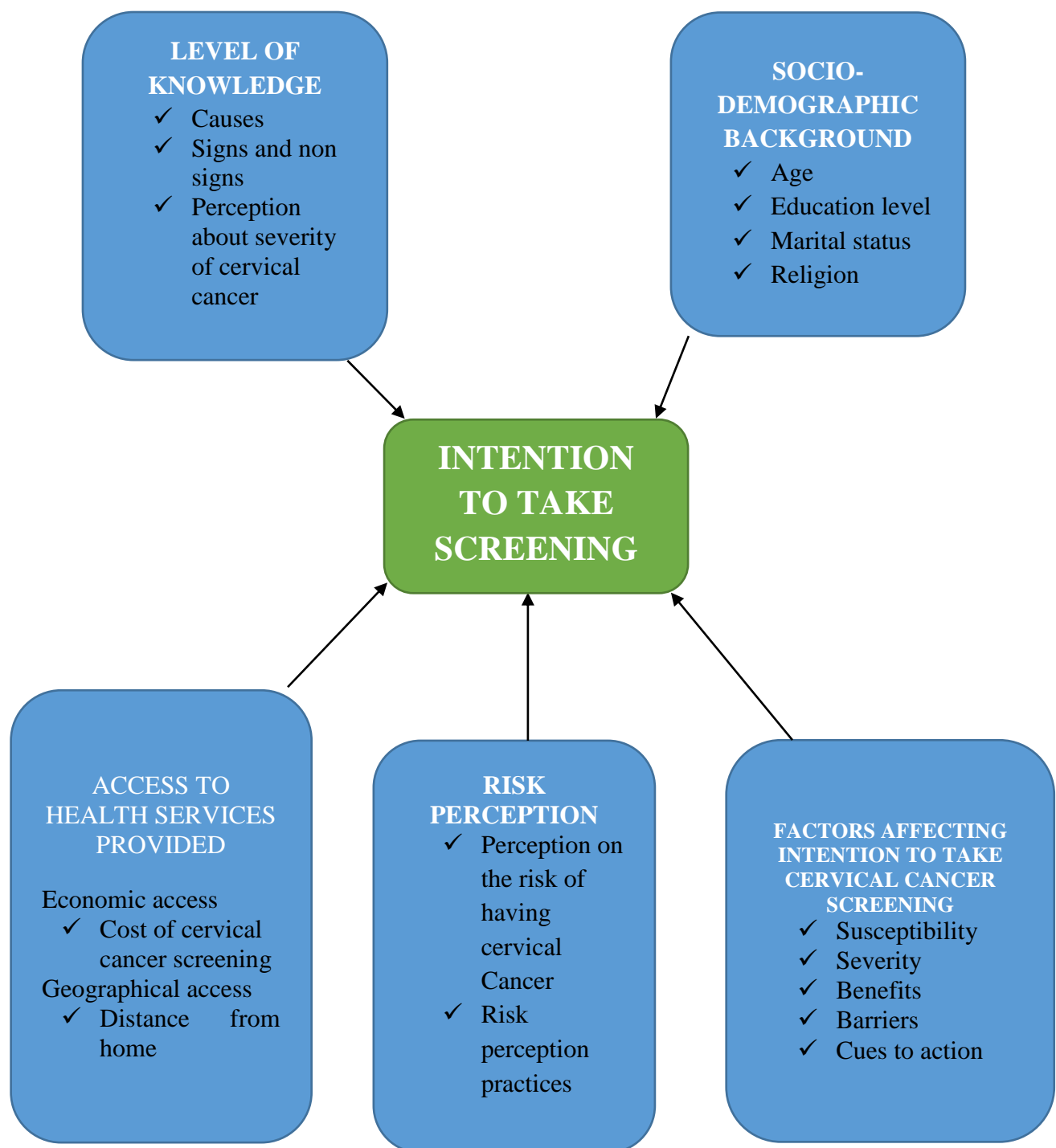
### **1.6 Specific Objectives**

1. To assess the knowledge towards cervical cancer screening and prevention among female tertiary students.
2. To determine how accessible cervical cancer clinics and reproductive health services are to female tertiary students.
3. To determine the risk perception among female tertiary students in the Bono and Ahafo regions.
4. Determine the factors associated with intention to take cervical cancer screening.

### **1.7 Conceptual framework**

A conceptual framework is used in research to outline possible factors associated with the intention to take cervical cancer screening. The conceptual framework below shows how socio-demographic characteristics, knowledge level, source of information, access to cervical cancer health services provided and factors associated with intention to take cervical cancer screening among female tertiary students in Bono and Ahafo regions.





**Figure 1.1 Conceptual Framework**

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Overview**

This chapter reviews published and unpublished literature which are relevant to the context of this research. They address various aspects of cervical cancer with respect to human health as well as initiatives and programmes instituted by international and local organizations to control and prevent it.

#### **2.1 overview on cervical cancer?**

Cervical cancer is predominantly caused by infection of Human Papilloma Virus (HPV). This virus is transmitted through sex and it affects men and women while it grows without symptoms (asymptotically). Low-risk HPV infections usually clear up without any interventions within a few months or cause vulvar warts. When the infection is not controlled and treated, it persists and the risk of dysplasia as well as further progression to cervical cancer increases (Kuhn et al., 2010). Several studies have established that Human Papilloma Virus (HPV) strains 16 and 18 were identified in 70% of all cervical cancer cases worldwide (Anorlu, 2008)

A small proportion of infections caused by 13 high-risk HPV serotypes are more likely to persist and cause cancer. These high-risk HPV serotypes are also linked to cancers in the anus, vulva, vagina, and penis. Despite development of highly developed vaccines against HPV 16 and 18, 270,000 women died in 2012. Not surprisingly, greater than 85% of these deaths occurred in LMIC.

## **2.2 Biology of the disease**

Maximum number of cervical cancer cases are caused by human papillomavirus (HPV) transmitted through sex. Asymptotically (Parkin & Bray, 2006). This is the same virus that causes genital warts. Some women are (known or unknown to them) carriers of these viral infections and they are at risk for progression to the pre-cancer stage, cancer in uteri and also, to a low degree, vulva, vaginal and anal cancers (Trottier and Franco, 2006).

About 100 different strains of HPV in existence. The two types that most commonly causes cancer are HPV-16 and HPV-18. Progression of HPV lesions to cervical cancer usually takes 15 to 20 years before manifesting as symptoms of cervical cancer. It can take only 5 to 10 years in women with weakened immune systems, as in HIV. The main factor in development is the capacity of the Human Papilloma Virus to elude the immune system as well as create an unrelenting infection.

The pre-cancerous stages and invasive cancer are caused by the high risk type (hr-HPV). The hr-HPV types have been isolated in about 9.7% of all cases of cervical carcinomas (Franco et al., 1999). Most women (80%) often contract HPV infection at a point in their life (Munoz et al., 2003). The transforming and immortalization of cells in cervical cancer are caused by the protein products of the early Human Papilloma Virus genes 6 and 7 (E6 and E7). The proteins of Human Papilloma Virus E6 prevent the p53 mediated DNA repair and the caspase-mediated cell death response by binding and stirring up the p53 degradation, this therefore enhances the progression of cancerous (tumour) cells. This process is estimated to be the most important event the carcinogenesis associated with Human Papilloma Virus (Scheffner et al., 1990).

The closest part of the cervix to the uterus is known as the endocervix while the part closer to the vagina is called the exocervix or ectocervix. The endocervix is covered by glandular cells and the ectocervix with squamous cells. The glandular cells and the squamous cells join together to form the transformation zone, it is established this is the starting point of this type of cancer. Cervical cancer results from the growth of malignant cells in the cervix. These malignant cells starts from precancerous cells then progressively to cancer cells. The precancerous cells are also known as cervical intraepithelial neoplasia (CIN), dysplasia and squamous intraepithelial lesion (SIL) (Schiffman et al., 2007). The two main types of cancers are the squamous cells carcinoma and adenocarcinoma. The squamous cells carcinomas represent about 80% to 90% of cancer of the cervix. They develop in the squamous cells that cover the exocervix. Most of the rest of cervical cancers are adenocarcinomas. Some cervical cancers which are less commonly encountered portray the characteristics of both squamous cell carcinomas and adenocarcinomas. They are called mixed carcinomas or adenosquamous carcinomas (Creasman et al., 2006).

The process of finding the extent of the spread of cervical cancer is called staging. The different stages of cervical cancer after diagnosis was classified the Royal College of Pathologists. The College of Pathologists classified the various stages of cervical cancer by studying the characteristics of histopathology.

Information exams and diagnostic tests were used to determine the size of a tumour, which will determine the depth of the tumour in the tissue within and around the cervix, as well as the metastasis.

This process is very necessary considering the fact that the stage of the sickness at diagnosis is the key to choosing the appropriate treatment. The various stages are

arranged with clinical advice or with epidemiological advice by assigning Roman numerals (I to IV) to the various stages. Some stages have sub-stages indicated by letters and numbers (Pecorelli et al., 2009).

### ***2.2.1 FIGO staging classification for cervical cancer***

**Stage 0:** At this stage cancerous cells are exclusively located on the superficial of the cervix in the layer of cells lining the cervix. At this point the cancerous cells do not invade the inner cervical tissues.

**Stage I:** At this stage the cervical carcinoma is limited to the uterus. Stage I can have sub-stages namely stage IA and stage IB, this is in regard to the size and extend of the tumour cells. The cancerous cell mass invasion is not greater than three millimetres in depth and seven millimetres or less in horizontal spread in stage IA. However, with stage IB, lesions are clinically visible (four millimetres) and they are limited to the cervix.

**Stage II:** At this point; cancer has not gotten to the next tissues (parametria), it may spread to the upper of the vagina, but it has not grown to the adjoining lymph nodes and distant organs. At this level (stage II) the tumour may invade beyond the uterus. This stage equally has sub-stages; Stage IIA and Stage IIB without or with parametria invasion.

**Stage III:** In this stage, the tumour spreads to the lower part of the vagina wall and/or involves the pelvis. The tumour at this stage can cause hydronephrosis or non-functioning kidney. The cancer may also block the ureters without spreading to the nearby lymph nodes. It also have two sub-stages: Stage IIIA with tumour involving the lower third of the vagina without spreading to the pelvic wall; Stage IIIB where the tumour spreads to the pelvic wall and/or causing hydronephrosis.

**Stage IV:** The most advanced stage of the disease. This stage is further divided into Stage IVA, where the tumour invades the pelvic walls and/or extend beyond the pelvis; Stage IVB including metastasis to distant organs.

### **2.3 Risk factors to developing cervical cancer**

Currently the understanding, Human Papilloma Virus infection initiates a series of events to cervical cancer development, and that additional somatic alteration with one or more co-factors are necessary to support malignant transformations (Kjellberg et al., 2000).

HPV only apparently is not sufficient for cervical cancer development, but with several possible co-factors have been proposed including exposure to smoking-related carcinogens, alcoholism, contraceptive hormones, multiparity, co-existing microbial/viral infections impaired immune system (Chen et al., 1999).

The following are some of the co-factors that supplement HPV in causing cervical cancer.

#### *i. Oral contraceptives*

long-term oral contraceptive use and cervical neoplasia was established and oral contraceptives use became broadly acknowledged as a risk factor for cervical cancer since mid-1980s, when a number of studies were able to control risky sexual behaviour (Bosch, 2015).

Several studies have almost homogeneously revealed a significant association between cervical neoplasia and long term (generally varying from 4 to 5 years) oral contraceptive use (Moodley, 2004). A report by IARC (2002) found that, data from eight combined studies to assess the association between oral contraceptives use and

risk for cervical cancer among women. There was about three folds increased risk among women who use oral contraceptives. The risk was four times higher among women who had used oral contraceptives for more than ten years (Moreno et al., 2002). Another analysis of 24 epidemiologic studies established that the high risk of cervical cancer among women who used oral contraceptives for about five years declined when they stopped using oral contraceptives regardless of how long. (Appleby et al., 2007).

Apparently most cervical cancers are caused by importunate HPV infections; however, the association with oral contraceptives may be indirect. Hormones content on oral contraceptives probably change cervical cells susceptibility of to HPV infection, affecting the capacity of the cells to naturally remove the infection causing the changes that will progress to cancer (Humans et al., 2007).

*ii. Smoking*

According to a study conducted by Chen et al., (1999) smoking was a risk factor for women in developing cervical cancer. It was established that the level of substances contained in cigarette such as nicotine and its major metabolite cotinine, increase forty times and four times respectively, this was established with first biological evidence on the aetiology of smoking in cancer of the cervix neoplasm; this evidence was found in the mucus of women with cervical intraepithelial neoplasia (CIN), compared to serum levels; furthermore benzo-a-pyrene and specific nitrosamines in tobacco also found in the cervical mucus of women who smoke, while these products were not found in women who do not smoke (Trimble et al., 2005).

Acladiou et al., (2002) also indicated that smoking was associated with damage of DNA in cervical epithelium irrespective of simultaneous HPV infection). When

treated with smoke condensate, the immortalized cervical cell lines have shown to induce cancer.

According to Plummer et al., (2003), there was evidence of inducing carcinogenesis with smoke condensate in, HPV-infected cells, this indicate susceptibility of cells.

### *iii. Alcoholism*

Glade, (1999) established that alcohol as a risk factor for endometrial cancer, nevertheless, the relationship of alcohol intake and endometrial cancer are conflicting (Williams and Horm, 1977). Alcohol beverages are classified by IARC as the first group of carcinogen. IARC classifies the consumption of alcohol as a precursor of cancer at various sites; 3.6% of all cancer cases and 3.5% of cancer deaths worldwide are attributable to alcohol consumption (Boffetta et al., 2006).

A study by Allen et al., (2009), excessive alcohol consumption increases the death toll of cancer patients and facilitating cancer recurrence. The alcoholic women may have a higher risk for progression from HPV infections to malignant lesions for life-style related reasons, for example promiscuity and early start of sexual intercourse (Group, 1995).

Alcoholic women are likely to have smoked more than any other women, consequently women who smoke also have a significant increased risk of cervical cancer than those who do not smoke even when adjusting for HPV infections (Kjellberg et al., 2000)



iv. *Sexual life and infections*

Starting sexual intercourse at a very early age, multiple sexual partners, or many sexual partners of a spouse are aimed to be at risk of an HPV infection (Smart et al., 2004). Previous chlamydial infections correlate with the increase risk of cervical cancer (Munoz et al., 2003). Chlamydia trachomatis is a bacterium that infects the reproductive system and it is the most common sexually transmitted bacterial infection. It also has an influence on cervical intraepithelial neoplasia grade 2. It has an independent co-factor that facilitates the development of cervical neoplasia. A study by Smith et al., (2002), also found that Chlamydial infection does not directly cause cervical cancer, but it is believed to aid its development at early stages (cervical carcinogenesis)

v. *Impaired immune system*

Women, who present an impaired immune defence such as those with HIV and/or stress, have a higher risk of cervical cancer than women with a sound immune system (Goodkin et al., 1993).

It is suggested that HPV is more persistent in women with HIV, higher levels of HPV are usually detected in HIV positive women coupled with multiple HPV infections. The incidence rate of cervical cancer is higher in HIV positive women. Women who are treated with Immune-suppressing drugs following a transplant are also likely to develop cervical cancer; cervical intra neoplasia may progress into invasive cancer more rapidly in natural progressive history of cervical cancer (de Jong et al., 2005).

vi. *Multiple partners*

A woman who has many sexual partners puts her at high risk of acquiring the HPV infection. Generally, the risk of a woman to develop cervical cancer depends on her

husband's (partners') sexual behaviour. Men are more promiscuous in their reproductive age than women and men are often simple carriers of HPV viruses.

They can easily transmit the virus from one person to another or from one partner to another without getting infected themselves. Both sexes equally experiment and adopt new sexual behaviours, which increases the risk of female partners to develop cervical cancer (Castellsagué et al., 2002).

## **2.4 Cervical Cancer Prevention of**

### **a) *Primary prevention***

This is a way to reduce HPV infection spread. The ABC concept (Abstinence, Be faithful, use Condom) used in behaviour change communication is a way that can help in reducing the incidence of hr-HPV (Parikh, 2007)

### **b) *Secondary prevention***

Secondary prevention deals with the use of methods for early detection of infections and signs related to the development of a condition. Screening the population is known to reduce the occurrence of cervical cancer in the world and cutting down the proportion of women with advanced disease (Peto et al., 2004).

HPV test, VIA, VILI, colposcopy and cytology (Pap smear) are different techniques used in screening programmes for detection of CIN lesions and its precursors.

Screening is identified to be the major preventive method for women in their procreative age and even those who are older. The test for HPV as a screening tool for cervical intraepithelial neoplasia has been evaluated during the recent years. The HPV testing or colposcopic diagnosis with inspection of the cervix is performed in some locations lacking resources for cytologic (Pap smear) screening (Appleby et al.,

2007). Visual inspections with acetic acid (VIA) have been often implemented together with visual inspection with Lugol's iodine (VILI) (Wright et al., 2005)

### ***c. Prophylactic vaccines***

A study by Kash et al., (2015) found that Two HPV vaccines have been developed and they are in use in many countries: Cervarix which is a bivalent exposure to HPV. The mode of action of these vaccines is the use of virus-like particles that consist of L1 capsid proteins of individual HPV types in order to prevent hr-HPV 16 and 18 that are responsible for inducing precancerous lesions and cancer of the cervix (De Vuyst et al., 2009).

The above vaccines against hr-HPV 16 and 18 certainly will decrease the risk of invasive cervical cancer if women shall receive them during adolescence and preferably before the first sexual intercourse. This in turn will provide some immunity against the oncogenic HPV improving its efficiency further. However, a study by Villa, (2007) argued that vaccination cannot completely eradicate cervical cancer knowing that about 18Hr HPV types are known presently

## **2.5 Cervical cancer treatment/management**

Currently treatment of cervical cancer is multi-dimensional including surgery, radiotherapy, chemotherapy, and pharmaceuticals directed towards tumour markers.

### ***2.5.1 Surgery***

Surgery is targeted at removing the tumour and preserve the functions of the ovaries and prevent early menopause. Surgery will enable the accurate assessment of the pelvic lymph nodes; it is mostly preferred in young women provided that there are no contraindications.

According to Landoni et al, (1997), post-surgery outcome is associated with a number of factors such as the size of the primary tumour, the depth of the stromal invasion.

Some of the methods of surgery are;

*Laser surgery* consists of using a focused laser beam directed through the vagina to burn off by vaporizing abnormal cells or to remove a piece of tissue for further study (Roberts et al., 1996). The conisation surgery consists of removing a cone-shape tissue from the cervix using a surgical or Laser knife (cold knife biopsy) or using the LEEP/LEETZ which consists of thin wire electrically heated.

*Cryosurgery* is a method of surgery that uses extreme cold to destroy abnormal diseased tissues. In cervical cancer treatment a metal probe cooled with nitrogen liquid placed on the cervix killing abnormal cells by freezing them (Soutter et al., 1997).

*Hysterectomy* is the surgical removal of the uterus that is the body of the uterus and the cervix, excluding the parametria and uterosacral ligaments which are the structures next to the uterus. The lymph nodes located in the vagina and the pelvis is not removed as well as the fallopian tubes and the ovaries. The hysterectomy process can be abdominal, vaginal or laparoscopic (consisting of a surgical incisions with a laparoscope through the abdomen for the removal of the uterus monitored on a screen).

*Radical hysterectomy* is the surgical removal of the uterus alongside with the parametria

And the utero-sacral ligaments can also be done.

### ***2.5.2 Radiation therapy***

Radiation therapy involves the use high energy x-rays or particles to kill the cancerous cells. External beam radiation processes the x-rays at the cancerous cells from outside the body of the patient. It is also known as EBRT (External Beam Radiation Therapy). The treatment procedure with the EBRT takes only a few minutes. The treatment is given for five days week during five to seven weeks. When the radiation therapy is combined with chemotherapy it is called concurrent chemo-radiation (Kenter & Heintz, 2002).

### ***2.5.3 Chemotherapy***

This is a type of treatment by the use of chemical substances, especially by cytotoxic and other drugs. In this method injection through the vein (Parenteral drugs) and oral drugs (per mouth) are given to patients with cervical cancer for systemic effects.

Drugs through the blood stream can reach the various organs making chemotherapy useful in stopping metastatic cells that have spread in other parts of the body. Each period chemotherapy is given to a patient constitutes a cycle and after every cycle there is period of recovery.

There is parenteral ministration of cisplatin once weekly four hours before radiation therapy. The patients receive cisplatin 5-fluorouracil once a month during their radiation therapy. Most often in more advanced cases Cisplatin, Carboplatin, Paclitaxel, Topotecan and Gemcitabine are used to treat cervical cancer (Tinker et al., 2005).

#### ***2.5.4 Therapeutic vaccines***

Vaccines that aim to regulate HPV infections through cell mediated immunity and have shown encouraging results in different clinical and preclinical trials. They include the therapeutic vaccines targeting HPV 6 and HPV 7 (Peng et al., 2004).

### **2.6 Epidemiology**

Cervical cancer is the most common cancer among women worldwide, next to breast cancer. Globally each year cervical cancer is diagnosed in about 500,000 women and more than 280,000 deaths annually. (WHO 2014).

Cancer of the cervix is a challenge for public health both in developed and developing countries, though it can be prevented with early screening, detection and curable with appropriate and effective treatment in very early stages (Samantha Garbers & Chiasson, 2004).

Most of worldwide cases of cervical cancer is highest in developing countries, and new cases observed can be 18 times greater in poor countries compared to their developed counterparts (Torre et al., 2015). The available age standardized rates in Africa are the highest in the world. Sub-Saharan African rates vary per 100,000 women from 19.9 in Ibadan (Nigeria) through 35.7 in Bamako (Mali), 41.7 in Kyadondo (Uganda) (Parkin et al., 1999).

According to Ferlay et al., (2010), among developing regions, Africa has the largest burden of cervical cancer. Africa also records the highest incidence and mortality from cervical cancer annually.

The main precursor of cervical cancer that is HPV infection is globally observed in different levels. Surveys have shown 13-fold variation among women who are sexually active.

This infection prevalence varies per 100,000 women from 2.0% in Hanoi (Vietnam), 3.0% in Barcelona (Spain), 14.8% in Colombia, 17.7 in Argentina, and 26.3 in Nigeria (Matos et al., 2003). A study by Palacio-Mejía et al., (2003) indicated that despite the evidence of high rate of incidence and burden in Africa, the situation has been under-reported in many African countries making the disease a factor that is unknown in terms of data available, though rural residence was associated with higher mortality rates.

Cancer of the cervix is the largest cause of life lost to cancer in developing countries (Jemal et al., 2010). The incidence and the mortality rates of cervical cancer have substantially declined in industrialized countries following the start of the various screening programmes, while these programmes are almost non-existent in developing countries, hence having an effect on women survival (Parkin et al., 1999)

## **2.7 Cervical Cancer in Ghana**

In Ghana, a study by Wiredu and Armah, (2006a) indicates that cervical cancer is ranking primary source of cancer in women and the first most widespread female cancer between the ages 15 to 44. There is an estimated number of 3,052 new cases every year representing a crude incidence rate of 24.3 per 100,000 (Adanu, 2002).

The crude mortality rate is also estimated at 12.4 per 100,000 while 1,556 deaths are recorded annually. These rates are swiftly growing in contrast to the declining incidence, burden and mortality in the developed countries where effective screening programmes are implemented (Blumenthal et al., 2005). A report by The World

Health Organization (WHO) as conducted by Williams and Amoateng, (2012), projects 5,000 new cases of cervical cancer annually in Ghana by 2025 with a rise of death toll of 3,361. Cervical cancer is the foremost reason of female cancer deaths in Ghana and it is the second leading cause of death of female cancer in women aged 15 to 44 years in Ghana.

Though cancer of the cervical is preventable by screening, it is effective when the cancer is detected at a very early stage and can therefore be treated, compared to challenges observed when treating an advanced stage cancer. The Pap (Papanicolaou) smear test and the VIA (Visual Inspection Array) with acetic acid are currently available in private and public hospitals in the country (William et al., 2014).

## **2.8 Knowledge Level on Cervical Cancer**

Information and awareness on breast cancer and cervical cancer has continued to decrease as the cancer fatality increases this is because women do not enlighten themselves.

There is the belief that women who are diagnosed of cancer directly translates to unavoidable death, Hence, they find it better to avoid going for screening or have knowledge whatsoever on their health status (Powe, 2006).

In a related study in India to find out the awareness level and knowledge about Cervical Cancer among Female Premier Colleges in Kolkata Students, the study showed that 43% were aware about cervical cancer occurrence age of in Indian women. Knowledge of the risk factors was found to be low among the students. 3% had knowledge for 'multiple sex partners' followed by that (4%) for 'other cervical infections'.



In another study Syed et al., (2010) on Interns and Nursing Staff in Tertiary Care Hospitals in Karachi, Pakistan on Knowledge and Awareness about Cervical Cancer and Its Prevention found out that over 35 risk factors were reported such as multiple partners, sexual practice included unprotected sex, and other promiscuous behavior was the most common risk factor observed (45%). Other mentioned risk factors were, infection, multiparity, early stage at first coitus, family history, smoking, age, contraception.

In a similar research among Ethiopian women to ascertain the comprehensive knowledge about cervical cancer, it was established that about 495 (78.7%) of the respondents had heard about cervical cancer. When they were asked about their source of information, television/radio was the predominant source, 301 (60.8%) followed by health professionals, 173 (34.9%) and friends/relatives 107 (21.6%).

Healthcare professionals are the important persons to provide accurate information and facilities towards cervical cancer prevention. Although some ancillary staff including laboratory workers are not directly involved in clinical care and health education, having accurate knowledge about cervical cancer, HPV and the vaccine is important in preventing themselves from cervical cancer or even explain to others out of the health fraternity that perceive them to know. Hence, female healthcare professionals, must be skilled and give women advice and educate them on preventive behaviors and encourage screening Catherine Akorfa Korlu (2014).

## **2.9 Accessibility to cervical cancer clinics and reproductive health services**

World Health Organization (WHO, 2002), indicated a decrease in the mortality rate among developed countries regarding cervical cancer due to the improved screening techniques. However, developing countries have limited of techniques. Programs have

been Organized and continuously implemented in developed countries. These programs continue to be successful due to high level funding by government organizations. women are actively involved in some of the countries, to participate in the screening programs. This report by the World Health Organization proves how significant the availability of screening centers can be in the reduction of cervical cancer worldwide. In Ghana, there is very little to write home about since there are only few screening. However, these resources or facilities are not strategically situated. For instance, within the three Northern Regions, there is no screening centre. The nearest screening centre to the north can be found in Kumasi. The problem of proximity and unavailability of screening centers for that matter obviously will not encourage women to visit the facility for regular screening.

#### **2.10 Risk perception on cervical cancer**

In 2000, it was estimated that about 9.2 million young adults between 15–24 years were infected with HPV and can of spreading the infection (Weinstock, Berman, &Cates, 2004).

An estimates by then American Social Health Association (2001) indicate about 14,000 new cases of cervical cancer are diagnosed each year with over 5000 women dying. Likes & Itano, (2002) conducted a clinical studies, confirmed that HPV is the major cause of all cervical cancers. Another study by the American Cancer Society (ACS) (2004), indicate contracting HPV is the greatest risk factor for the development of cervical cancer. Other risk factors are smoking, HIV infection, Chlamydia, poor diet, oral contraceptives, multiple pregnancies, low socioeconomic status, exposure to diethylstilbestrol medication (in utero), and family history of cervical cancer.

For decades, cervical cancer– screening programs have been implemented in the United States and other developed countries (CDC, 1999).

### **2.11 Factors Affecting Intention to take cervical cancer screening**

Cancer of the cervix can be cured and treated when detected early (Likes & Itano, 2003). Taking a Pap test is important for achieving secondary prevention and early detection of cervical cancer in all women (Roye et al., 2003).

An ACS (2004) along with the American College of Obstetricians and Gynecologists (2004) recommend that all women should receive their first gynecologic visit for screening, prevention measures and guidance before their first sexual encounter, and have their first Pap screening about 3 years after they begin having vaginal intercourse but no later than age 21. Women who are of age 30 or older who may have had three consecutive normal Pap tests may choose to be screened with a Pap test every 2–3 years (ACS). However, the College of American Pathologists (CAP) recommend the older guidelines of getting an annual Pap smear at age of intercourse, but no later than 18 years of age (CAP, 2004).

A report by Stagg-Elliott (2004) indicate that even though HPV testing is becoming an increasing practice, there is communication by health care providers in discussing test results. Some of the reasons for the communication gap includes stigma of informing a woman she has an STD and time needed to discuss the virus. Experts warn that the communication gap can also lead to fear, and patients failing to return for future testing.

The Health Belief Model according Ingledue et al., (2004). can be help examine the relationship between beliefs and health-specific behaviors

The model, explains how individuals will be more likely to perform health promoting behavior if they perceive an illness as being severe, sense that there is a high risk of contracting the illness, and believe that the health action will result in a positive benefit that will overshadow any barriers encountered, and also use cues to action as a trigger to influence them take action (Burak & Meyer, 1997).

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter reviews the methodology and research design, including, selection criteria; inclusion and exclusion criteria, the target population from which the sample was drawn research instrument, ethical considerations and data analysis procedures.

#### **3.2 Study Design and type**

This is a descriptive cross-sectional study. According to Gay and Airasian (2006), the descriptive survey is concerned with the relationships that exist, such as determining the nature of prevailing conditions, opinions that are held; processes that are going on; or trends that are developed and practices and attitudes. They also argued that it was only descriptive studies that lead to generalizations beyond the given sample and situation.

Descriptive survey is the type of study design that determined and reported the way things are. The design has the advantage of eliciting answers from a wide variety of people, it involved asking the same set of questions to large number of individuals through mails, telephone and by hand on the basis of data gathered at a point in time. It is also appropriate when the researcher attempted to describe some aspects of a population by selecting unbiased samples of individuals who are asked to complete questionnaire, interview and test Silverman (2006).

#### **3.3 Profile of the study area**

The research was carried out in the Bono and Ahafo regions. They are two of the newly created regions in Ghana with Sunyani and Goaso as their capitals respectively.

These region was curved out of the Brong ahafo region. The languages spoken are twi and Bono

### 3.4 Study population:

The targeted study population consist of students in all female tertiary student in the Bono and Ahafo Region of Ghana. The two regions combined have two universities, one technical university one teacher training school, and eight health training schools.

### 3.5 Sample Size.

The sample size was calculated using the formula below:

$$n = \frac{z^2 pq}{d^2}$$

Where:

$n$  = sample size,

$z$  = reliability coefficient of 1.96

$d$  = error allowance of 0.05

$p$  = proportion of population estimated diagnosis of cervical cancer = 14% = 0.14 and

$q = 1 - p = 1 - 0.14 = 0.86$

$$n = \frac{1.96^2 (0.14) (0.86)}{(0.05)^2}$$

$n = 183$

10% of non-respondent effect will be used to augment the sample size, thus

$$10/100 \times 183 = 18.3 \approx 20; 183 + 20 = 203 \approx 205.$$

In order not to get less than the calculated sample size, 250 respondents were employed in this study.

### **3.6 Data Collection Techniques**

A quantitative data collection technique was employed using a structured questionnaire with both close and open – ended questions

### **3.7 Sampling Procedures**

A multistage cluster sampling technique was employed in this study. Three (3) institutions were selected out of the total number of schools based on their characteristics, one university and two health training schools. The institutions were randomly selected by writing the names of the schools on pieces of papers and folding them into a box and one picked for each category. Simple random sampling was employed at this stage to select each respondent to be interviewed. Simple random sampling was used because it is easier to form representative gaps from an overall population, it also provides for multiple randomness types to be included in the research and it offers an equal chance of selection for everyone within the population group. In the third stage 60 students was randomly selected through a lottery system of selection in each of the two training institutions and 130 from the university, students were given numbers. Those with odd numbers took part in the research while those with even numbers were made to leave the classes to enable their colleagues respond independently to the questionnaire.

At the end of the sampling procedure college of Health Yamfo, Nursing and Midwifery Training College and University of Energy and Natural Resources, Sunyani were selected for the study

A simple random sample of 250 respondents was included in the study taking into cognizance the total population of students in the study area in order to facilitate generalizability.

### **3.8 Inclusion criteria:**

During the period of data collection, all female tertiary students the selected institutions will be included in the selection criteria.

### **3.9 Exclusion criteria**

All females outside the selected institutions.

### **3.10 Pre-testing**

The study was pretested at nursing training college Ntotroso the population has the same characteristics and similarities as compared to the selected study population. Pre-testing revealed the weakness of the data collection tools. Corrections were made to address the weaknesses observed.

### **3.11 Data Handling**

The data extracted from the questionnaire was entered into excel software programme. The data was crossed checked for completeness and all corrections were also made. These checks were done on regular basis and back-up copies were saved.

### **3.12 Data analysis**

Questionnaires were coded before analyzed. Descriptive statistics was used to illustrate the level of knowledge, screening option and information on prevention protocols on cervical cancer among respondents. Geographical presentations such as pie charts and tables will be used to present results of findings. STATA 0version 14 for windows will be used for data analysis.



### **3.13 Ethical Consideration**

Ethical clearance for the study was obtained from the Committee on Human Research, Publications and Ethics (CHRPE) of KNUST.

An introductory letter was sent to the heads of the selected institutions.

Consent of participants were sought before interview and confidentiality would be ensured on information provided by respondent.

## **CHAPTER FOUR**

### **RESULTS**

#### **4.0 Overview**

The chapter presents the results of the study concerning respondents' knowledge and attitude on cervical cancer, how accessible cervical cancer clinics and reproductive health services are, risk perception and factors associated with intention and willingness to take up cervical cancer screening.

#### **4.1 Background of Respondents**

In the period of data collection, a total sampling resulted in the recruitment of 249 female tertiary institution students, from three institutions; two health institution and a university.

Table 4.1 shows the demographic characteristics of respondents recruited in this study. Majority of the students (80.7%) are within the ages of 19-25 years with mean age of 23.3 and a standard deviation of 3.2. Respondents were predominately Christians (91.5%). Most of the respondents (91.6%) have never been married (single).

**Table 4.1 Socio-Demographic Characteristics of Respondents**

<b>Variable</b>	<b>Frequency (n=249)</b>	<b>Percentage (%)</b>
<b><i>Age groups</i></b>		
19 - 25yrs	201	80.7
26 - 30yrs	41	16.5
31yrs & Above	7	2.8
<b><i>Mean Age (Std. Dev.)</i></b>	<b>23.3 (3.2)</b>	
<b><i>Religion</i></b>		
Christians	228	91.5
Moslem	21	8.5
<b><i>Marital status</i></b>		
Single	228	91.6
Married	18	7.2
Divorced	3	1.2

**Source:** field data, 2019.

## **4.2 Knowledge about Cervical Cancer**

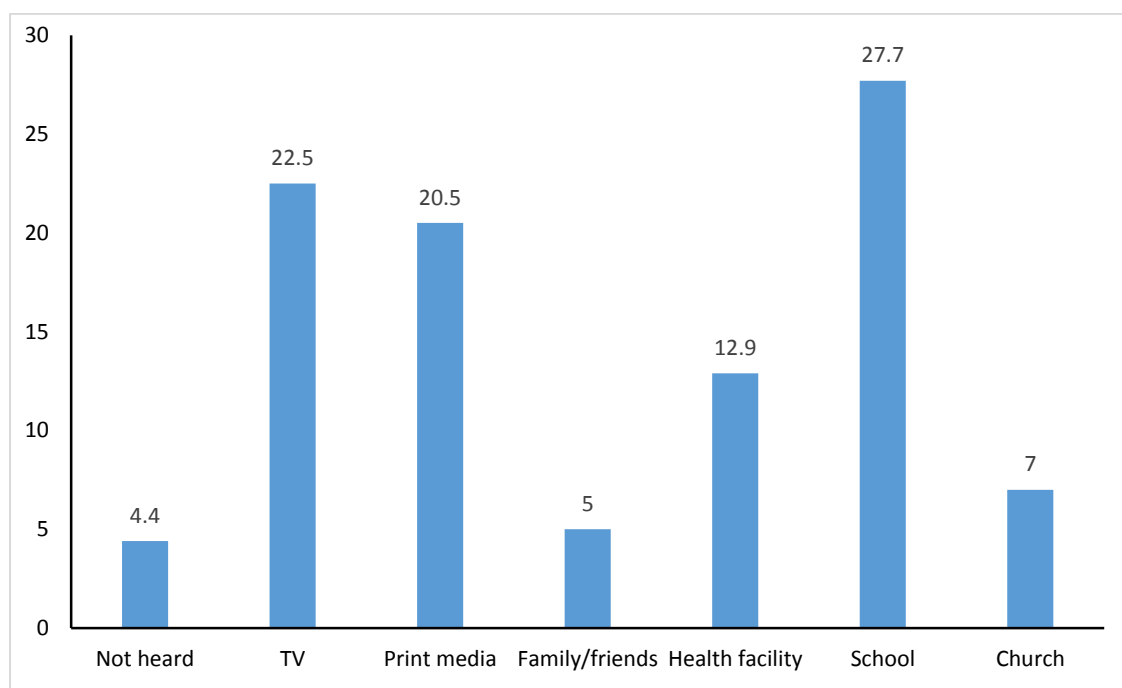
### ***4.2.1 Source of Information, Signs and non-signs of Cervical Cancer***

For the assessment on knowledge on cervical cancer respondents were asked about signs and symptoms as well as risk factors for cervical cancer. Table 4.2 shows the percentage distribution of their responses. Majority 93.6% had heard about cancer of the cervix and the source of information was mostly school as shown in figure 4.1. on the signs and non-signs of cervical cancer, majority of the respondents identified vaginal bleeding between periods (93.6%), persistent and lower back pain 43.4%, persistent vaginal discharge that smells 61.5%, discomfort or pain during sex 71.9%, heavier or longer menstrual period 46.2%, post-menopause vaginal bleeding 55.4%, persistent pelvic pains 63.9%, vaginal bleeding during and after sex 60%, unexplained weight loss 48.2. However, respondents identified persistent diarrhea (64.3) and blood in stool or urine 37% as not a signs and symptoms of cervical cancer.

**Table 4.2 Signs and non-signs of cervical cancer**

Variable	Yes	No	Don't know
<b>Heard of cervical cancer</b>	233 (93.6%)	11 (4.4%)	5 (2.0%)
<b>Vaginal bleeding between periods</b>	147 (59.0%)	40 (16.1%)	62 (24.9%)
<b>Persistent lower back pain</b>	108 (43.4%)	69 (27.7%)	72 (28.9%)
<b>Persistent vaginal discharge that smells</b>	153 (61.5%)	50 (20.0%)	46 (18.5%)
<b>Discomfort or pain during sex</b>	179 (71.9%)	46 (18.5%)	24 (9.6%)
<b>Heavier or longer menstrual period</b>	115 (46.2%)	96 (38.5%)	38 (15.3%)
<b>Persistent diarrhea</b>	19 (7.6%)	160 (64.3%)	70 (28.1%)
<b>Vaginal bleeding after menopause</b>	138 (55.4%)	63 (25.3%)	48 (19.3%)
<b>Persistent pelvic pains</b>	159 (63.9%)	48 (19.2%)	42 (16.9%)
<b>Vaginal bleeding during or after sex</b>	151 (60.6%)	38 (15.3%)	60 (24.1%)
<b>Blood in stool or urine</b>	89 (35.7%)	92 (37.0%)	68 (27.3%)
<b>Unexplained weight loss</b>	120 (48.2%)	81 (32.5%)	48 (19.3%)

**Source:** field data, 2019.

**Figure 4.1 source of information on cervical cancer**

**Source:** field data, 2019.

The assessment on the level on awareness on signs and non-signs of cervical cancer showed in Table 4.3 that almost halve of the respondents 48.6% had a high level of awareness on cervical cancer. The assessment was made from the number of respondent that were able to correctly choose the signs of cervical cancer from the options provided in the questionnaire.

**Table 4.3 Overall Knowledge Level on Cervical Cancer**

<b>Awareness Rating</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<i>Low Awareness (0-4)</i>	64	25.7
<i>Average awareness (5-8)</i>	64	25.7
<i>High Awareness (9-12)</i>	121	48.6
<b>Total</b>	<b>249</b>	<b>100</b>

**Source:** field data, 2019.

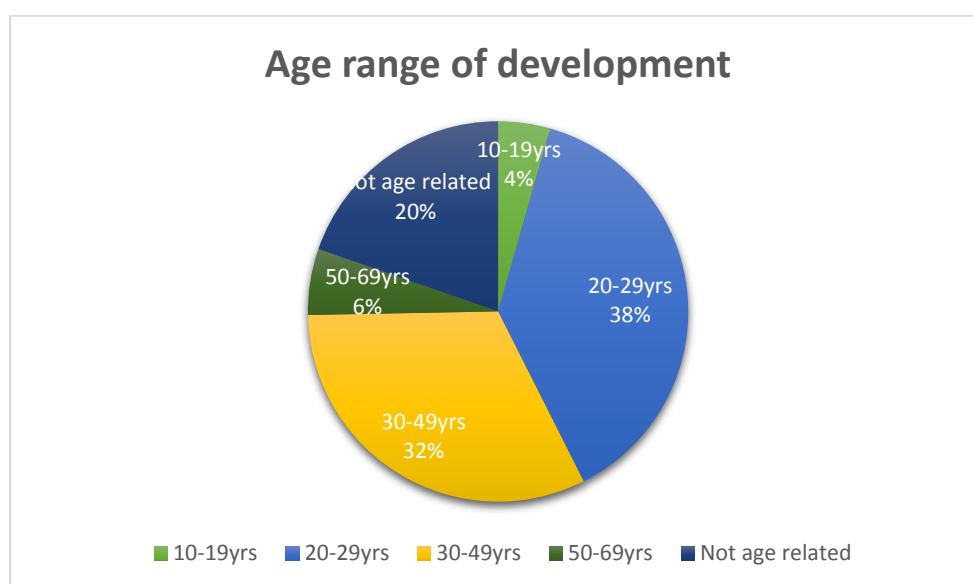
#### ***4.2.2 Knowledge on risk factors of cervical cancer***

On the risk factors of cervical cancer respondents identified HPV infection 77.7%, weakened immune system 61.5%, long term contraceptive use 67.1%, chlamydia infection 51.8%, many sexual partners 65.1%, sexual partner with many previous partners 64% as the risk factors predisposing someone to developing cervical cancer as shown in Table 4.4. However, respondent could not identity sexual intercourse before 17years 43.8% and having many children (parity) 11.2% age at mid-life 30 - 49 years 32% as shown figure 4.2 as a risk factor. But identified not circumcised sexual partner 49.4% as not a risk factor correctly.

**Table 4.4 Knowledge on risk factors**

Variable	Yes	No	Not sure
<b>HPV infection</b>	192 (77.1%)	40 (16.1%)	17 (6.8%)
<b>Cigarette smoking</b>	117 (47.0%)	80 (32.1%)	52 (20.9%)
<b>Weakened immune system</b>	153 (61.5%)	78 (31.3%)	18 (7.2%)
<b>Long term contraceptive usage</b>	167 (67.1%)	74 (29.7%)	8 (3.2%)
<b>Chlamydia infection</b>	129 (51.8%)	67 (26.9%)	53 (21.3%)
<b>Uncircumcised sexual partner</b>	79 (31.7%)	123 (49.4%)	47 (18.9%)
<b>Sexual intercourse before 17yrs</b>	109 (43.8%)	127 (51.0%)	13 (5.2%)
<b>Many sexual partners</b>	162 (65.1%)	54 (21.7%)	33 (13.2%)
<b>Having Many children</b>	28 (11.2%)	141 (56.6%)	80 (32.2%)
<b>Sexual partner with multiple previous partners</b>	160 (64.3%)	61 (24.5%)	28 (11.2%)
<b>Having regular pap test</b>	71 (28.5%)	97 (39.0%)	81 (32.5%)

Source: field data, 2019.



**Figure 4.2 Age range for cervical cancer development**

Source: field data, 2019.

The assessment on the level of knowledge on risk factors of respondents on cervical cancer was average as showed in Table 4.5 majority of the respondents 64.3% had an average. However, only 8% had high knowledge level on risk factors of cervical cancer. The assessment was made from the total number of respondents that were able to indicate correctly the risk factors of cervical cancer. Respondents who scored between 9 -11 were marked high and 5-8 as average. With 0 – 4 as low.

**Table 4.5 Level of knowledge on risk factors**

<b>Risk factors Rating</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<i>Low Awareness (0-4)</i>	69	27.7
<i>Average awareness (5-8)</i>	160	64.3
<i>High Awareness (9-11)</i>	20	8.0
<b>Total</b>	<b>249</b>	<b>100</b>

**Source:** field data, 2019.

#### **4.2.3 Awareness on Pap Smear Test**

From Table 4.6; the number of respondents who have heard about the pap smear test 66.3%, know what pap smear test is about 55%. It was identified that majority of the respondent 58.1 have not heard about a vaccine against cervical cancer.

**Table 4.6 Awareness on pap smear test**

<b>Variable</b>	<b>Yes</b>	<b>No</b>	<b>Don't know</b>
<b>Heard about Pap smear</b>	165 (66.3%)	68 (27.3%)	16 (6.4%)
<b>Know what pap smear is about</b>	138 (55.4%)	72 (28.9%)	39 (15.7%)
<b>Heard of a preventive vaccine</b>	31 (12.9%)	140 (58.1%)	70 (29%)

**Source:** field data, 2019.

### **4.3 Level of Accessibility to Cervical Cancer Clinic and Reproductive Health**

#### **Services**

Most respondents (59.8%), do not know where to get cervical cancer screening with 41% indicating the distance to the facility as very far. However, 63.7% indicated that the inappropriate operational time of the facility is not their reason for not taking the screening. But 66.3% know where to get counselling on reproductive health. 58.6% do not know any vaccination against cause of cervical cancer, 60.6% do not know where to get cervical cancer treatment, 81.9 do not know where to get the vaccination on cervical cancer, 80.7 respondents indicated not enough access to cervical cancer services in the region.



**Table 4.7 accessibility of cervical cancer services and reproductive health facilities**

<b>Variable</b>	<b>Categories</b>	<b>Freq. (n=249)</b>	<b>Percentage (%)</b>
<b>Know to get cervical cancer screening</b>	Yes	100	40.2
	No	149	59.8
<b>How far was the facility from you</b>	Very far	102	41.0
	Far	69	27.7
	Not far/near	53	21.3
	Nearby	25	10.0
<b>Inappropriate operational time of health center</b>	Yes	78	31.3
	No	171	63.7
<b>Know where to get reproductive counselling</b>	Yes	165	66.3
	No	84	33.7
<b>Know any vaccination against cause of cervical cancer</b>	Yes	103	41.4
	No	146	58.6
<b>Know where to get cervical cancer treatment</b>	Yes	98	39.4
	No	151	60.6
<b>Know where you can get the vaccination</b>	Yes	45	18.1
	No	204	81.9
<b>Is enough access to cervical cancer in the region</b>	Yes	48	19.3
	No	201	80.7

**Source:** field data, 2019.

The rating of accessibility of respondents to cervical cancer services and reproductive health facilities was low with 62.3%. the percentage was obtained from the percentage of respondents who indicated that accessibility to cervical cancer service in the region was poor.

**Table 4.8 Rating of accessibility to cervical cancer services and reproductive health facilities**

<b>Accessibility Rating</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<i>Low Access (0-2)</i>	155	62.3
<i>High Access (3-5)</i>	94	37.8
<b>Total</b>	<b>249</b>	<b>100</b>

**Source:** field data, 2019.

#### **4.4 Risk Perception of Respondents on Cervical Cancer**

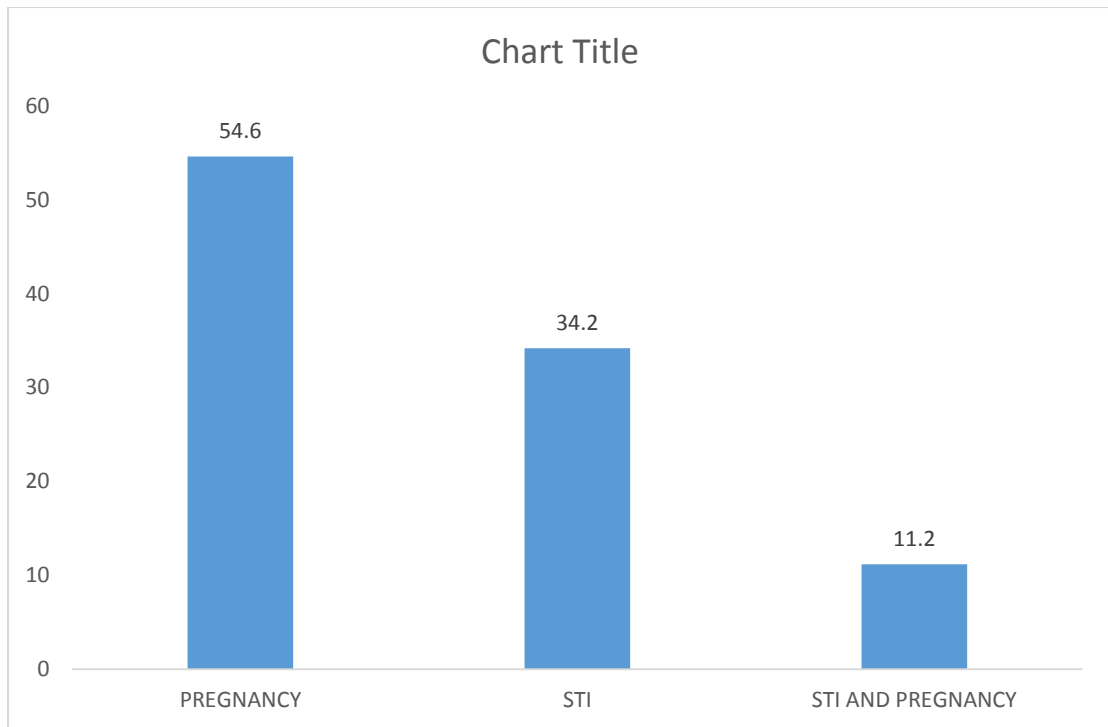
Table 4.9 indicate that 78.7% of respondents have a boyfriend, 73.5% are sexually active, 60.2% use protection(condom) during sexual intercourse, majority do not believe they can get HPV infection from their boyfriend 50.6%, 98.8% have not had an abortion before, 63.9% indicated the development of cervical cancer from multiple sexual partners.

**Table 4.9 Risk Perception on Cervical Cancer**

<b>Variable</b>	<b>Categories</b>	<b>Frequency (n=249)</b>	<b>Percentage (%)</b>
<b>Do you have a boyfriend</b>	Yes	196	78.7
	No	53	21.3
<b>Are you sexually active</b>	Yes	183	73.5
	No	66	26.5
<b>Do you use protection during sexual intercourse</b>	Yes	150	82
	No	33	18
<b>Get HPV infection from infected boyfriend</b>	Yes	123	49.4
	No	126	50.6
<b>Had an abortion before</b>	Yes	3	1.2
	No	246	98.8
<b>Developed cervical cancer from multiple sexual partners</b>	Yes	159	63.9
	No	90	36.1

**Source:** field data, 2019.

The reason for using protection (condom) during sexual intercourse as shown in figure 3 indicate a majority 54.6% to prevent pregnancy.



**Figure 4.3 Reason for using protection (condom) during sexual intercourse**

Source: field data, 2019.

#### **4.5 Factors Associated with Intension to Take Cervical Cancer Screening (Likert Scale)**

The above objective used the health believe model with its constructs under perceived susceptibility, severity, benefits, barriers, self-efficacy and cues to action from individuals known as significant others.

The psychometric response scale (Likert scale) was used in this questionnaire to obtain the respondent's degree of agreement with the set of statements.

##### ***4.5.1 Perceived Susceptibility of Developing Cervical Cancer***

Table 4.10 shows the percentage distribution of respondent's view on the chances of developing cancer of the cervix.

**Table 4.10 Perceived susceptibility to develop cervical cancer**

<b>Variables</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Am at risk of cervical cancer	60(24.1%)	<b>92(37.0%)</b>	84 (33.7)	13 (5.2%)
Without family history, am may not get it	73(29.3%)	49 (19.7%)	<b>101(40.6%)</b>	26 (10.4%)
If am pregnant, pap test is not essential	70(28.1%)	62 (24.9%)	<b>88(35.3%)</b>	29 (11.7%)
I don't need pap smear if I were without children	44(17.7%)	17 (6.8%)	<b>129(51.8%)</b>	59 (23.7%)
I don't need pap test if I don't have sexual intercourse	30(12.1%)	<b>96(38.6%)</b>	81 (32.5%)	42 (16.8%)
I am not at risk for an abdominal pap test	<b>87(35.0%)</b>	69 (27.7%)	87 (34.9%)	6 (2.4%)

**Source:** field data, 2019.

On the whole majority (152, 61%) of the respondents agreed (either strongly) to the statement I am at risk of developing cervical cancer. And 127, (51%) disagree (either strongly) to the statement if I have no history of cervical cancer in my family, I am not going to have it. Respondents identified agree or strongly agree that if I am pregnant I don't need a pap test (132,53%), I don't need a pap smear if I were without children (188, 75.5%), I don't need a pap smear if I don't have any intercourse (126, 50.7%), I am not at risk for an abdominal pap test (156, 62.7%).

To assess the overall perceived susceptibility, the number of respondent that identified that HPV which causes cervical cancer has the potential to affect anyone.

Figure 4.4 shows the assessment of overall perceived susceptibility of respondents. 59% of respondents have a low perceived susceptibility to develop cervical cancer.



**Figure 4.4 Overall Rating for Perceived Susceptibility**

**Source:** field data, 2019.

#### ***4.5.2 Perceived severity of cervical cancer***

Respondents identified; Cervical cancer can lead women to chemotherapy or radiotherapy (213,85.6%), cervical cancer can lead women to undergo hysterectomy (185,74.3), abnormal test can lead to cervical cancer not treated 145 58.2%, cervical cancer can give a serious health problem (181, 72.7%), cervical cancer is most common cancers among women my age (192,77.1%) cervical cancer may cause death (208,83%) as shown in Table 4.11.

**Table 4.11 Perceived severity of cervical cancer**

<b>Variables</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Cervical cancer can lead women to chemotherapy or radiotherapy	<b>160 (64.3%)</b>	<b>53(21.3%)</b>	16 (6.4%)	20 (8.0%)
Cervical cancer may lead women to undergo hysterectomy	<b>135 (54.2%)</b>	<b>50(20.1%)</b>	28(11.2%)	36 (14.5%)
Abnormal pap test can cause cervical cancer if not treated	<b>72 (28.9%)</b>	<b>73(29.3%)</b>	84(33.7%)	20 (8.0%)
Cervical cancer can give a health problem	<b>136 (54.6%)</b>	<b>45(18.1%)</b>	66(26.5%)	2 (1.0%)
Cervical cancer is most common cancers among women my age	<b>115 (46.2%)</b>	<b>7730.9%)</b>	43(17.3%)	14 (5.6%)
Cervical cancer can cause death	<b>137 (55.0%)</b>	<b>71(28.5%)</b>	40(16.1%)	1 (0%)

**Source:** field data, 2019.

#### ***4.5.3 Perceived Barriers to Take Cervical Cancer Screening***

Table 4.12 shows the percentage of respondents` barriers to take cervical cancer screening. I have not taken a pap test because it is difficult to get an appointment (157, 63%), getting a pap test is expensive (180, 72.3%), don't know how often I need to take a pap smear (168, 67.6), no information on where to get a pap smear test (179, 71.9%), don't know at what age I need a pap test (138, 55.5%), getting a pap test is painful (133, 53.4%), embarrassed of genital examination (138, 55.4%), but the respondents disagreed to the statement Am afraid I will be diagnosed of having cancer (139, 55.9% ) and a split in number of respondents (125, 50.2%) to if an unmarried or single woman gets a pap test, people may think that she is having sex.

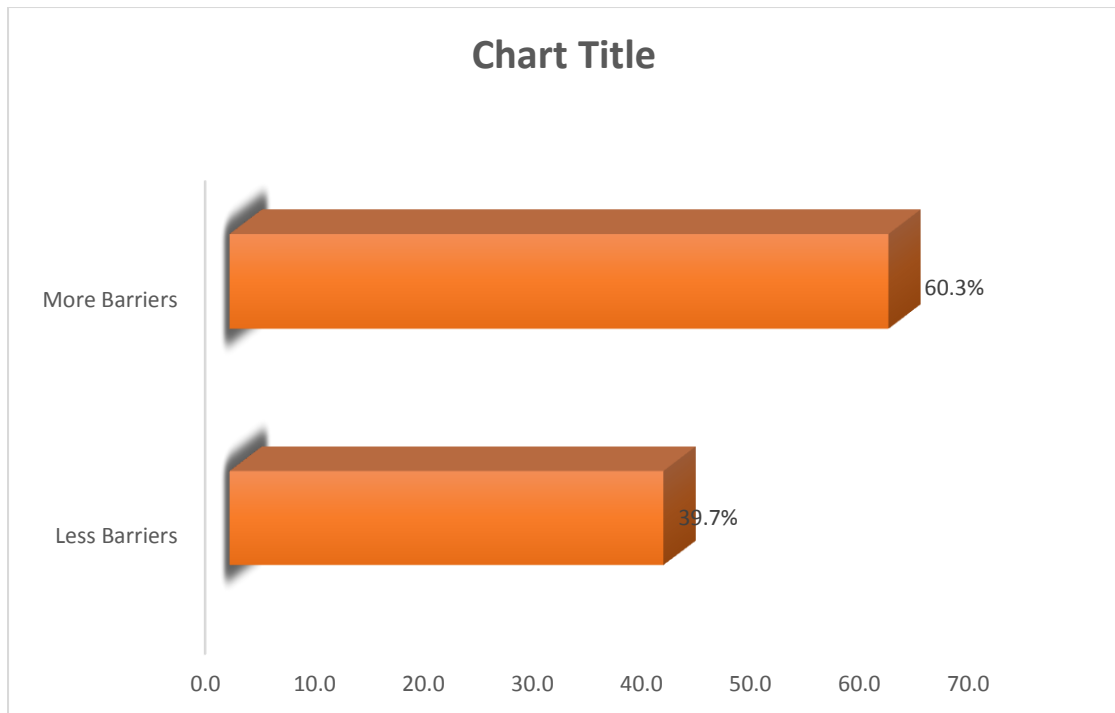
**Table 4.12 Perceived barriers to take cervical cancer screening**

<b>Variables</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
I have not taken a Pap test because it is difficult to get an appointment.	89 (35.7%)	68(27.3%)	47(18.9%)	45 (18.1%)
Getting a Pap test is expensive	62 (24.9%)	118(47.4%)	47(18.9%)	22 (8.8%)
Am afraid I will be diagnose of having cancer	50 (20.1%)	60 (24.1%)	47(18.9%)	92 (37.0%)
Don't know how often I need to test pap smear	55 (22.1%))	124(49.8%)	60(24.1%)	10 (4.0%)
No information on where to get pap smear test	25 (10.0%)	106(42.6%)	76(30.6%)	42 (16.9%)
Don't know at what age I need pap test	39 (15.7%)	99 (39.8%)	78(31.3%)	33 (13.3%)
Getting a pap test is painful	55 (22.1%)	78 (31.3%)	93(37.4%)	23 (9.2%)
Embarrassed of genital examination	74 (29.7%)	64 (25.7%)	100(40.2%)	11 (4.4%)
pap test for women will people think they had sex	38 (15.3%)	86 (34.5%)	86 (34.5%)	39 (15.7%)

**Source:** field data, 2019.

The overall rating of barriers to take the cervical cancer is illustrated in figure 4.5. The overall barriers were derived from the total number of respondents that indicated agreement to statement implying barriers to cervical cancer screening with more barriers 60.3%





**Figure 4.5 Overall Rating of Barriers to Take Cervical Cancer Test**

**Source:** field data, 2019.

#### ***4.5.4 Perceived benefits of taking cervical cancer screening***

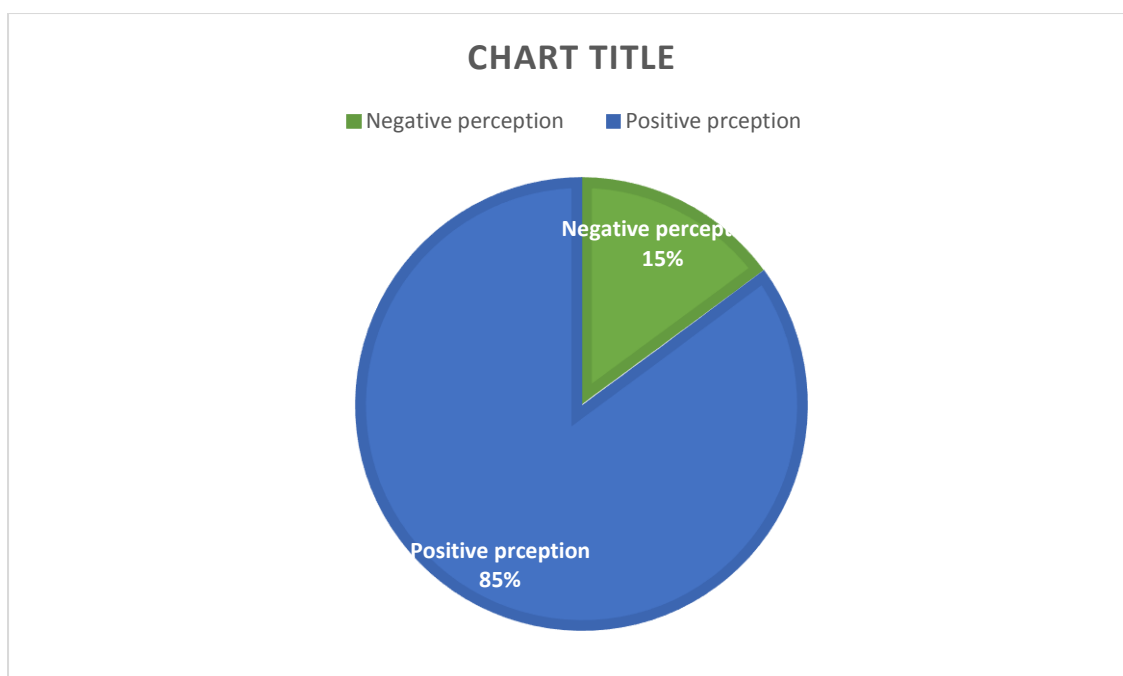
From the questionnaire of this study respondents identified the following statements as benefits of taking cervical cancer screening; I think it is important to screen for cervical cancer (229, 91.7%), pap test is important for early detection of cervical cancer (202, 81.1%), pap test is a good investment for my health (192, 77.2%), pap test can help you avoid a serious health problem (167, 67%), a pap test will mean you take good care of yourself (182, 73.2%), a pap test can save life (207, 83.1%). This is shown in table 4.13

**Table 4.13 Perceived benefits of taking cervical cancer screening**

<b>Variables</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Think is important to screen for cervical cancer	172 (69.1)	57 (22.9)	20 (8.0)	0
Pap test allow for early detection of cervical cancer	142 (57.0)	60 (24.1)	37 (14.9)	10 (4.0)
Pap test is a good investment for my health	114 (45.9)	78 (31.3)	38 (15.3)	19 (7.6)
Pap test can detect cervical cancer at treatable stage	69 (27.7)	103(41.4)	48 (19.3)	29 (11.7)
Pap test can help you avoid a serious health problem	86 (34.5)	81 (32.5)	82 (32.9)	0
A pap test will mean you take good care of yourself	91 (36.6)	91 (36.6)	59 (23.7)	8 (3.2)
A pap test can save life	122 (49.0)	85 (34.1)	40 (16.1)	2 9 (1.0)

**Source:** field data, 2019.

The overall rating of benefit of taking cervical cancer screening as shown in figure 6 indicated respondents; this was derived from the total number of people who were able to identify the benefits of taking cervical cancer screening. From the study, respondents have a positive perception on benefits 85% of taking cervical cancer screening.



**Figure 4.6: Overall perceived benefits for cervical cancer screening**

**Source:** field data, 2019.

#### ***4.5.5 Self-Efficacy to Take Cervical Cancer Screening***

Table 4.14 shows percentage of respondent ability to take cervical cancer screening based on self-efficacy. 193, 77.6% will take pap smear after hearing about it, 154,61.8% I can by myself opt for cervical cancer screening.

**Table 4:14 self-efficacy to take cervical cancer screening**

Variables	Strongly Agree	Agree	Disagree	Strongly Disagree
Will take pap smear after hearing about it	92 (37.07%)	101(40.6%)	47(18.9%)	9 (3.6%)
I can by myself opt for cervical cancer screening	68 (27.3%)	86 (34.5%)	63(25.3%)	32 (12.9%)

**Source:** field data, 2019.

#### 4.5.6 Cues to action from significant others

Table 4.15 shows respondents' percentages to the influence of significant others influence to take cervical cancer screening. Respondents agreed to; because someone I know had cervical cancer (132, 52.9%), a friend or neighbour spoke to me about it (152, 61.1%), because a nurse or midwife told me (160, 64.3%), because a doctor told me (177, 71.1%), because my mother spoke to me about it (145, 58.3%). However, respondents disagreed to my partner/ husband does not want me to get a pap test (130, 52.2%), because members of my family told me (128, 51.4%).

**Table 4:15 cues to action from significant others**

Variables	Strongly Agree	Agree	Disagree	Strongly Disagree
Because someone I know had cervical cancer	42 (16.9%)	90(36.1%)	70(28.1%)	47 (18.9%)
My partner don't want me to take the pap test	71 (28.5%)	48(19.3%)	110(44.2%)	20 (8.0%)
A friend or neighbor spoke to me about it	54 (21.7%)	98(39.4%)	81 (32.5%)	16 (6.4%)
A nurse or midwife told me	49 (19.7%)	111(44.6%)	67 (26.9%)	22 (8.8%)
A doctor told me	58 (23.3%)	119(47.8%)	50 (20.1%)	22 (8.8%)
My mother spoke to me about it	49 (19.7%)	96 (38.6%)	79 (31.7%)	25 (10.0%)
Because members of my family told me	34 (13.7%)	87 (34.9%)	81 (32.5%)	47 (18.9%)

**Source:** field data, 2019.

## **CHAPTER FIVE**

### **DISCUSSION**

#### **5.1 Introduction**

This chapter discusses the results of the study with respect to the objectives with key variables of the research. The purpose of the study was to assess the knowledge on cervical cancer screening and attitude towards primary prevention strategy of female tertiary students in Bono and Ahafo regions.

#### **5.2 Knowledge and awareness level of cervical cancer**

According to studies by Tebeu, (2008) and Anorlu, (2008) on knowledge and awareness of cervical cancer in other developing countries have reported low information of the disease. Another study by Wiredu et al (2006), found out that cervical cancer is the leading cause of death from gynecological cancers in Ghana.

In this study, the level of knowledge of respondents on cervical cancer was high 48.6%, this was assessed from the respondent`s ability to choose correctly options on the signs or non-signs of cervical cancer. The source that provided information to most respondents was school, TV/radio and print media, thus 27.7%, 22.5 and 20.5% respectively.

The study also assessed the level of knowledge about risk factors of cancer of the cervix which was found to be average 48.6%. However, low knowledge level was 27.7% and high 8% which indicates that the overall awareness on cervical cancer is low. The risk factors an assessed respondent identifies HPV infection as the main risk factor for cervical cancer as well as weakened immune system, long term contraceptive use, many sexual partners and sexual partner with many previous

partners. However, more than half of the respondents chose (NO 32.1% and Not sure 20.9%) did not consider cigarette as a risk factor probably cigarette smoking is associated with lung cancer rather.

Respondent also indicated uncircumcised sexual partner as not a risk factor to cervical cancer which but in 2008 a study published in the journal of infectious diseases, researchers found that uncircumcised men were more likely than those circumcised to be infected with a potentially cancer causing HPV strain.

Majority of respondents indicated sexual intercourse before age 17 as not a risk factor 51.0% and 5.2% not sure of early sex before 17 years as a risk factor. The younger you start having sex, the greater your risk of acquiring an HPV infection when exposed to the virus. The highest prevalence occurs between 15 and 25 years (CDC 2014). There is no identifies method to whether a sexually experienced partner has HPV infection.

Respondents also identified having many children 56.6% with 32.2% not sure having many children had a link with cervical cancer as not a risk factor. A pooled analysis by IARC showed women who have had seven or more full term pregnancies was four folds higher than that in nulliparous women. Bosch, (2015) indicated an increased risk linearly with an increasing number of pregnancies.

However, the increase in estrogen and progesterone levels induced by pregnancy can influence the immune response to HPV and influence the risk of persistent progression of the cancer (Nobbenhuis et al., 2002).

The study assessed the awareness of respondents on pap smear although majority of the respondents have heard and know what pap smear is about. However only 12.9%

have heard about the preventive vaccine against the cause of cervical cancer, which indicates 58.1% do not know and 29% are not sure of the existence of the vaccine.

### **5.3 Level of accessibility to cervical cancer clinics and reproductive health services**

The study indicated that inappropriate operational time of health facilities was not a barrier to accessibility to cervical cancer services, although majority of respondents know where to get reproductive counselling. Respondents indicated that, they didn't know where to get cervical cancer screening (59.8%), which corresponds to they do not where to get the vaccination 81.9%, which also implies they do not know where to get cervical cancer treatment 60.6%. only 10% of the correspondents identified access to cervical cancer services and reproductive health facilities as near which implies 90% of the respondents found the distance to these health facilities as distant from their location. 80% identifies the study area not to have enough access to cervical cancer services in the region.

The overall assessment on the level of accessibility indicated that there is low accessibility 62.3% to cervical cancer and reproductive health facilities in the region. Majority further suggested the non-availability might be due to inadequate drug/personnel/facility. This is indicative of the non-existence of dedicated cervical cancer services in most health facilities in the regions under study

### **5.4 Risk Perception on Cervical Cancer**

Of the 249 respondent's majority had a boyfriend 78.7% and majority are sexually active 73.3% for adults, though, full abstinence cannot be realized but other effective ways to prevent HPV infection, 73% uses protection during sexual intercourse. this is a positive indication because the use of condom during sexual intercourse serves as a

barrier to prevent the HPV which predominantly causing cervical cancer which is sexually transmitted.

The study further found out that majority 54.6% use condom mainly to prevent pregnancy as against sexually transmitted infections. This could be as a result of the respondent`s marital status as a majority are in the status of single and never married prevention of an unwanted pregnancy is their main focus. It is important to use condom from beginning to end in every sex act. HPV can be transmitted by skin to skin contact, since condom cannot cover all affected areas of HPV. Condoms cannot entirely protect you against contracting HPV, but condoms can help prevent HPV that is sexually transmitted. Then the sure 100% means to prevent HPV transmission is abstinence from any sexual contact including oral, anal and vaginal sex. (CDC, 2014)

50.6% of respondents did not agree to the getting HPV infection from their boyfriend. A fact sheet on STIs on HPV from CDC (2014) indicate that mostly people infected with HPV do not know and never develop signs/ symptoms or health problems from it such as genital wart. Some women may find out during cervical cancer screening or when they develop more serious problems from HPV such as cancers. This may have influence the choice of not getting the infection from a boyfriend because they look healthy and has not developed a condition indicating HPV infection yet.

1.2% of the respondents have had an abortion, which agrees with the fact that condom use is mainly to prevent unwanted pregnancy despite the fact of majority being sexually active.

However, majority 63.9% identified developing cervical cancer from multiple sexual partners. The more sexual partners you have the more you are at risk of contracting HPV which consequently causes cervical cancer. This is important because the more



sexual partners exposure you to being infected with HPV, and the more partners your partner has the higher your risk.

### **5.5 Factors associated with intention/willingness to take cervical cancer screening**

The study assessed factors that influence intention/ willingness to take cervical cancer screening using the health belief model. The health behavior change model was developed to explain and foretell health promoting behaviors particularly in regard to the uptake of health services. The constructs under the model are perceived susceptibility, severity, barriers, benefits, self-efficacy and cues to action.

#### *Perceived Susceptibility*

The findings from the indicate a low perception on susceptibility of respondents to developing cervical cancer (59%). From the health belief model, perceived susceptibility discusses an individual's assessment of risk of developing a disease or health problem.

The model can predict that individuals who perceive themselves as susceptible to a particular health problem will take measures to reduce their risk of developing the disease. Individuals with low perception on susceptibility may refute that they are at risk of a particular illness. This low perceived susceptibility of respondents will influence their engagement in unhealthy or risky behaviors and consequently not taking precaution against contracting what has the potential of causing cervical cancer (HPV)

#### *Perceived Severity*

According to the model (HBM) perceived severity refers to an individual's assessment of the severity of a disease and its potential consequences on ones health.

In the present study respondents indicated that cervical cancer is a severe health condition such as other cancers. 83% of respondents perceive cervical cancer to lead to death. Majority (72.7%) also perceive cervical cancer to give a serious health problem.

Perception on seriousness involves beliefs about the disease itself, example life threatening, cause pain or disability; as perceived by respondents indicating cervical cancer may lead women to undergo hysterectomy (72.3%) a condition and cervical cancer can lead women to receive chemotherapy or radiotherapy (85.6%).

The model proposes that individuals who perceived a given health problem to be serious are more likely to engage in health promoting behaviors to prevent the health problem from occurring or reduce severity as seen in this study by respondent's use of condoms to prevent HPV infection.

#### *Perceived Barriers*

According to the model, health promoting behaviors are also a function of perceived barriers to taking action in this study taking cervical cancer screening. Barriers to take a health promoting behavior refers to one's assessment of obstacles to behavior change (take cervical cancer screening).

Respondents assessments of barriers to take cervical cancer screening were grouped into two institutional barriers and personal barriers. Some of the institutional barriers include "no information on where to get a pap test, I have not taken the pap test because it's difficult to get an appointment, pap test is expensive to get. Personal barriers included embarrassed of getting genital examination, expensive pap test, getting a pap test for an unmarried woman means she is having sex.

However, an individual perceives a health condition as threatening and beliefs that a particular action will effectively reduce the threat, barriers may prevent engagement in health promoting behavior.

In this study, the overall assessed perceived barrier of respondents to take the cervical cancer screening was more (60.3%)

### *Perceived Benefits*

Health related behavior are also influenced by the perceived benefits of taking the action (taking cervical cancer screening). Perceived benefits refers to the individual's assessment of the value of engaging in a health promoting behavior to decrease the risk of a disease (cervical cancer).

In this study respondents identified pap test can allow for early detection of cervical cancer, pap test can find cervical cancer when it is still possible to cure it, pap test can avoid a serious health problem, a pap test can save life.

Perceived benefits help an individual to take an action that will reduce susceptibility to a health problem or decrease its seriousness. The benefits of taking a health related behavior should out weight the barriers that is likely to influence the person to engage in a health promoting behavior.

### *Self-Efficacy*

Self-efficacy refers to an individual's perception of his or her competence to successfully perform a behavior. Respondents indicated they will be take cervical cancer screening after hearing about it and when they detect a pain in their genitalsThe confidence of one's ability to effect change in outcomes was a key component to health behavior change

### *Cues to Action.*

The health belief model posits that a cue or trigger, is necessary for promoting engagement in health promoting behaviors. Cues to action may be internal or external. The study assessed external cues to action which information from close or significant others, healthcare providers promoting engagement in health related behaviors.

Majority of the respondents indicated that cues or persuasion from close or significant others will influence them to take the cervical cancer screening; 61% will be influenced by a friend or neighbor, 64.3%, 71.1%, 58.3% will be influence by a nurse or midwife, doctor and mother respectfully.

The intensity of cues needed to prompt action varies between individuals by perceived susceptibility, severity, benefits and barriers.

The use of the health belief model in the assessment of intention/willingness to take cervical cancer screening was to explain the factors that affect a respondent's intention to take cervical cancer screening, because the constructs of the health belief model focus on individual beliefs about health conditions, which predict individual health related behaviors.

## **CHAPTER SIX**

### **6.1 Conclusion**

This study has highlighted inadequate information about cervical cancer screening and vaccination among female tertiary students in Bono and Ahafo regions.

Approximately 93.6% students have heard about cervical cancer with school 27.7% been the major source of information.

#### ***6.1.1 Knowledge on cervical cancer***

More than half respondents 50% were able to identify the signs and no-signs of cervical cancer. However, over 50% did not know whether persistent lower back pain, persistent pelvic pain and unexplained weight loss were signs and symptoms of the disease or not. The general assessment on the level of knowledge on signs of cervical cancer indicated a average, 48.6% of respondents correctly indicated the sings cervical cancer. Respondents were also able to indicate HPV, long term contraceptive use, weakened immune system, multiple sexual partners, chlamydia as risk factors but could not identify cigarette smoking, uncircumcised sexual partner, regular pap smear and having many children as risk factors to the development of cervical cancer. The general assessment of awareness level on risk factors was found to be average 64.3%

#### ***6.1.2 Level of accessibility to cervical cancer services and reproductive health facilities***

More than 50% did not know where to get cervical cancer screening or where to get treatment for cervical cancer. 81% do not know where to get vaccination against the cause of cervical cancer, and 80% do not have access to cervical cancer services and reproductive facilities. The general rating of accessibility of the regions under study indicated was low (62%).

### ***6.1.3 Risk perception on cervical cancer***

About 70% of the respondents have a boyfriend and are sexually active. The use of condom was the mainly used during sexual intercourse to prevent pregnancy (54%) and STIs (34%). Although respondents were able to identify having multiple sexual partners as a means of risk to cervical cancer development, about 51% did not believe to get HPV infection from an infected boyfriend.

### ***6.1.4 Factors affecting intention or willingness to take cervical cancer screening***

Factors affecting intention or willingness to take cervical cancer screening were perceived susceptibility which was low 59%, over 50% perceived cervical cancer to be severe, more than 60% indicated perceived barriers which prevent them from taking cervical cancer screening and perceived benefits which was positive 85% indicating high benefits of taking the screening, self-efficacy and cues to action by external cues such as influence from health personnel, family and friends.

## **6.2 Recommendation**

The findings of this study necessitate urgent targeted intervention. Stakeholders and agencies could therefore use the findings of this study geared towards improving cervical cancer.

### ***6.2.1 Educational Institutions***

Educational institutions should use the results of this study to guide and facilitate contacting other agencies including Non-Governmental Organization (NGO) to provide interventions such as education, screening and vaccination programs for their students.

### ***6.2.2 Regional Health Directorate***

The regional health management team should:

Increase the knowledge about cervical cancer among students by organizing health educational programmes for them. The education should focus on how to identify all the signs and symptoms of cervical cancer and its associated risk factors, as well as organize screening services for them. This will consequently extent influence the success of prevention of cervical cancer in the region. And this could be achieved through the district health team.

### ***6.2.3 Ministry of Health***

The MOH could play its part by increasing health care budgets and placing priority on cervical cancer prevention by establishing screening centres will not only increase accessibility and availability of cervical cancer services and also establishing a national awareness campaign and spreading screening services all over the country. Screening of cervical cancer should be added to health insurance. Prices of vaccines should be made affordable and free vaccination of young girls.

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## APPENDICES

### QUESTIONNAIRE

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH EDUCATION AND PROMOTION

The researcher is a student of Kwame Nkrumah University of Science and Technology (KNUST) conducting a research on *Cervical Cancer*. The questionnaire is designed to seek your candid views about this topic.

The researcher will be grateful if you could devote some of your quality time to study and answer this questionnaire. All answers will be treated as confidential and will be used for statistical analysis and research purposes.

#### CERVICAL CANCER SCREENING OPTIONS FOR ADOLESCENTS

Name of researcher: Rebecca Dorcas Commey

Tel: 0243 484797

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

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

Location: \_\_\_\_\_

Interviewer \_\_\_\_\_

## SECTION A

### DEMOGRAPHIC CHARACTERISTICS

#### 1. Age of Respondents

15[   ]      16[   ]      17 [   ]      18 [   ]      19 [   ]      20 and above [   ]

#### 2. Gender

Male [   ]      Female [   ]

#### 3. Which Religion do you belong to?

Christian      [   ]

Muslim      [   ]

Traditionalist      [   ]

No religion      [   ]

Others, please specify .....

#### 4. Marital status

(a) Single and never married      [   ]

(b) Married      [   ]

(c) Married but separated      [   ]

(d) Divorced      [   ]

(e) Widowed      [   ]

(f) Cohabiting      [   ]

## SECTION B

### AWARENESS OF CERVICAL CANCER

5. Have you heard about cervical cancer? Yes [ ☐ ] No [ ☐ ]

6. What was the source of information? .....

7. Have you, or any member of your family or friends ever been diagnosed with cervical cancer? Yes [ ☐ ] ..... (give the relationship with the person)

No [ ☐ ]

8. The following may or may not be warning signs for cervical cancer. We are interested in your opinion:			
Signs or “non-signs”	Yes	No	Don’t know
Do you think vaginal bleeding between periods could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think persistent lower back pain could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think a persistent vaginal discharge that smells unpleasant could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think discomfort or pain during sex could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think menstrual periods that are heavier or longer than usual could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think persistent diarrhea could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think vaginal bleeding after the menopause could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think persistent pelvic pain could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think vaginal bleeding during or after sex could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think blood in the stool or urine could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you think unexplained weight loss could be a sign of cervical cancer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. What is the causative organism for cervical cancer?

a) Bacteria

b) Virus

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

a) A woman aged 10 to 19 years ☐ ☐

b) A woman aged 20 to 29 years ☐ ☐

c) A woman aged 30 to 49 years ☐ ☐

d) A woman aged 50 to 69 years ☐ ☐

e) A woman aged 70 or over ☐ ☐

e) Cervical cancer is unrelated to age ☐ ☐

13. Do you know that the HPV is the cause of Cervical Cancer Yes ☐ No ☐

14. Have you heard about pap test? Yes ☐ No ☐

15. Do you know what pap smear is about? Yes ☐ No ☐

16. Have you heard of a vaccine to prevent cervical cancer? Yes ☐ No ☐

<b>17. The following may or may not increase a woman's chance of developing cervical Cancer. How much do you agree that each of these can increase a woman's chance of developing cervical cancer?</b>			
	Yes	No	Not sure
Infection with HPV (human papilloma virus)			
Smoking any form of cigarettes			
Having a weakened immune system (e.g. because of HIV/AIDS, immunosuppressant drugs or having a transplant)			
Long term use of the contraceptive Pill			
Infection with Chlamydia (a sexually transmitted infection)			
Having a sexual partner who is not circumcised			
Starting sexual intercourse at a tender age (before age 17)			
Having many sexual partners			
Having many children			
Having a sexual partner with many previous partners			
Not going for regular smear (Pap)			

## SECTION C

### LEVEL OF ACCESSIBILITY TO CERVICAL CANCER CLINICS AND REPRODUCTIVE HEALTH SERVICES

22. Have you ever had a pap smear Yes [ ] No [ ]
23. As a result of your pap test did you follow up with any treatment? Yes [ ] No [ ]
24. If “yes” what treatment was that?.....
25. How far was the facility you had the pap test? Very far[ ] Far [ ] Nearby[ ]
26. I have not taken the Pap test because the health care center is only open during  
hours when I cannot go. Yes [ ] No [ ]
27. Do you know where you can go for reproductive counseling Yes [ ] No [ ]
28. Do know any clinic you can go for cervical cancer screening? Yes [ ] No [ ]
29. Do you know where you can go for information on cervical cancer Yes [ ] No [ ]
30. Do you know where you can go for cervical cancer treatment Yes [ ] No [ ]
31. Do you think we have health facilities for cervical cancer services Yes [ ] No [ ]
32. If ‘No’ why do you think is the cause for un availability of these services?  
.....
33. Do you know there is vaccination for cervical cancer Yes [ ] No [ ]
34. Do you know where you can get vaccinated against cervical cancer Yes [ ] No [ ]
35. Do you think there is enough awareness on cervical cancer and its treatment centers?  
Yes [ ] No [ ]
36. If “No” what do you think can be done to create awareness on the disease and treatment centers?  
.....

## SECTION D

### RISK PERCEPTION ON CERVICAL CANCER

22. Do u have a boyfriend? Yes [ ☐ ] No [ ☐ ]

23. Do you use protection during sexual intercourse? E.g. condom Yes [ ☐ ] No [ ☐ ]

24. If 'yes' why do you use protection?.....

22. Do think you can get cervical cancer as a result of HPV infection from your  
boyfriend? Yes [ ☐ ] No [ ☐ ]

23. Have you had an abortion before? Yes [ ☐ ] No [ ☐ ]

24. Do you know you can develop cervical cancer from multiple sexual partners?  
Yes [ ☐ ] No [ ☐ ]

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Do you think it is important to screen for cervical cancer?				
I am not at risk for an abnormal Pap test				
If I have not had children, I do not need a Pap test.				
If I do not have intercourse, I do not need a Pap test.				
Cervical cancer is one of the most common cancers among women my age.				
If I do not have a history of cervical cancer in my family, it is not likely that I am going to have it.				

## SECTION E

### FACTORS ASSOCIATED WITH INTENTION/WILLINGNESS TO TAKE CERVICAL CANCER SCREENING

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
I am at risk for developing cervical cancer				
Getting a Pap test allows for early detection of cervical cancer.				
I have not taken a Pap test because it is difficult to get an appointment				
Getting a Pap test is expensive				
I will take a pap test after hearing something about cervical cancer				
Because someone I know well (family, friend, neighbor) had cervical cancer.				
I have not taken the Pap test because I am afraid to find out if I have cancer				
An abnormal Pap test, without treatment, can lead to cervical cancer				
Cervical cancer can lead to a woman needing to receive chemotherapy or radiotherapy treatment				
Cervical cancer may lead to a woman having a hysterectomy				
An abnormal Pap test, without treatment, can lead to cervical cancer.				
Getting a Pap test is a good investment of my time in health.				
A Pap test can find cervical cancer when it is still possible to cure it				
Getting a Pap test can avoid a serious health problem				



	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
I do not know if I need to have a Pap test.				
I do not have information about where to go to get a Pap test.				
I do not know at what age it is necessary to have a Pap test.				
I will take the test because I had pain in my genitals				
My partner/husband does want me to get a Pap test				
If I am pregnant, I do not need a Pap test.				
Because a friend or neighbor spoke to me about it				
Because a nurse or midwife told me				
Because a doctor told me.				
Because my mother spoke to me about it.				
Because members of my family told me to get it.				
If I am sterilized, I do not need a Pap test				
Getting a Pap test is painful				
I have not taken the Pap test because I am embarrassed to have a genital exam				
If an unmarried or single woman gets a Pap test, people may think that she is having sex				
I do not know how often I need to get a Pap test.				
Getting a Pap test makes me feel good because it means that I take care of my health				
The Pap can save my life.				
Cervical cancer is a serious health problem				
Cervical Cancer may lead to death				