UNIVERSITY FOR DEVELOPMENT STUDIES

BARRIERS TO UPTAKE OF CERVICAL CANCER SCREENING AMONG WOMEN OF REPRODUCTIVE AGE IN SAGNARIGU MUNICIPAL

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MARIAM KUBANUE DANAH

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A THESIS SUBMITTED TO THE DEPARTMENT OF GLOBAL HEALTH OF THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY FOR DEVELOPMENT STUDIES, IN PARTIAL FULFILMENT FOR THE AWARD OF A MASTER OF SCIENCE DEGREE IN PUBLIC HEALTH

DECEMBER, 2023

DECLARATION

I, Mariam Kubanue Danah hereby declare that except for references made to other people's work which have been duly acknowledged, this thesis is my own work.

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ABSTRACT

Cancer of the cervix is second to breast cancer worldwide, and the leading cause of cancer-related deaths among women. Cervical cancer prevalence remains high in lower and middle-income (LMICs) countries. Despite this, uptake in cervical cancer screening is low in middle- and low-income countries compared to high-income countries. This study therefore assessed the barriers to cervical cancer screening among women of reproductive age in the Sagnarigu Municipal. The study employed a cross-sectional design in determining the barriers to cervical cancer screening among women aged 15-49 years. The study included 291 participants and simple random sampling technique was employed to achieve this. A semi-structured questionnaire was used to gather data for the study. The data was analyzed using the Statistical Package for Social Sciences version 25.0. The study found that 92(31.6%) of the respondents were within the 25-34-year range, 91(31.3%), 179(61.2%) of them were married, 206(70.8%) had attained tertiary education, 171(58.8%) were employed, 176(60.5%) belonged to the Islamic religion, 115(39.5%) had 1-2 children. On knowledge, the study found 194(66.6%) of the participants to have good knowledge of cervical cancer screening, 291(100%) participants had heard about cervical cancer before, 225(77.3%) said cervical cancer is a disease that affects only women, 254(36.38%) agreed that regular medical screening could detect cervical cancer early for treatment, 138(40.8%) chose surgery as the treatment option. On the perception of the women with cervical cancer, 194(66.6%) said yes they were at risk of getting the disease,197(67.7%) indicated they would like to be screened for the disease, 263(90.4%) said their partners have never given them money for screening. Cost of service, distance to the health facility, friends' experience of pain, staff attitude partner refusal, and scared of results or outcome were some of the factors found to be preventing women from screening. The Municipal Health Directorate should partner with the Municipal Education Directorate to organize cervical cancer awareness and screening campaigns in various educational institutions. The Sagnarigu Municipal Health Promotion Office and Public Health Nurses should sensitize employers to ensure there is cervical cancer screening for their female workers regularly were some of the recommendations the study made

DEDICATION

I dedicate this dissertation to my family for their inspiration and support throughout this academic work.

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I give gratitude to the Almighty God for seeing me through this academic journey, which would have been impossible without Him in my life.

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LIST OF ABBREVIATIONS

ACS - American Cancer Society

CCS - Cervical Cancer Clinic

DNA - Deoxyribonucleic Acid

HPV - Human Papillomavirus

JHPIEGO - John Hopkins Programme for International Education in Gynaecology and Obstetrics

HBM - Health Belief Model

LEEP -Loop Electrosurgical Excision Procedure

MOH - Ministry of Health

NHIS - National Health Insurance Scheme

PPE - Personal Protective Equipment

STI - Sexually Transmitted Infections

VILI - Visual inspection with Lugol's iodine

VIA - Visual inspection with acetic acid

WHO - World Health Organization

DEFINITION OF TERMS

Cervical Cancer - Cervical cancer is a type of cancer that occurs in the cells of the cervix — the lower part of the uterus that connects to the vagina.

Cervical cancer screening – medical process and procedures leading to the detection or otherwise the symptoms or risk associated with cervical cancer.

Barriers - Factors that prevent an individual, population, and/or community from acquiring health services and/or achieving the best health care outcomes.

Uptake - The action of taking up or making use of available cervical cancer screening.

Reproductive age - Women aged 15-49 years who are in their reproductive capability periods and may choose to have or not have children.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This is the introductory chapter of the thesis report. The chapter introduces the background to the study, the problem statement, and justification. The research questions, the study objectives, and the conceptual framework underpinning the study are also stated in this chapter.

1.1 Background of the Study

Based on projections of 570 000 new cases of the illness worldwide in 2018, 311 000 women died from cervical cancer (WHO, 2020). In 2020, there were predicted to be 604,127 cervical cancer diagnoses worldwide (WHO, 2020). In the US, the typical diagnosis age is fifty. Age 65 is the cutoff point for 20% of cervical cancer diagnoses. Prior to becoming 65 years old, the majority of victims of these instances were those who had not had routine tests for cervical cancer. Twenty-two percent of female cancer cases are cervical cancer instances and ranking second in Africa only to breast cancer as of 2018, the majority of female cancer-related fatalities in sub-Saharan Africa were caused by cervical cancer (Bray et al., 2018; Jedy-Agba et al., 2020).

Women from rural areas with high mortality rates make up sixty to seventy percent of those diagnosed with cervical cancer in sub-Saharan Africa. A large percentage of female cervical cancer patients do not receive treatment because of limited access to healthcare, in terms of money and location. Among women in sub-Saharan Africa, cervical cancer results in the greatest number of

years lost to illness of any kind. Sadly, it impacts people at crucial times of social and economic stabilities of their lives (Anorlu, 2008).

Research has showed that cervical cancer develops slowly and, when detected early, can be managed appropriately. However, when it is diagnosed late, then it becomes expensive to handle, and such service is not readily available to citizens, especially in nations with lower and moderate incomes (Ruddies et al., 2021). Contrary to high-income nations, in low- and middle-income nations, there has been a reported increase in the incidence of cervical cancer and the death rates associated with it. (LMICs) (Arbyn et al., 2020; Bray et al., 2018; Hull et al., 2019). According to reports, cervical cancer claimed 2,200 lives in Ghana in 2019 and was the primary cause of death for women (WHO, 2021).

Cervical cancer (16, 18, 31, & 52) is brought on by the papillomavirus in humans (HPV) (Zhang et al., 2020). Risk factors includes; weakened immune system, smoking, multiple sexual partners and early initiation of sex (Center for Disease Control and Prevention, 2021). (Sung et al., 2021). Women with both HPV and chlamydia reportedly have a higher risk which increases with the more cigarettes one smokes a day and the younger the age when the smoking started (Cancer Research UK, 2020).

One of the diseases that may be prevented in humans is cervical cancer, which can be avoided by treating precancerous tumors as soon as they appear. A cervical cell smear is obtained as part of the screening test's pelvic examination in order to perform the Papanicolau test, also known as the Pap smear test. A visual inspection with acetic acid (VIA) test may also be conducted as part of the pelvic examination (Zhang et al., 2020). In Ghana, the Johns Hopkins Programme for International Education in Gynecology and Obstetrics (JHPIEGO) and the Ministry of Health

(MOH) introduced cervical cancer testing and screening in 2001. The National Reproductive Health Service Delivery Guidelines were formally updated by the MOH in 2004 to include cervical cancer screening. With rates as low as 28% in Ghana, adequate understanding about cervical cancer is still comparatively low; (Ziba et al., 2015; Ebu et al., 2015; Adanu et al., 2013).

Despite the fact that the condition is avoidable, anecdotal information from Ghanaian gynecological clinics suggests that the majority of patients arrive at a late stage. The main cause of the delayed presentation is that cervical cancer screening is either not covered at all, or is covered very little, in many African nations, including Ghana. Due to factors including inadequate knowledge, a dearth of female healthcare professionals, limited language proficiency, and emotional reactions to the test's ban on screening, unsupportive partners and families, community misconception and cost of screening, have been made in order to explain why cervical cancer screening services are not as widely available in other regions of the world (Marques et al., 2020; Petersen et al., 2022).

1.2 Problem Statement

According to research by Huchtko et al. (2015), when it comes to the outbreak of cervical cancer, women in low- to middle-income nations are among the most susceptible populations worldwide. The yearly incidence and death rates are 16,546 and 27,326 respectively (ICO/HPV, 2017a). Most cancer incidents that affect women who are fertile are caused by cervical cancer, which the World Health Organization defined as being between the ages of 15 and 49. With an annual incidence of 3,052 and an associated mortality rate of 1,556 (28.3%), regarding the prevalence and associated death rate of cervical cancer, Ghana leads the world in both numbers (ICO/HPV, 2017b).

This study, along with others, has confirmed that individuals with inadequate awareness and details regarding cervical cancer, its treatment options, as well as preventative techniques, often report the disease to medical facilities too late, which lowers the disease's prevention potential and increases the disease's prevalence and death rates in the nation (William & Amoateng, 2012; Roberts & Maclaughlin, 2016). As part of the national strategy on cervical cancer being carried out in partnership with the John Hopkins Programme for International Education in Gynecology and Obstetrics (JHPIEGO), the Ministry of Health has authorized the use of both the HPV vaccination and HPV DNA testing in Ghana's public hospitals. Ghana's Ministry of Health authorized two screening techniques for cervical cancer: The Pap test and visual examination with acetic acid (VIA). However, Ghana continues to have a high incidence and fatality rate of cervical cancer. In the Northern region, some cases have been detected within the Sagnarigu Municipality recording 4 cases in 2019, and 13 cases in 2020 although the figures declined to 8 cases in 2021, it remains a concern in many ways (DHIMS, 2021). However, there is little available published peer reviewed literature on the level of cervical cancer screening among women who are of reproductive age in the Sagnarigu Municipality. A study in the Tamale Metropolis revealed a low screening of cervical cancer (31.8%) among women of reproductive age which is inadequate for effective case detection (Mustapha et al., 2022).

Little priority is given to cervical screening by healthcare workers and pertinent parties to account for women who are at risk of acquiring the disease using the service (Assefa et al., 2019; Tawiah et al., 2022; Zhang et al., 2020). The purpose of this study is to evaluate the variables impacting cervical cancer screening and awareness as well as the hurdles that stand in the way of it, considering the Northern region and its surroundings having a poor screening rates and the extremely high incidence of cervical cancer (DHIMS, 2021).

1.3 Research Questions

1. What is the knowledge level of women on cervical cancer and screening in the Sagnarigu Municipal?
2. How do women of reproductive age access information on cervical cancer and screening in Sagnarigu Municipal?
3. What are the perceptions of women on social norms, myths and misconceptions on cervical cancer screening?
4. What factors affect access and uptake of cervical cancer screening among women in Sagnarigu Municipality?

1.4 OBJECTIVES OF THE STUDY

1.4.1 General Objective

To determine the barriers to cervical cancer screening among women of reproductive age in Sagnarigu Municipal.

1.4.2 Specific Objectives

1. To assess the level of knowledge of women on cervical cancer and cervical cancer screening in Sagnarigu Municipal.
2. To examine the perceptions and misconceptions of cervical cancer and cervical cancer screening among the women.

3. To determine the factors affecting uptake of cervical cancer screening among the women in Sagnarigu Municipal.

4. To determine the factors associated with cervical cancer screening uptake among the women in Sagnarigu Municipal.

1.5 Justification of the Study

In northern Ghana, psychological and socio-cultural barriers exist to affect women health. The study's findings, which include screening of cervical cancer, will help to establish the groundwork for cervical cancer education aimed at preventing and lowering the nation's death rates, particularly in the north.

The findings of this investigation are anticipated to supply information to health care workers to plan adequately to widen the scope and coverage of screening cervical cancer in the Northern region, particularly in Sagnarigu municipality. The results of this study will also be a useful addition to the database for further research.

Based on the study's findings, a health education program might be created at the prenatal care level to raise awareness of screening cervical cancer and improve Ghanaian women's level of understanding. Managers of cervical cancer programs and other stakeholders may utilize the results of the study to support advocacy efforts and campaigns aimed at dispelling myths around cervical cancer screening and boosting screening frequency. The aforementioned information may

aid medical professionals and caregivers in general in putting themselves in a position to resolve conflicts, misconceptions, and controversies that arise while dealing with women they serve.

1.6 Conceptual Framework

The conceptual framework of the study focuses on barriers that can impede cervical cancer screening uptake. These barriers can be individual-level, sociocultural, psychological, or system-level factors. These factors are explained in detail below.

Awareness of risk factors, such as human papillomavirus (HPV) infection, multiple sexual partners, early sexual activity, or a weakened immune system, can help women assess their personal risk for cervical cancer. Understanding that anyone with a cervix can develop the disease can further emphasize the importance of screening to detect potential abnormalities early on. Knowledge empowers individuals by providing them with information and control over their health. When women are aware of the available screening options, such as Pap tests or HPV tests, as well as the recommended screening intervals, they can make informed decisions about seeking screening services and taking charge of their own health. Knowledge and awareness help dispel misconceptions and fears associated with cervical cancer screening. Common concerns, such as pain or discomfort during the screening process, can be addressed through accurate information about the procedure, its purpose, and the minimal invasiveness of modern screening methods. Understanding the actual experience of screening can alleviate fears and encourage uptake.

Socioeconomic status can affect access to healthcare facilities and services. Women from lower socioeconomic backgrounds may face challenges such as limited availability of screening facilities in their communities or distant travel distances to reach healthcare centers. Lack of transportation

options or financial constraints can further hinder access to screening, making it less likely for these women to seek and utilize screening services. Economic factors, such as low income or unstable employment, can impact screening uptake. Women with lower incomes may prioritize immediate financial needs over preventive healthcare, including cervical cancer screening. Lack of paid leave or flexible work arrangements can also make it difficult for employed women to take time off for screenings or follow-up appointments.

The presence and availability of screening services within the healthcare system are vital. Women need access to healthcare facilities that offer cervical cancer screening, including clinics, hospitals, or primary care centers. Insufficient availability of screening services, particularly in underserved areas or regions with limited healthcare infrastructure, can hinder women's ability to access screening.

The actions and practices of healthcare providers significantly impact screening rates. Providers who prioritize preventive care and emphasize the importance of cervical cancer screening during routine healthcare visits are more likely to encourage women to undergo screening. Clear recommendations and reminders from healthcare providers increase the likelihood of screening uptake. Cultural beliefs and practices surrounding health and illness can greatly impact screening behaviors. Some cultures may have misconceptions or stigmas associated with cervical cancer or screening procedures, which can deter individuals from seeking screening. For example, modesty concerns or beliefs about maintaining virginity may discourage women from undergoing pelvic examinations or Pap tests.

Fear and anxiety link to screening of cervical cancer and procedures can be significant barriers to uptake. Fear that the outcome will be positive anxiety about the screening process itself, or concerns about pain or discomfort may deter individuals from seeking screening. Addressing these

fears through education, counseling, and providing information about the screening process can help alleviate anxiety and improve uptake. National or regional screening guidelines and policies can influence screening uptake. Clear and evidence-based guidelines that are regularly updated and widely disseminated help healthcare providers and individuals understand the recommended screening intervals, age groups, and screening methods. Consistent implementation of these guidelines across healthcare systems can ensure that screening services are provided effectively and consistently.

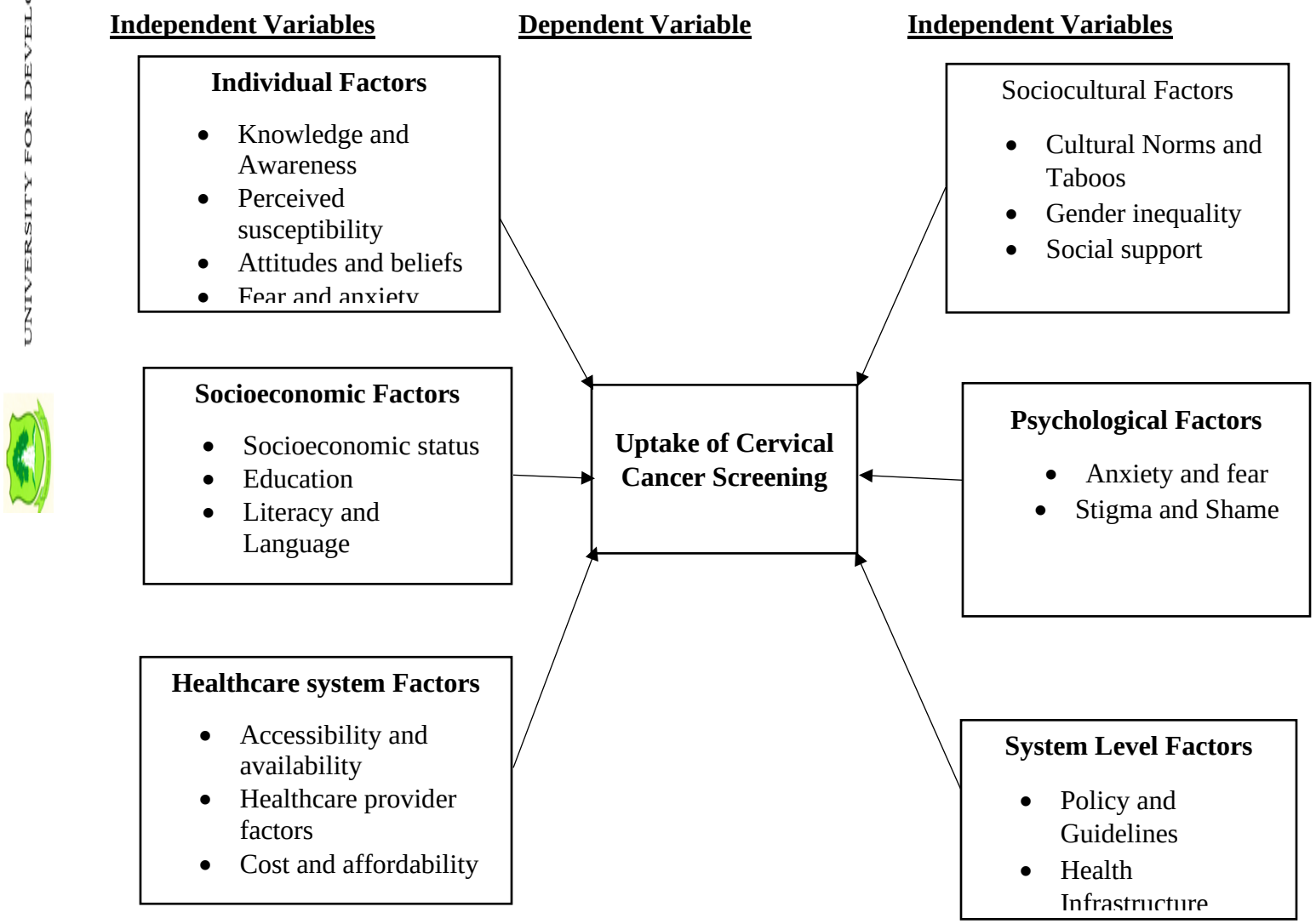

Figure 1 Barriers to cervical cancer screening uptake

Source: Researchers construct, (2023)

1.7 Theoretical Framework

1.7.1 Competencies Addressed by the Theoretical Framework

The U.S. Public Health Service social psychologists Hochbaum, Rosenstock, and Kegels created the Health Belief Model (HBM) in the early 1950s. For the purpose of researching and encouraging the use of screening and other health services Rosenstock (1966) in Stanhope and Lancaster established the psychological model referred to as the paradigm for health beliefs. The model clarifies the behavior of prevention. According to the paradigm, people's beliefs and attitudes have a significant role in determining the behaviors they take in relation to their health. It indicates that opinions about four sets of variables can explain differences in uptake behavior when signals to actions are present. These consist of: The perspective of the person on their susceptibility to disease. A person won't seek treatment if they don't think they might have any issues and don't believe their disease is serious. Little thought will be given to how someone views the advantages of taking action to lessen the degree of threat or vulnerability if the related issue is perceived as minor. The assessment made by the person of any possible obstacles to the suggested course of action, which may include social, psychological, financial, or physical ones.

1.7.2 Framework of the Three Major Components of Health Belief Model

The structure of the three main parts of the Health Belief Model is shown in figure 2 with regard to how people see and use cervical cancer screening programs. The health belief model is made

up of three main parts: variables determining likelihood of action, modifying factors, and individual perception.

Individual perception: using the sense organs to make oneself aware of things, attributes, or relationships is the process of perception. The belief that one is susceptible to cervical cancer will encourage someone to use preventative treatments.

Factors known as moderating factors alter or enhance the probability of an action. These comprise mass media, health facility location, education level, and demographic factors, among others. They have an impact on how threats are seen; greater information will lead to an accurate perception of threats based on scientific understanding of cervical cancer.

Probability of action: if someone knows there is a need and that taking a certain action would help satisfy that need, then that person is likely to take action. Furthermore, if obstacles to using these services are reduced as much as possible. The recommendation to undergo screening appears to be disregarded because cervical cancer is typically discovered much later. Because they have conflicting requirements, some women might not think it's as significant as it is. Some people, however, could view screening as an essential preventative health practice.

1.7.3 **Assumption of the Health Belief Model**

Amason and Lee (2016) and Tarkang and Zotor (2015) established and commented on three HBM assumptions linked to putting projected health-related behaviors into practice. As to the authors, the initial supposition implies that an individual will use preventive steps to avert an illness if they believe it can be avoided. They clarified that increasing public awareness of a certain ailment will assist forward this aim. They contend that after learning enough about the ailment, a person will be self-motivated to adopt preventative measures to ward against illnesses.

The second premise of the HBM suggests that if a person thinks that doing a certain action would help prevent him from developing a dangerous ailment, he will take steps to achieve the predicted outcome. A person should be informed of the health advantages of avoiding the illness in question. If they do not believe that avoiding the condition is necessary, they may find it difficult to adopt preventative measures.

And lastly, this model makes the assumption that a person will take action if they believe they are capable of averting a certain situation. To help inspire and boost their confidence in following advice, it is necessary to support the public in learning more about their health.

The influence of an individual's beliefs on their health behaviors has been the subject of many study using the Health Belief Model (HBM) (Khorsandi, Fekrizadeh, & Roozbahani, 2017). The bulk of the studies the researcher was able to find online were quantitative in nature, and there are not many that use the Health Belief Model (HBM) as a foundation for screening women for cervical cancer nationwide. Consequently, the researcher employed a qualitative approach to explore the thorough characterization regarding Ghanaian women's opinions toward the screening of cervical cancer, utilizing HBM as a guiding principle.

1.7.4 Application of the Health Belief Model to this Study

The assumptions and the HBM constructs serve as the foundation for this conversation. Perceived susceptibility was the first concept examined. The study's goal was to find out if participants believed they had a chance of getting cervical cancer. This is because, should they feel that they may become cervical cancer patients, they will participate in CCS to ensure they are cancer-free and to safeguard themselves from it.

The degree to which the health problem is deemed significant is the second model construct taken into consideration. Based on this, the researcher asked her respondents about their perceptions of the seriousness and mortality of cervical cancer. The reason behind this is that if respondents believe cervical cancer to be fatal, they will take precautions to avoid getting it; conversely, if they believe it to be commonplace, similar to other minor illnesses, they might not bother using the screening programs that are offered.

The approach considers perceived advantages as well. The investigation's goal was to ascertain if the participants knew about the many screening of cervical cancer initiatives provided by the municipality as well as the possibility of early identification in the precancerous stage of cervical cancer prior to the onset of malignancy. This is due to the fact that participants will engage in CCS to safeguard themselves against cervical cancer if they believe it to be advantageous.

Furthermore, numerous perceived obstacles have been identified by many studies as preventing women from getting checked for cervical cancer. Lastly, the signals influencing women who have already had a cervical cancer screening as well as those who want to get one were identified. This study investigated participant perspectives about adoption hurdles and variables that might encourage CCS patronage.

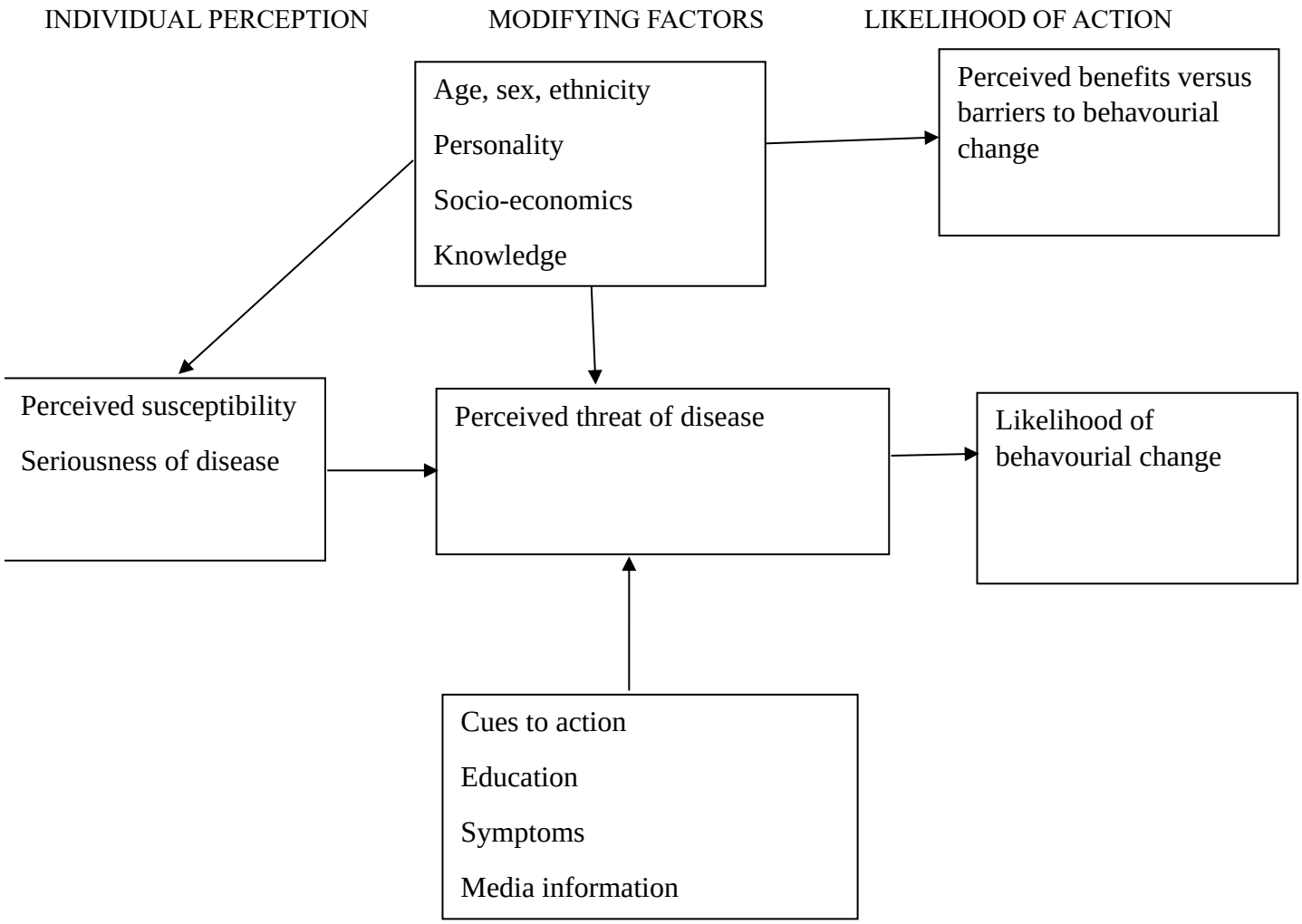

Figure 2. 1 Framework; Evidenced Based Individual Behaviour Change Theory Problem Solving Adapted from Stanhope and Lancaster by Rosenstock (1966) (move the framework down after the write up.

1.8 Organization of the Study

The study will be organized in six chapters. Chapter one consists of the background of the study, problem statement, objectives and research questions of the study, significance of the study and the organization of the study. Chapter two reviews relevant literature on the topic, chapter three covers the methodology used in carrying out the study, chapter four dealt with data analysis and presentation, chapter five discusses the findings of the study with reference to relevant literature and chapter six consists of a summary of the study, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

This chapter examines pertinent material in light of certain goals, including women's pap smear screening behaviors, attitudes toward and awareness of cervical cancer, and activities linked to cervical cancer surveillance. The Chapter considers empirical and theoretical information on the cervical cancer globally, Sub-Saharan Africa and Ghana. The chapter ends with a summary view of the existing literature and point to the justification of this study.

2.1. Theoretical Understanding of Cervical Cancer

The unchecked proliferation and dissemination of aberrant cells is what defines cancer, is a group of illnesses, per the American Cancer Society. Death may ensue if the spread is not contained (ACS, 2016).

Carcinoma affecting the cervix (mouth of the uterus) is known as cervical cancer. It is from a genetic alteration (mutation) that transforms normal cells into aberrant cells that cervical cancer originates. While healthy, normal cells grow and divide according to a certain pace and finally pass away on a particular day, malignant cells expand and proliferate uncontrolled and do not die. With the ability to split off from a tumor and travel to other parts of the body, cancer cells can infiltrate adjacent tissues. Squamous cell carcinomas, adenocarcinomas, and adeno-squamous carcinomas are among the several forms of cervical cancer that might occur. The kind of cervical cancer determines a lot of things, including prognosis and therapy. Squamous cell carcinomas, which make up the majority of cervical malignancies, originate from the squamous cells, which are flat, slender cells that extend into the vagina and surround the cervix.

Cervical cancers that are adenocarcinomas have increased in frequency during the last twenty to thirty years. Typically, this kind begins in the cervical canal's columnar glandular cells. Additionally, a different kind of cervical cancer known as "adeno-squamous" or "missed carcinomas" is less prevalent and has traits of both adenocarcinomas and squamous cell carcinomas. Apart from the aforementioned primary forms of cervical cancer, the cervix can also develop additional kinds such as sarcoma, lymphoma, and melanoma. 2,784 women globally who have reached the age of 15 or above are susceptible to developing cervical cancer. Of this total, 5,444.4 are in more developed countries, while 2,240.4 are in less developed ones, according to the report (ICO HPV, 2017a).

As stated by the American Cancer Society, it is truly unknown what causes cervical cancer. However, in contrast, research indicates that recurrent infections with certain strains of the Human Papillomavirus (HPV) poses a substantial risk of developing cervical cancer (ACS, 2016). Furthermore, recent data from the International Commission on Cervical Cancer suggests the etiology of cervical cancer is known to be HPV infection, accounting for around 70% of cases globally. These data pertain to varieties 16 and 18. Cervical cancer can also result from other viruses, such the Herpes simplex virus (ACS, 2016).

Despite the fact that most women with HPV never go on to acquire cervical cancer, the virus is nevertheless widely distributed. This suggests that women are also predisposed to cervical cancer by other variables, including lifestyle decisions and environmental circumstances. These include having several sexual partners, having intercourse too young, having other STDs, being from a low-income background, smoking, eating poorly, douching, using oral contraceptives for an extended period of time, and having immunosuppression. Women who have several sexual

partners and more sexual partners have a higher risk of contracting HPV. Moreover, early sexual activity raises the chance that females may get HPV, which can cause cervical cancer (ACS, 2016).

The restriction of sexual behavior and HPV transmission by religious and cultural norms has a significant impact on cervical cancer, as demonstrated by research by (Arbin et al., 2011). Their argument is that cervical cancer incidence rates in nations such as Guinea, Malawi, and Zambia, are less than 10 incidences per 100,000 women where sexual behavior is typically conservative, yet, more than 50 instances for every 100,000 females in countries like Libya, Sudan, Algeria, and Tunisia (Gelband et al., 2015). As previously mentioned, the primary cause of HPV infection is sexual activity. Accordingly, HPV, which may lead to cervical cancer, is more common in women with HIV/AIDS, gonorrhea, chlamydia, and syphilis just to list a few of sexually transmitted infections (STIs). One might also be at risk for cervical cancer by other persistent cervix infections (ACS, 2016; ICO HPV, 2017a).

Cervical cancer is quite common, and its incidence and fatality rates are particularly high among women who are impoverished and disenfranchised, as well as in young, frequently multi-parenting mothers. Moreover, women who have never given birth may get cervical cancer. Additionally, women who use oral contraceptives for an extended period of time are at a greater risk of cervical cancer development (ACS, 2016; Huchko et al., 2015). Furthermore linked to particular lifestyle behaviors, smoking has been connected to squamous cell carcinoma in particular, a kind of cervical cancer. Exposure to radiation and some chemical pollutants can also result in cervical cancer. Additionally, women who suffer from illnesses like HIV/AIDS that compromise their immune systems could have an increased chance of getting cervical cancer. Women are also more susceptible to cervical cancer if their diet is deficient in fruits and vegetables, which can lead to folic acid and vitamin A and C deficits. Furthermore, the vagina's pH and natural flora can be

altered by douching or inserting certain materials inside, which may further raise the risk of cervical cancer (Laura & Martin, 2018; Small et al., 2017).

Lesions of cervical prior to invasion often show no symptoms. The aberrant cells infiltrate other organs and produce symptoms as they proliferate and grow more malignant. Vaginal bleeding occurs between cycles, following menopause, douching or pelvic examination, or during or after sex is one of the main symptoms of cervical cancer. There may also be some mystery about the vaginal bleeding linked to cervical cancer. There may be watery, bloody, copious vaginal discharge along with the vaginal bleeding, which may smell bad. Cervical cancer may also be linked to inexplicable pelvic discomfort as well as pain experienced during and after sexual activity. Back and leg discomfort are possible additional symptoms. Additional clinical indications of cervical cancer include anemia, dysuria (pain while urination), hemoptysis (blood in the urine), rectal bleeding, and weight loss often accompanied by fever. (Laura & Martin, 2018).

2.2 The concept of screening cervical cancer

Through the early detection and treatment of abnormalities in the fetus's neck, cervical cancer screening aims to avoid cancer (Basoya & Anjankar, 2022). The birth canal or vagina is connected to the uterine body by the cervix, the part of the uterus that is located below. The area closest to the uterine body is called the endocervix of the cervix while the cervix's ectocervix is the portion that is closer to the vagina. The intersection of the ectocervix and endocervix is where the majority of cervical cancer lesions start. Oncogenes, or DNA abnormalities causing gene errors, can activate cells and promote cell proliferation, which is how cancers are generated. On occasion, this may be brought on by the inactivation of tumour suppressor genes, which causes aberrant cervical cell growth (Nott et al., 2016). A growth or tumor that resembles a cauliflower and bleeds easily when touched is the consequence of malignant cancer cells replicating until they go unchecked in the

cervix. Cancer cells can spread to organs and tissues outside of the cervix, including the bladder, intestines, liver, uterus, and ovaries, if they are not diagnosed in time (Šarenac & Mikov, 2019). As pre-cancerous alterations known as pre-cancer lesions (dysplasia), the majority of cervical malignancies grow slowly in the lining of the cervix and may progress into cancer if left untreated. However, certain lesions may not be malignant and may go away on their own (Denny, 2012). If treatment for these alterations is not received, cancer may result. The Pap smear test, also known as the cytology test, is one of the tests used in the screening process (Catarino et al., 2015).

The best preventive measure is screening for cervical cancer. Its goal is to identify precancerous lesions early on and treat them before they progress to aggressive cervical cancer (Curry et al., 2018). Compared to other malignancies, cervical cancer is distinct in that it may be completely avoided with routine screenings and treatment of precancerous lesions (Aggarwal, 2014). A number of techniques exist for the identification of various precancerous lesions, including direct visual examination of the cervix with the assistance of substances examples that result in noticeable color changes contain five percent of the following: visual examination with Lugol's iodine [VILI] and visual inspection with acetic acid [VIA]. Additional screening techniques, such as Pap smears, liquid-based cytology, cryotherapy, and HPV DNA testing, or the loop electrosurgical excision process (LEEP) for pre-cancer treatment, may successfully lower the rate at which cervical cancer occurs.

The process of collecting cells from the cervix and vaginal surface is known as a Pap test. The cervix and vagina are carefully scraped free of cells using a cotton swab, a brush, or a little wooden stick. To determine whether the cells are aberrant, they are examined under a microscope (Kamal, 2022). Using substances such as five percent iodine and acetic acid (visual examination using Lugol's iodine [VILI] and visual inspection using acetic acid [VIA]), which result in changes in

observable color, the cervix can be immediately examined visually for the diagnosis of different precancerous lesions (World Health Organisation (WHO), 2021).

There is a novel technique for gathering and observing cells that involves submerging the cells in a liquid before arranging them on a slide. Samples may occasionally be examined for the virus known as the human papillomavirus (HPV) raises the risk of cervical cancer. A medical professional or nurse applies a tiny brush to the cervix to remove a sample of cells. Human papillomavirus (HPV) is tested for the presence of oncogenic (high-risk) strains in cervical specimens. This test is now used in clinical practice, but its primary function is to prioritize women for colposcopy whose Pap smear results indicate abnormal squamous cells that are not important. They forward the material to a lab for anomaly detection (Schiffman et al., 2011).

2.3. Management and Prevention of Cervical Cancer

Effective care of precancerous cervical cancer might result from early identification. LEEP, or loop electrosurgical excision method, is a workable plan of treatment for precancerous cervical lesions. By heating a wire loop with an electric current, the aberrant tissues are destroyed. A few more treatments are conization, which is the breakdown of a cone-shaped tissue that surrounds the aberrant tissue, laser ablation, which destroys tissue, and cryotherapy, which removes cells by extremely low temperatures. Targeted treatment combined with regular chemotherapy, however, was shown to have increased overall prognosis for female cervical cancer patients who have recurring, ongoing, or metastatic disease (ACS, 2016).

Regarding survival, it has been shown that individuals with cervical cancer had a relative survival rate of 68% and 64%, respectively, over the course of five to 10 years. This article states that 92%

of the patients survived for five years, and 46 people, or nearly half of the total, had cancer that was discovered while it was localized (ACS, 2016).

It is possible to avoid cervical cancer. The cervical cancer preventive regimen has been updated with two new techniques. The first is the HPV vaccine program, which is intended to protect females between the ages of nine and eighteen and the second is the screening program for HPV in women over 30 to identify cervical precancerous lesions early in life (Sankaranarayanan, 2015).

The most prevalent forms of HPV that cause cervical cancer have been targeted for vaccination, according to the American Cancer Society. The HPV vaccinations, however, are not effective against all strains of the virus or current illnesses. Consequently, cervical cancer screening should continue for vaccinated women. Sixty-two nations presently have national immunization programs that include HPV vaccination for pre-adolescent and teenage girls, as well as "catch-up" vaccinations, which have age limits of no more than 26 for older women (Sankaranarayanan, 2015).

The primary approach to avoiding cervical cancer is screening, which enables early detection of the illness at the precancerous stage and treatment prior to the disease progressing to the carcinoma stage. Two techniques are employed in the screening process, PAPs smear and Visual Inspection with Acetic Acid (VIA) are the two methods for detecting cervical cancer.

The disease's risk factors can also be addressed in order to avoid cervical cancer such as minimizing childbearing, avoiding prolonged oral contraceptive use, avoiding smoking and douching, refusing to engage in early sexual activity and several partners, and increasing fruit and vegetable intake.

2.4 Global Burden of Cervical Cancer

One of the main issues facing world health is cervical cancer. It usually affects the womb's mouth, or the cervix. Following colorectal and cancer of the breast, the third most common cancer among female patients worldwide is cervical cancer (Ferlay et al., 2013). Malignant tumors and neoplasms are two more common terms for cancer. A wide range of illnesses collectively referred to as cancer may begin in practically any bodily organ or tissue when abnormal cells multiply uncontrolled, penetrate normal boundaries, invade neighboring body parts, and spread to other organs. The later stage is among the primary causes of cancer-related death, sometimes referred to as metastasizing (Gelband et al., 2015).

The primary cause of cancer-related mortality for females in Eastern, Middle, Southern, and Melanesia is cervical cancer (WHO, 2012). The pattern of cervical cancer exhibits a discernible inequality death rates across a number of industrialized and developing nations. In Ecuador and Spain, the rates were found to have remained constant or slightly increased over time, whereas they were seen to be down in the United Kingdom, United States and Sweden.

Research from all throughout the world has demonstrated the significant impact cervical cancer has on women's health and the global populace. The World Health Organization estimates that one million women globally suffer from cervical cancer. Cervical cancer claimed the lives of 266,000 people in 2012, accounting for 528,000 new instances of the illness (WHO, 2014; DHHK, 2016). Furthermore, cervical cancer is expected to be the cause of 4,120 deaths globally in 2016, according to the American Cancer Society." It also happens to be the fourth most frequent kind of cancer globally (Sankaranarayanan, 2015; ICO/HPV, 2017a).

Variations in the availability of screening, which can detect and allow for the removal of abnormalities before cancer, are reflected in the wide regional variance in cervical cancer rates. Furthermore, screening makes it possible to identify HPV infections so that appropriate treatment may be provided. In most industrialized nations, including many Western nations with long-standing screening systems, Over the past 40 years, there has been a 65% drop in the fatality rate from cervical cancer (Ferlay, 2010; WHO, 2012). In Norway, for instance, the death rate from cervical cancer dropped, 1970 saw 6.3 per 100,000 people, whilst 2011 saw 1.5 per 100,000 (WHO, 2012). Additionally, in certain elevated frequency areas, rates have decreased such as Colombia, the Philippines, and India, most likely as a result of enhanced screening initiatives and improving socioeconomic circumstances (WHO, 2012). Because the "Pap test," a straightforward screening tool, is widely available, the death rate has decreased in these wealthy nations. Before they develop into aggressive malignancy, precancerous alterations of the cervix are identified by the Pap test.

2.5 Cervical Cancer in Sub-Saharan Africa

Approximately twenty-two percent of female cancer cases in Sub-Saharan Africa are caused by cervical cancer and is the main reason for cancer-related deaths in the region (Parkin et al., 2003). Nevertheless, cancer of the cervix trails breast cancer in Sub-Saharan Africa in terms of cancer incidence among women (Bray et al., 2018; Jedy-Agba et al., 2020). With over 50,000 deaths annually, in Sub-Saharan Africa, cancer of the cervix is a major factor to morbidity associated with cancer and death (Adefuye et al., 2013).

According to estimates, ninety percent of cervical cancer diagnoses occur in low- to middle-income nations and fatalities and over the next ten years, there will likely be an approximately 25% increase in these instances (Hull et al., 2019). Globally, 445,000 of the 528,000 new cases

that are anticipated will happen in lower- and middle-income nations. It is anticipated that this would also result in 266000 fatalities, of which 230,000 will probably happen in middle and low-income nations, particularly in sub-Saharan Africa and Asia (Sankaranarayanan, 2015)

Most women in sub-Saharan Africa who suffer from cervical cancer do so between 60 and 75 percent live in rural areas. The main reason why so many of these women remain untreated is a limitation of geographical and economical access to therapy. More females in sub-Saharan Africa die from cancer of the cervix than from all other cancers combined. It is unfortunate because it affects them at a time in their lives when they are crucial to their families' social and financial security (Parkin et al., 2002). Due to egregious underreporting, it is uncertain how common cervical cancer actually is in many African nations. Few nations have functioning cancer registries, and many lack or maintain very little or no records. In Eastern Africa, there is a recorded death rate of 35 per 100,000. In undeveloped nations when screening systems are effective, reported death rates seldom surpass 5 per 100,000 (Hull et al., 2019).

Research conducted in Ethiopia and Ghana revealed a substantial correlation between poor cervical cancer screening service usage and illiteracy. Conversely, three investigations showed that using the screening service was significantly predicted by having HIV. In Sudan and Kenya, screening uptake rose as well as awareness of the role of screening. As people age, a relationship has been seen between elevated cervical cancer screening, (Tefera and Mitiku, 2021) reported a greater percentage of moms aged 25 to 49 who were tested.

According to data from Ghana, cancer of the cervix is the most prevalent cancer among women aged 15 to 44 (Catalan Institute of Oncology Human Papillomavirus centre, 2021). In the meantime, rates have increased or stayed the same in the majority of emerging nations. By 2025,

for instance, the WHO estimated that, in Ghana there are about 5,000 instances of cervical cancer and at least 3,300 fatalities associated with the disease (Ubajaka et al., 2015).

Information suggests that screening of cancer of the cervix is not being widely used in Ghana. Only 14.3% of women reported having a routine gynecological visit, and less than 2.1% of women had ever received screening for cancer of the cervical cancer screening (Danu et al. (2010). A total of 1083, 1088, 770, 1339, and 1064 women had cervical cancer screening between 2009 and 2013, (Ghana Health Service Annual Report on Reproductive and Child Health (2013).

Ghana still has an extremely poor screening test uptake for the Pap smear, even if precancerous lesions can be detected early enough to prevent cervical cancer. Ghana's low rates of healthcare patronage can be attributed to several reasons, including the marital status of women, both their engagement in and degree of satisfaction with healthcare. A deficient healthcare system and the absence of a nationwide cervical cancer screening program may be the cause of these (Calys-Tagoe et al., 2020).

2.6 Risk factors for cervical cancer

HPV strains 16 and 18, which represent the largest known risk factor for cancer of the cervix, are responsible for most instances of the illness. Persistent infection with these viruses increases the likelihood of the illness developing (Carter et al., 2011; Wang et al., 2018). The likelihood of contracting HPV rises with persistent infection. (Berman & Schiller, 2017). Since HPV is spread through sexual activity, the chance of contracting the virus increases immediately after sexual activity starts and may occasionally surge again in women going through menopause. It is not necessary for transmission, nevertheless, to have penetrative intercourse. Known methods of HPV transmission include vaginal contact between skin cells (Qaqish et al., 2023). How many partners

she has had sexual relations with during her lifetime seems to be correlated with her risk of HPV exposure (Johnson et al., 2012). Consequently, the risk of HPV infection is higher in women than in other women if they have had several partners, have a partner who is high risk, or began having sex when they were younger. Although not all HPV-positive women will develop cervical cancer, engaging in sexual activity without using a condom raises the chance of contracting the virus. Studies indicate that women infected with HPV who smoke or have compromised immune systems are more vulnerable to cervical cancer (Itarat et al., 2019).

HPV is more common among those who are HIV positive and for the infection to remain even after starting antiretroviral medication. Other than managing lesions or growths brought on by HPV infection, there is presently no treatment for the disease (Liu et al., 2018).

2.7 Knowledge and Awareness of Cervical Cancer and Screening

Tumors affecting the uterine cervix are referred to as cervical cancer. The uterine cervix's normal cells undergo a genetic mutation that transforms them into aberrant cells. This illness can affect women who have reached the age of fifteen or more. The main causes of the illness include various lifestyle factors and recurrent infections with certain strains of the human papilloma virus. Understanding and understanding of the disease can play a significant part in preventing cancer of the cervix and ensuring that it is effectively addressed if it is discovered early in the precancerous stage. It is believed that increasing women's awareness of cervical cancer will lead to better healthcare-seeking behaviors for services aimed at preventing the disease. Therefore, women must have access to sufficient details regarding cancer of the cervix, including its signs, symptoms, causes, and risk factors, before they can take preventive action (Shiferaw et al., 2016).

The timely identification and treatment of cervical cancer are believed to have been seriously hampered by inadequate knowledge of the illness and how to check for it (Kessler, 2017). According to Momberg et al. (2017), knowledge of cervical cancer among women, screening for it, and treatment after it has been diagnosed is severely lacking. The majority of African countries, such as Ghana, Ethiopia, and Nigeria, have significantly low levels of cervical cancer awareness (Shiferaw et al. (2016). According to several research, women in the majority of Sub-Saharan African nations, including Gabon, have severe gaps in their awareness and knowledge of cancer of the cervix (Assoumou et al., 2015); Ethiopia (Getahun et al., 2013; Shiferaw et al., 2016; Mulatu et al., 2017); Nigeria (Ingwu, 2016); and Tanzania (John, 2011).

Numerous investigations have revealed that women in the majority of Sub-Saharan African nations, such as Gabon, lack basic information on cervical cancer. Reportedly, women in low- and middle-income nations, like South Africa do not know enough about the screening of cancer of the cervix and screening programs (Momberg et al., 2017). Some Zimbabwean women were mostly unaware about both the cancer of the cervix risk factors and the age at which the illness might develop (Mutambara et al., 2017).

Similar findings have been made about Ghana, where research has also indicated that some areas of the nation lack awareness about cervical cancer (Adanu et al., 2013; Williams & Amoateng, 2012; Ebu et al., 2015; Ziba et al., 2015).

sociodemographic characteristics, information sources on cervical cancer, and availability of medical care, cultural beliefs and practices, social norms, religious restrictions, myths and

misconceptions, and perceived susceptibility are some of the characteristics that might affect a woman's knowledge about cancer of the cervix and the need for its screening.

Anecdotal evidence from the nation's gynecological clinics revealed that most patients have advanced cervical cancer when they first come, despite the disease being avoidable. According to Calys-Tagoe et al. (2020), Ghana's poor incidence of the screening cancer of the cervix is one of the causes behind the rise in cases and deaths compared to other African nations. In addition to the previously mentioned factors, there was also the lack of knowledge on the early detection process for cervical cancer screenings and the attitudes and perspectives held by people due to their cultural and religious beliefs, which have a great influence on health practices. In addition to other reasons for coverage, it is important to mention the weak health systems that developing nations like Ghana must contend with, as well as other conflicting interests.

Regular public health education is necessary since, in India, a greater number of females die as a result of cancer of the cancer of the cervix than in any other nation (Manikandan et al., 2019). Studies have shown that, Even though the country provides screening for cervical cancer, only a small number of women are aware of it. This is the situation that exists in Ghana.

In light of the advantages of raising public awareness of cancer of the cervix, the Study's subsequent conclusion that there was a knowledge gap about the disease's risk factors emphasized the necessity for widespread advertising (Manikandan et al., 2019).

2.8 Cervical Cancer Screening and Associated Factors

Numerous factors have been documented that impact the screening process for cervical cancer. Among these are age and marital status, lack of understanding, limited access to healthcare facilities because of weak infrastructure, and healthcare workers' ignorance of the significance of

early detection and intervention in rural areas (Singh & Badaya, 2012). The accessibility of alternative and complementary therapies, the spouse's and family's inadequate financial and moral support, and the prospective beneficiary's improper request for a cervical cancer test are added variables (Duchcherer, 2010).

2.8.1 Level of Knowledge on cervical cancer screening uptake

An important element impacting the adoption of screening has been identified as females understanding of cancer of the cervix and its risk factors. It is unlikely that women who are ignorant about the prevention of the cancer of the cervix and how to seek treatment (Aimiosior & Omigbodun, 2020).

According to a research done by Lyimo & Beran, (2012b) in Moshi, Tanzania, a research examining the key elements associated with 354 women aged 18 to 69 who took up screening discovered that a very small percentage of participants—59.6%—knew nothing about cervical cancer and how to prevent it. Of the women in this research, out of the total, just 80 (22.3%) said they had been screened. The research found that screening rates were greater among individuals who had in-depth knowledge of cancer of the cervix cancer prevention and detection than people who knew a little or medium amount about the subject (Lyimo & Beran, 2012b).

According to two-thirds (67.5%) of participants in a research conducted in Ghana's Ajumako-Eyan-Essiam district by Sampson, Nkpeebo, and Degley (2021), cervical cancer screening is not useful. Nonetheless, 98.8% of the respondents, or nearly all of them, expressed interest in cervical cancer screening. Every single one of them(100%) said they would advise other ladies to take part in screening. A mere 9.6% of respondents indicated that cervical cancer screening is prohibited by their religion, but 96.7% said that cervical cancer screening is not part of their culture. Even though

just 27.9% of the participants believed they were vulnerable to cancer of the cervix, the majority of respondents (72.5%) said the mere mention of cancer made them feel afraid. The cervical cancer test is significant to more than four-fifths (82.9%) of the responders (Sampson, Nkpeebo & Degley., 2021).

Additionally, according to a study conducted in Kenyasi Bosore, 34% of respondents disagreed with the premise that cervical cancer may be cured surgically following screening (Gyamfua et al., 2019). Of the respondents, 66% accepted this notion. That being said, a significant portion of the respondents (147, 73.5%) and (181, 90.5%) were ignorant about the advantages of radiation therapy and the need to treat cervical cancer as soon as possible to prevent organ metastases. This is evident that the level of knowledge is a huge factor affecting cervical cancer screening in Ghana (Gyamfua et al., 2019).

The research by Abotchie & Shokar, (2009) found discrepancies in college students' understanding of risk factors and screening intervals in a different research conducted on knowledge and health attitudes in Ghana around cervical cancer. Only 7.9% of respondents to this poll knew that HPV is the main risk factor for cancer of the cervix, as indicated by the American Cancer Society (Abotchie & Shokar, 2009)

A study on screening of cancer of the cervix behaviors, knowledge, and attitudes conducted in Kuwait found that just 30.6% and 23.6%, respectively, of the participants 300 married women who were randomly selected for the test had appropriate attitudes and practices toward the test (Al Sairafi & Mohamed, 2008). According to the Kuwait research, not getting a Pap test was primarily due to a doctor's recommendation not to have one. This demonstrates that females comprehension of the significance of the screening test is lacking (Al Sairafi & Mohamed, 2008).

Women who know about the illness are more likely to have had a cervical cancer screening, according a study done in Kenya (Elizabeth et al., 2012). For example, 384 female primary school teachers in Kenya participated in a cross-sectional research whereby the participants were questioned about their experience with Pap smear testing and their understanding of the risk factors for cervical cancer. Of the participants, 87% were aware of the illness and 75% knew about the test. It is noteworthy that a mere 39% of participants were aware that HPV infection poses a risk for cancer of the cervix, and only 41% had undergone screening within the last year (Elizabeth et al., 2012).

In Ghana, (Charity, Samuel, Kofi & David., (2019) states that, individual hurdles were low income levels along with personal or psychological beliefs, a lack of awareness regarding the condition, the accessibility of screening choices, and the high expense of diagnosis and care. Furthermore, the obstacle at the community level, according to them, was the societal perspective of the populace on the cause of the illness, while perceived attitudes of health personnel, misdiagnosis, and perceived lack of privacy were affecting cervical cancer screening at the institutional level. Screening and treatment at the policy level were further hampered by inadequate financing, access to screening facilities, and information about the condition.

2.8.2 Sociocultural factors associated with cervical cancer screening uptake

Pap smears are not usually performed by female healthcare providers in private settings, based on a qualitative research of 220 men, women, and children in Bangladesh that looked at how the community views of cancer of the cervix and screening of cervical cancer (Ansink et al., 2008). In a research conducted in Camden, London, Somali women found that the stigma attached to female genital mutilation made them see screening negatively (Abdullahi et al., 2009).

In a research conducted in Owerri, South Eastern Nigeria, discovered that 846 women (52.8%) were aware of cancer of the cervix and Pap smears had only ever been performed by 7.1% of the women. 11.6% of those surveyed in this study said they refused to have a Pap smear because they were afraid of getting positive findings (Ezem, 2007).

The following factors have also been found to affect screening: fear of partners' support (40.6%), cost of screening (23.2%), the belief that it hurts (9.4%), the difficulty in obtaining a cervical cancer screening facility across the country (24.3%), and the concern that they would be viewed as disloyal or spoiled (24.6%) (Shokar & Abotchie, 2009). It has been determined that increasing CCS education is necessary to assist women in overcoming these barriers of screening cervical cancer (Marlow, Waller, & Wardle., 2015).

According to Akinlotan et al. (2017) and Lunsford et al. (2017), some women may be reluctant to undergo CCS because they believe a male health professional will screen them and see them in their undies. A lack of funds (61.6%), worry that the test findings might show cervical cancer (53.1%), anxiety about the process (38.7%), embarrassment related to the screening (25.6%), and fear of discomfort (23.6%) were among the other barriers that were examined. Furthermore, false beliefs that a person's womb and and ovaries would be extracted throughout the examination procedure, fear of discomfort, fear of exposing oneself in public, the belief that one is not susceptible to CC, the belief that one may spend a significant length of time spent in the hospital doing the test, the absence of prompts, and a lack of support and encouragement from medical professionals are all factors that hinder CCS (Bukirwa et al., 2015).

According to a 2009 study by Abotchie and Shokar, participants' main obstacle to screening cancer of the cervix was the false belief that the screening is done for cancer detection rather than prevention. In Ethiopia, it was shown that, in addition to the previously mentioned barriers,

women would be discouraged from participating in CCS if they are afraid of the findings or do not understand the nature of screening cancer of the cervix (Dulla et al., 2017).

2.8.3 Socio-economic factors associated with cervical cancer screening uptake

According to a research conducted in Eldoret, Kenya, 11.4% of the participants said they did not attend for screening because they could not afford the test. 219 women who visited the hospital's MNCH-FP clinic participated in the research (Were et al., 2011).

One significant obstacle to screening is the high cost of screening services. according to a study done in Bangladesh (Ansink et al., 2008). In Uganda, cost has also been identified as a significant factor in determining service accessibility (Mutyaba et al., 2007).

2.8.4 Accessibility factors associated with cervical cancer screening uptake

The likelihood of females getting checked for cancer of the cervix is lower if they live far from the screening facilities (Ebu et al., 2014b). An additional issue, according to a cross-sectional community-based poll, is inadequate transportation (Petersen et al., 2022).

Low emphasis is given in Bangladesh to receiving treatment for symptoms and restricted access to health facilities were reported to be among the most frequent barriers to screening, based on a study that included 220 men, women, and children and examined the perception of community about cancer of the cervix and screening for the disease (Ansink et al., 2008)

2.9 Papanicolaou smear test in Ghana

In Ghana, a research was done by (Calys Tagoe et al., 2020), where it was revealed that cervical cancer screening services within the country were very low with factors such as a women's marital status thus the Study revealed that those married and those who have lost their spouse did not see themselves to be at risk as they claim to not having multiple sexual partners when compared to the unmarried ones, healthcare satisfaction, as well as level of healthcare involvement, were the influencing factors to the patronage of screening services. The study also opinionated that these were as a result of the effects of the country's weak healthcare structure and an absence of national guidelines for screening of cancer of the cervix.

Although it has some serious drawbacks, the Pap test is frequently employed as the main technique for screening for cancer of the cervix. It takes 20 to 30 minutes to complete the typical staining method, and supplies are needed. Also rather unpredictable is the Pap test smearing procedure, prone to errors in detection and interpretation due to non-uniform distribution of cells, imperfect fixation, and obscuration by blood and mucus. These issues can be partially explained by poor sample quality and explain the broad Pap test sensitivity range (30–87%) that has been documented (National Library of Medicine, 2018)

Currently, primary cytology-based testing is used in most screening programs in Europe and has been for more than 50 years as the predominant screening method. However, in screening programs throughout the 1960s and 1970s, it was not tested in randomized controlled trials. Testing based on cytology includes a number of technical features that influence its position as the ideal benchmark for screening. Its effectiveness in lowering cervical cancer morbidity and death has certainly been demonstrated, particularly in structured environments (National Library of Medicine, 2018). However, throughout the previous 20 years, a number of significant issues have drawn special attention to primary cytology screening, including the low sensitivity of the method, the need for first-rate diagnostic facilities, the high cost of infrastructure maintenance, and the need

for highly skilled personnel. It is necessary to do a greater number of tests with short intervals between screenings in order to preserve the accuracy and performance of cervical cytology. It may therefore be expensive.

A resarch by (Manikandan et al., 2019), recommended that screening of cervical cancer among school children should be incorporated into the yearly health screening as part of measures to detect precancerous cells for early treatment. In this the research team equally mentioned an impactful service which is providing students with counselling (emotional support) to be able to accept results and deal with issues of fear and panic among them as this could deter others from patronizing the service especially.

2.10 Treatment of cervical cancer in Ghana

The last 10 years have seen an increase in the number of publications in African nations that address cervical cancer prevention and therapy. In Ghana and throughout Africa, there is a dearth of study on two topics: the standard of living for females who have survived cancer of the cervix and tertiary prevention, or the treatment of illness with appropriate medication.

Women may not take advantage of screening programs due to their poor level of information about cervical cancer, which might delay the diagnosis and treatment of the condition. This aligns with additional study that indicate women are more inclined to undergo CCS if they have the necessary CC knowledge and awareness (Interis et al., 2015). Research indicates that a mere 2.1% of women in Accra have undergone a Pap smear test. They also discovered that women with higher socioeconomic position and some formal education have a higher chance of getting a Pap smear. With regard to Pap smears, 14% of women who had never had one reported that their most recent clinic visit was for a consultation on gynecology. Unusual vaginal bleeding was more common in

women who had ever had a Pap smear (Adanu et al., 2010). The low patronage is as a result of the cost of the test which the woman in a low economic setting cannot afford (Aikins, 2021).

Most importantly, not being aware of the opportunities available to test and receive treatment is the number one barrier to uptake of screening and treatment in Ghana (Adanu et al., 2010). In 2015, the Ghana Health Insurance Scheme added cervical cancer to the national insurance coverage; giving Ghanaian women under the insurance coverage an opportunity to test and also receive treatment for cervical cancer (NHIS, 2016).

Nartey et al., (2016)'s study states that three hospitals, Korle Bu Teaching Hospital (KBTH), Komfo Anokye Teaching Hospital (KATH), and others provide radiation treatment for cervical cancer and the Swedish Ghana Medical Centre among others private entities that may not be covered under the insurance scheme of Ghana. This later facility offers chemotherapy and radiation therapy (but not brachytherapy) but not surgery. It is a private cancer center. The hospital's patient base consists of those who can afford to receive private healthcare. Therefore, it is more common to refer to most women as KATH and KBTH.

KATH, KBTH, and Battor Catholic Hospital are the three institutions that provide radical surgery for gynecologic cancer. The majority of women who need radiation therapy are sent to KATH and KBTH since these are the only hospitals in the nation equipped with the necessary manpower and infrastructure to handle cancer patients.

2.11 Summary of literature review

The several publications analyzed in this chapter span the years 2009–2022, and they are addressed in relation to the many goals that were established for the study. The gap found in the literature research was that few studies conducted in Ghana used the HBM as a guiding framework during

their investigation; instead, the majority of studies conducted there were quantitative in nature. Cervical cancer screening awareness is high in developed nations like the USA and Canada, according to research. Low-Income Countries showed lower level of cancer screening from the forgone review of literature borne out of little or no awareness among other reasons.

The media, community health nurses, and other sources are recognized as comparable providers of data about screening for cervical cancer in both high- and middle-income nations. Concerning CCS's advantages, most research shown that it lowers the incidence of cervical cancer by assisting in the early detection of the disease.

Finally, the majority of studies listed the ensuing obstacles to screening cancer of the cervix: lack of visible cancer indicators, feeling uncomfortable, apprehensiveness, dread of husbands' reactions, and limited time.

CHAPTER THREE

METHODOLOGY

3.0. Introduction

This chapter outlines the methodological approach to this study. It covers the study design, study area, study population, sampling methods, data collection technique and analysis. The chapter also reports on the ethical consideration that guided the research process.

3.1. Study Area

Within Ghana's Northern Region, the Sagnarigu District is situated in the middle. It lies in the region between latitudes 9016" N and 9034" N and longitudes 0057" N and 00 57" W. There are around 114. 29 km2 of land in the district. The common borders of this area are Savelugu and Nanton Districts to the north, Kumbungu District to the north-west, Tamale Metropolis to the east and south, and Tolon District to the west (Sagnarigu Municipal Assembly,2021). The Municipality is physically connected to the Tamale Metropolis, which is the commercial and administrative center of Ghana's northern region, to the east and south. The town has enormous economic potential as a result of its advantageous position, particularly in the fields of business, industry, education, transportation, and hospitality (Ghana Statistical Service, 2014).

As to the 2021 Population and Housing Census, Sagnarigu Municipality has 341,711 residents. 170,199 of the population are males, and 171,512 of the population are females (GSS, 2021).

With a total fertility rate of 3.3, the district marginally outperforms the regional average of 3.5. With a crude birth rate (CBR) of 24.2 per 1000 people, the general fertility rate for women aged

15 to 49 is 92.8 births per 1000. In the district, there are 5.7 crude deaths for every 1000 people. For men, the age group of 70 years and above has the greatest mortality rate (47.1 deaths per 1000 population), whereas the age group of 70 years and more has the highest death rate (28.4 deaths per 1000 population) for women (Ghana Statistical Service, 2014).

Of those 12 years of age and older, 48.5 percent are married, 45.3% are single, consensual partnerships account for 0.6% of the population, widowed people make up 3.8 percent, divorced people make up 1.1 percent, and single people make up 0.7 percent. In comparison to 30.7 percent of males, about two-thirds of girls (70.1%) are married by the time they are 25–29 years old. Widowed males make up just 5.8 percent of the population 65 years of age and older, compared to as high as 55.3 percent of widowed ladies. About 16.1% of single people have never attended school, compared to 59.3% of married people who have never attended school. Seven out of ten married people (73.8%) work, 4% are jobless, and 22.3 percent are not involved in the economy (Ghana Statistical Service, 2014).

Sixty-one percent of people aged eleven and up are literate, whereas forty-odd percent are not. Male literacy rates are higher (68.3%) than female literacy rates (52.0%). A little over 59.1% of respondents said they could write and speak both Ghanaian and English. Of the 135,846 people in the district who are three years of age or older, 33.7% had no formal education, 44.7% are already enrolled, and 21.5% have done so in the past (Ghana Statistical Service, 2014).

Most of the people live in cities. Although 70% of people reside in cities, about 30.0% do so in rural regions. Roughly 2.9% of the population grows each year. There is ethnic diversity in the Sagnarigu District. In the district, however, the Dagomba constitute the majority ethnic group. Other ethnic groups in Ghana include the Gonja, Mamprusi, Akan, and Dagaaba from the Northern Region. Moreover, there exist other ethnic groups originating from West African nations including

Burkina Faso, Niger, and Mali. Muslims, Christians, and Traditionalists make up the three largest religious groups (Ghana Statistical Service, 2014). Youth have a more prominent migration trend, particularly female adolescents who journey south to participate in "Kayaye." Young girls who migrate out are vulnerable to sexual abuse in all its manifestations and poor female enrollment in schools (Ghana Statistical Service, 2014).

The municipality is further divided into 6 sub-municipals for easy administrative purposes. Sagnarigu Municipal has 61 health facilities in total with the government owning 35 of it, private hospitals 19, Quasi government 3, polyclinic 1, health centres 5, CHPs 29, maternity homes 4 and 1 nutrition centre (Sagnarigu Municipal Health Directorate Report, 2021).

The Sagnarigu municipality was chosen because it is the second largest with population after Tamale metropolitan yet cannot boast of a municipal hospital as a referring point to other health facilities. Also, among the 61(both private and government) health facilities residing within the municipality none of these facilities renders services such as screening of cancer of the cervix. All the health facilities in the municipality have to refer all client or patients for screening services at the metropolitan level and waiting in anticipation for the referred clients to return with the results for further action, which in most times, referred clients do not go for the services especially when the client belief that they are not at risk or their health status does not communicate any threat then they become reluctant to pursue for further care. That notwithstanding, some other factors such as distance might not afford clients the time to seek for these services elsewhere.

See map below

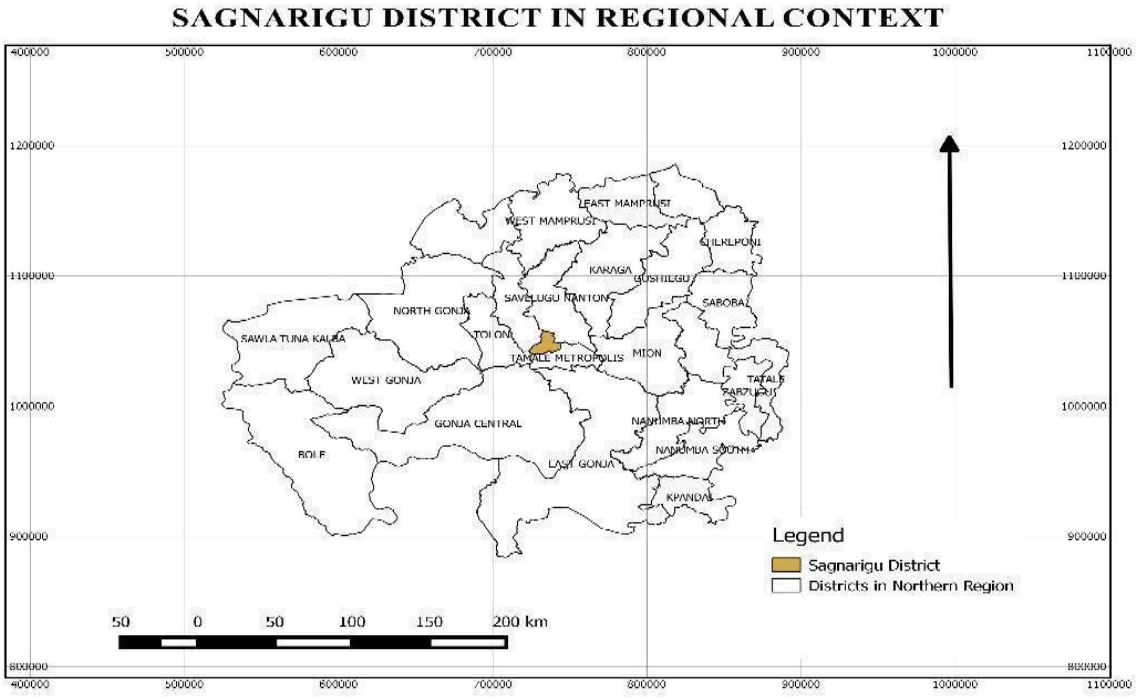

Figure 3. 1: The map of the Northern region of Ghana displaying the districts and municipalities of which Sagnarigu is a part of.

3.2. Study Design

This research adopted a quantitative method using a cross-sectional design to assess the knowledge and awareness of screening of cancer of the cervix, and factors influencing the uptake of screening services among women of reproductive age between 15 - 49 in six sub-municipalities in the Sagnarigu municipality, Tamale.

The design, which is suitable for collecting data at a single point in time was considered appropriate to understand the current state of the population's knowledge, awareness, and behavior. This design helps identify associations between variables but does not establish causality.

This age range was chosen because it encompasses the period when women are most likely to be at risk for cervical cancer and also when they are more likely to be engaged in reproductive health decisions.

Once more, the goal of the study was to find out how knowledgeable and informed the participants were about cervical cancer screening. Additionally, it evaluated the percentage of females who opted for screening services and the factors that influences their decision to take up screening. This involved assessing the percentage of women who had undergone Pap smears or HPV tests as recommended by medical guidelines. Socio demographic characteristics such as age, religion, area of residence, marital status, and parity were controlled in the analysis as independent covariates among the study participants selected Participants level among women in the Sagnarigu Municipality.

3.3. Study Population

The study sample consisted of women who were within the reproductive age range, specifically those aged 15 to 49 and residents of Sagnarigu municipality. Participants were chosen from this group giving this is the period women are fertile and turn to engage in sexual activity with increased risk of developing cervical cancer.

3.4 Inclusion and Exclusion Criteria

3.4.1. Inclusion Criteria

Females within the reproductive ages (18-49) who live and access health care from the selected facilities in the Sagnarigu municipality. The selection of the respondents was based on respondents' falling within the adult age group (18 to 49 years) of the study population and their

willingness to be part of the study. This method was preferred because units selected for inclusion in the sample because they were the most convenient for the researcher to access. This is because of the respondents' desire to engage in the study, their readiness to be available at a specific time, and their geographic closeness.

3.4.2. Exclusion Criteria

Females below the age of 18 years were excluded from the data collection due to the legal age limit of 18 years on decision making, according to the 1992 constitution of the Republic of Ghana. This was necessary to avoid the need to seeking the consent of a guardian at the point of data collection for participant who are less than 18 years.

3.5. Variables of Interest

3.5.1. Dependent Variable

The adoption of cervical cancer screening was the primary outcome variable in this investigation. The study determined the covariates that influence uptake of cervical cancer screening among the study participants in the Sagnarigu Municipality.

3.5.2. Independent Variable

Age, marital status, educational status, occupation, and location were identified as independent covariates in this study.

3.6 Sample Size Determination and Sampling Procedure

3.6.1. Sample Size Determination

The sample size estimation was based on the prevalence rate of cervical cancer in sub-Saharan Africa (22.2%). The sample size was calculated using the Cochran formula below at 95% confidence level and 5% margin of error.

$N = t^2 \times p(1-p)/ m^2$

Where: N= required sample size

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

p= 22.2% prevalence of cervical cancer in Sub Saharan Africa.

m= margin of error at 5% (standard value of 0.05)

with the above computation

$3.8416 \times 0.222 \times 0.778 / 0.0025$

$0.663505 / 0.0025 = 265$

A non-response rate of 10% was assumed, for the final sample size determination for the Study.

265 + 26 = 291 participants were used in the study.

3.6.2. Sampling Technique

Sampling techniques are the steps taken to choose a sample from a population (Boateng, 2014). The multistage random sampling technique was used to recruit participants for the study. Multistage is a probability sampling technique which involves selecting a sample within group(s) or cluster(s) in a given population. This method was adopted due to the limited resources and time frame to conduct the study. The Sagnarigu municipality is already divided into six (6) clusters or zones of which three (3) were randomly selected for this study.

Among the 3 clusters selected; medical centers were 3, clinics was 3, health centers were 5, community hospital was 1 and Community- Based Planning and Services (CHPs) were 10. Simple random sampling was used to choose five of the ten medical facilities that were broadcast alongside the CHPs' premises. Two hundred and ninety-one (291) of the sample population was proportionately allocated to these 5 health facilities based on the number of adult females who attended the facility in the previous year [i.e., *Proportionate size for facility X= (Total adult female OPD attendance in facility X in 2022/Total adult OPD attendance in 2022) × Sample Size*]. Within the selected clusters, women were also selected randomly to partake in the study. Simple random sampling technique was then employed to recruit participants until the desired sample size was obtained. A simple random sampling ensured that each participant within the sampling frame has an equal chance of being selected. Pieces of folded papers with YES and NO placed in a container were presented to eligible participants. Those who chose YES were selected for the study upon consent.

3.7 Data Collection Tool

A semi-structured questionnaire was used to gather data for the study. The semi-structured questionnaire was made up of close and open-ended questions that are designed in line with the study objectives and questions. The questionnaire was categorized into sections. Section A, consisted of socio-demographic characteristics questions, Section B assessed the level of knowledge of women on cervical cancer and cervical cancer screening, Section C consisted of questions on the perceptions and misconceptions of cervical cancer and cervical cancer screening among the women, and Section D assessed the factors affecting uptake of cervical cancer screening. The close ended questions allowed participants to select from a list of options that may apply to them. This strategy makes analysis simple because the replies are concise and to the point.

One critical merit of using the semi-structured questionnaires is that, the quantitative defects will be complemented by the qualitative and visa-visa. This addresses the lapses in each method or tool of data collection

3.8. Data Collection Process

Data collection is the process of selecting relevant information and analyzing it in a methodical, organized way to answer research questions, test theories, and assess results. The researcher visited study facilities day in day out. Participants who could read were handed the questionnaire to respond to it. Individuals who could not read and write were assisted by the researcher or her assistants.

3.9. Pre-Test

The designed tools received approval from the Department of Global and International Health and candidate academic supervisors and subsequently pre-tested to determine the validity and reliability of the study tools, as well as appreciated the simplicity or otherwise of the tool. The designed questionnaire was administered to selected respondents in Katariga CHPs. All participants were required to consent in writing (by signing or thump printing a consent form) before participating in the Study. After the pretesting and finalization of the tool, the principal investigator conducted training for the research assistance on the ethical issues during data collection, adherence to the study protocol, and appropriate presentation of questions to participants. This ensured that quality information was obtained for the study.

3.10. Data Cleaning and Analysis

Data were cross-checked to ensure completeness and cleanliness. Completeness was determined by checking filling in of all questions by respondents. Data was cleaned by removing responses with missing data.

The data was analyzed using the Statistical Package for Social Sciences version 25.0. The data was analyzed through univariate analysis to investigate if the independent and dependent variables have a connection. Firstly, bivariate relationship using Pearson's chi-square test or Fisher's exact test for categorical variables was tested. Furthermore, the binary logistics model was tested with all factors which demonstrated a connection to a p-value of 0.05 or less in the bivariable analysis. A p-value of 0.05 was taken as statistically significant and the uptake of cervical cancer screening was compared among the respondents.

3.11. Quality Control

The research instrument was first pre-tested and streamlined. In doing so, common errors identified during the pre-testing was corrected and the instrument finalized before data collection. Data gathered in each day was vetted or reviewed to ensure the responses conform the questions asked. This was to avoid daily errors in data collection and that data respond to appropriate research questions and purpose of the research.

3.12. Ethical Consideration

Approval to carry out this research was received from the School of Public Health of the University for Development Studies, Tamale, Ghana. Ethical approval with reference number **CHRPE/AP/044/23** was obtained from Kwame Nkrumah University of Science and Technology, Kumasi, ethics review committee. This approval letter was submitted to the Sagnarigu Municipal Assembly for permission or authorization letter to conduct the interviews. The letter together with

the informed consent was presented to each participant of the study for approval before an interview was conducted. As part of the consent processes, the opinions, rights, and values of the participants was respected, and the information shared quite confidential just for academic purpose. Beyond this, the personal particulars or identifiers and names of the participants were not collected. Therefore, it was made known to participants that their participation is voluntary, thus they could stop the interview at any time.

CHAPTER FOUR

RESULTS

4.0 Introduction

The study's findings are presented in this section. Based on the goals of the study and the theoretical framework, the results of the investigation are presented. It includes the socio- demographic characteristics, knowledge, and source of cervical cancer information, and finally, examines the association between cervical cancer uptake and knowledge, screening, attitude, and misconceptions.

4.1 Sociodemographic characteristics of respondents

The sociodemographic characteristics of the respondents show that the majority, 31.6% of women, were within the 25-34-year range, 31.3% were within 35-44 years, and 22.7% were about 15-24 years old. More than half 61.2% of the participants revealed they were married while 12.0% indicated they ever married. On the educational status of respondents, about two-thirds of the participants revealed they had attained tertiary education whereas 15.1% of them indicated they had attained primary education. Nearly sixty percent 58.8% of the respondents indicated they were employed while 23.0% of them revealed they were not employed. About sixty-one percent 60.5% of the women belonged to the Islamic religion whereas 37.8% of them indicated they belonged to the Christianity religion. With regards to parity, the majority 39.5% of the respondents revealed they have 1-2 children while 21.3% indicated they do not a child.

Table 4. 1 Sociodemographic characteristics of respondents

Variables	Frequency	Percentage
Age		
15-24	66	22.7
25-34	92	31.6
35-44	91	31.3
45-54	42	14.4
Marital Status		
Not married	78	26.8
Married	179	61.2
Ever married	34	12.0
Educational Status		
Primary	44	15.1
Secondary	41	14.1
Tertiary	206	70.8
Employment Status		
Employed	171	58.8
Not Employed	67	23.0
Self Employed	53	18.2
Religion		
Christianity	110	37.8
Islam	176	60.5
Traditional religion	5	1.7
Parity		
0	62	21.3
1 – 2	115	39.5
3 – 4	72	24.7
4+	42	14.5
Total	291	100.0

4.2 Knowledge of respondents on cervical cancer screening

All the study participants, n=291, 100% responded that they had heard about cervical cancer before (Table 4.2). Of the total respondents, 77.32% responded that cervical cancer is a disease that affects only women. In comparison, 2.75% think cervical cancer affects both men and women, whereas 19.93% think it is a disease affecting women and children. On cervical cancer infection, respondents had the option for multiple responses, thus n=762, 12.20% believe that CC is gotten through STI infections, 27.55% responded that it is brought through multiple sexual partners, 14.30% respondents thinks CC is gotten through early sex initiation, 19.4% respondents thinks, it gotten through prolonging use of emergency contraceptive pills, 17.5% respondents thinks cervical cancer is gained through having two or more children. In comparison,9.1% respondents think smoking is a cause of cervical cancer. 43.3% of respondents said bleeding after sexual activity is a sign of cervical cancer, 28.52% respondents said blood-stained discharge from the vagina while 22.68% respondents said irregular menstrual flow, 4.47% said difficulty in passing urine and whereas 1.03% said weight loss.

Respondents had the option for multiple responses, thus n=698, of which 36.38% agreed that regular medical screening could detect cervical cancer early for treatment, 28.08% believed sticking to one partner prevents cervical cancer, 13.03% respondents were of the view that delaying sexual debut decreased the risk cervical cancer, while 12.75% responded that HPV vaccination would prevent cervical cancer, 9.74% respondents thought that regular and consistent use of condoms was a preventive method.

Of those who responded to the question of the option of treatment of cervical cancer, which was a multiple response option, thus, n=338, 138 chose surgery as the treatment option, 125 respondents

selected chemotherapy while 75 respondents selected radiation therapy representing 40.82%, 36.98% and 22.18% respectively.

Table 4. 2 Knowledge of respondents on cervical cancer screening

Variable	Frequency	Percentage
Have you heard about cervical cancer		
Yes	291	100.0
If yes, what have you heard about cervical cancer		
A disease affecting only women	225	77.3
A disease affecting women and children	58	19.9
A disease affecting only men	8	2.8
How can one get cervical cancer		
STI infection-HPV	93	12.2
Multiple sexual partners	210	27.6
Early sex initiation	109	14.3
Smokers	69	9.1
Prolong use of pills	148	19.4
Having two or more children	133	17.5
Total	762	100.0
Signs that show chances of having cervical cancer		
Irregular menstrual bleeding	66	22.7
blood stained discharge from the vagina	83	28.5
Weight loss	3	1.0
Difficulty in passing urine	13	4.5
Bleeding after sexual activity	126	43.3
Total	291	100.0
In what way can cervical cancer be prevented (multiple choice)		
Regular medical screening	254	36.4

Vaccination	89	12.8
Delaying sexual debut	91	13.0
Being a faithful partner	196	28.1
Regular and consistent use of condoms	68	9.7
Total	698	100.0
Treatment options for cervical cancer		
Yes	338	48.4
No	360	51.6
Total	698	100.0
If yes to question 12, what treatment option(s) do you know		
Radiation therapy	75	22.2
Surgery	138	40.8
Chemotherapy	125	40.0
Total	338	100.0

4.3 Overall knowledge of participants in cervical cancer screening

Overall knowledge of the participants on cervical cancer screening found that 66.6% of the women had good knowledge of screening for the disease.

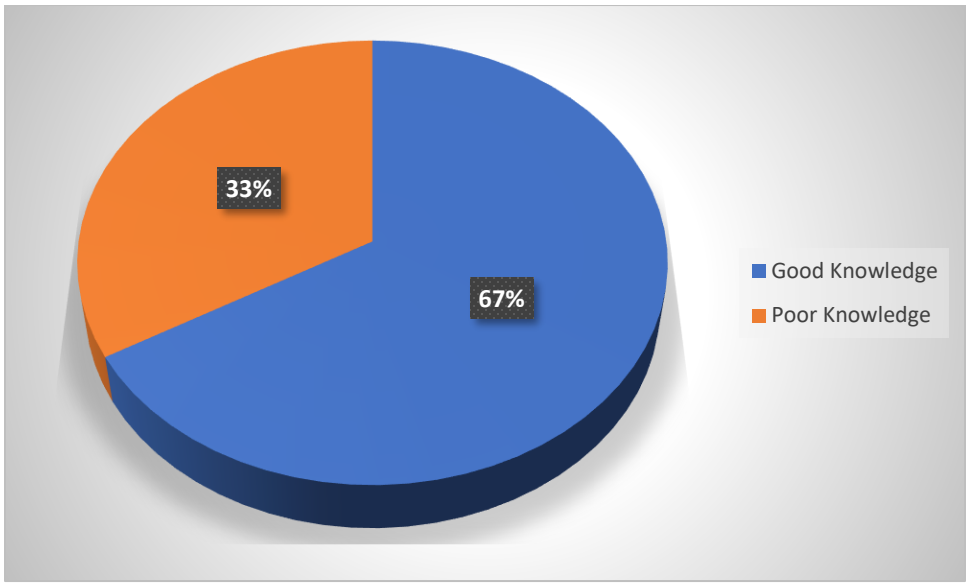

Figure 4. 1 Overall knowledge of participants in cervical cancer screening

4.4 Perception of respondents on cervical cancer screening

When asked if respondents were at risk of getting cervical cancer, the majority 66.6% of them answered yes while 21.0% of them indicated maybe. All 100.0% respondents asserted cervical cancer screening takes place at health facilities. About two-thirds 72.5% of the women revealed they do not discuss cervical cancer screening with their partners. However, more than half 67.7% of the respondents made it known they would like to be screened for the disease. Meanwhile, when asked if their partners have ever given them money for screening, nearly all 90.4% of the respondents revealed no. With regards to whether respondents would ever support a cervical cancer patient, more than two-thirds of them answered yes to the question. On whether healthy adult women should get screened every two years, almost all 92.5% participants indicated true. Nevertheless, 17.5% revealed cervical cancer screening is not important for women at their age. More than two-thirds of 83.2% of the respondents agreed that women who have had many sexual partners need to be screened for cervical cancer. Hence, when asked whether the purpose of cancer screening is to detect early signs of cervical cancer, almost all 94.8% of the women indicated true. In consequence, nearly all 93.8% of the women made it known cervical cancer screening is necessary even if there is no family history.

Table 4. 3 Perception of respondents on cervical cancer screening

Variable	Frequency	Percentage
Respondent at risk of getting cervical cancer		
Maybe	61	21.0
No	36	12.4
Yes	194	66.6

Place for screening		
Health Facility	291	100.0
Discussed screening with partner		
Maybe	19	6.5
No	211	72.5
Yes	61	21.0
Like to be screened for cervical cancer		
Maybe	19	6.5
No	75	25.8
Yes	197	67.7
Partner ever given you money for screening		
No	263	90.4
Yes	28	9.6
Personally, would support a cervical cancer patient		
Maybe	12	4.1
No	69	23.7
Yes	210	72.2
Healthy adult women should get screened every two years		
False	22	7.5
True	269	92.5
Cervical cancer screening is not important for a woman at my age		
False	240	82.5
True	51	17.5
Women who have had many sexual partners need to screen for Cervical Cancer		
False	242	83.2
True	49	16.8
The purpose of cancer screening is to detect early signs of cervical cancer		
False	15	5.2

True	276	94.8
Cervical cancer screening is necessary even if there is no family history		
False	18	6.2
True	273	93.8

4.5 Factors affecting the uptake of cervical cancer screening among women

When asked if participants had ever visited the hospital for cervical cancer screening/ pap smear before, 5.5% answered yes. Hence, 56.3% of the majority indicated they had been screened for cervical cancer for about 1-2 years, while 25.0% had been screened for 3-4 years. Consequently, the majority 56.3%, of the women, revealed they tested negative for the disease.

With regards to respondents who have not screened for the disease, 31.3% of them revealed cost of service to be their hindrance, 28.5% of them indicated distance to health facility, whereas 3.4% indicated they were scared of results or outcome of the diagnosis.

More than two-thirds 81.7% asserted yes when asked if they would go for screening in the future whereas 13.1% said maybe. On respondents' expectations/recommendations in the future regarding cervical cancer screening, nearly sixty-five percent 64.6% indicated it should be free while 22.0% said the screening should be done only for women.

Table 4. 4 Factors affecting the uptake of cervical cancer screening among women

Variable	Frequency	Percentage
Have you visited the hospital for cervical cancer screening/ pap smear before		
Yes	16	5.5
No	275	94.5
If yes how many times did you go for screening		

1-2years	9	56.3
3-4 years	4	25.0
5+years	3	18.7
What was the Outcome?		
Positive	7	43.7
Negative	9	56.3
If 'no' …why haven't you been screened before		
Cost	91	31.3
Distance	83	28.5
Friends experience of pain	58	20.0
Staff attitude	21	7.2
Partner refusal	19	6.5
Scared of results or outcome	10	3.4
Not sexually active	3	1.0
Don't know of screening sites	6	2.1
Would you go for screening again in the future		
Yes	238	81.7
No	15	5.2
Maybe	38	13.1
Expectations/recommendations in the future regarding cervical cancer screening		
It should be free	188	64.6
It should be available in every health facility	39	13.4
It should be done by only women	64	22.0

4.6 Association between sociodemographic characteristics of respondents and been screened for cervical cancer

The association between the age of participants and being screened showed no statistically significant association (X^2=7.136, P=0.007) as 6.8% respondents within the 25-34 years range showed been screened while 24.7% of them within the same age bracket showed not been

screened. With regards to marital status, 13.7% married participants showed being screened whereas 24.0% participants who were not married showed not screened. The chi-square test showed a statistically significant (X^2=15.816, P<0.001) association between marital status and being screened for the disease.

Again, the cross-tabulation between employment status and screening for cervical can showed statistical association (X^2=6.116, P=0.047) as 15.4% respondents who were employed showed screening for cervical cancer while 21.9% women who were not married showed not screening for cervical cancer. Meanwhile, the religion of participants was not statistically significant (X^2=3.502, P=0.061) with the screening status of participants.

Within the category of parity, 6.8% of respondents with 1-2 children showed screening for cervical cancer whereas 20.2% women without children showed not screening for the disease. The chi-square test between parity and screening for cervical cancer was statistically significant associated (X=5.279, P=0.022).

Table 4. 5 Association between sociodemographic characteristics of respondents and been screened for cervical cancer

Variable	Screening status		X^2	P-value
	Screened	Not screened		
Age			7.136	0.007
15-24	1(0.3)	65(22.3)		
25-34	20(6.8)	72(24.7)		
35-44	24(8.2)	67(23.0)		
45-54	5(1.7)	37(12.7)		
Marital Status			15.816	**<0.001**
Not married	8(2.7)	70(24.0)		
Married	40(13.7)	139(47.7)		
Ever Married	2(0.6)	32(10.9)		
Educational Status			4.332	0.741
Primary	2(0.6)	15(5.1)		
Secondary	0(0)	41(14.0)		
Tertiary	48(16.4)	185(63.5)		
Employment Status			6.116	**0.047**
Employed	45(15.4)	126(43.2)		
Not Employed	3(1.0)	64(21.9)		
Self Employed	2(0.6)	51(17.5)		
Religion			3.502	0.061
Christianity	22(7.5)	88(30.2)		
Islam	28(9.6)	148(50.8)		
Traditional religion	0(0)	5(1.7)		
Parity			5.279	**0.022**
0	3(1.0)	59(20.2)		
1 – 2	20(6.8)	95(32.6)		
3 – 4	13(4.4)	59(20.2)		
4+	14(4.8)	28(8.5)		

4.7 Association between sociodemographic characteristics and knowledge of respondents on cervical cancer screening.

The cross-tabulation between the age of respondents and knowledge of cervical cancer screening showed a statistically significant association (X^2=5.342, P=0.011) as 24.0% women within the 15-24year range showed good knowledge, whereas 17.5% women within the 45- 54-year range showed poor knowledge. Marital status, educational status, and employment status did not all show a statistically significant association between knowledge of cervical cancer screening (X^2=0.842, P=0.346), (X^2=2.332, P=0.741), and (X^2=2.148, P= 0.478) respectively.

Religion was statistically significant (X^2=3.502, P=0.032) with knowledge of cervical cancer screening as 65.0% women belonging to the Islamic religion showed good knowledge of cervical cancer screening while 18.6% participants belonging to the Christian religion showed poor knowledge of cervical cancer screening.

However, parity was not statistically significant (X^2=0.379, P=0.062) as 35.1% of the participants with 3-4 children showed good knowledge toward screening while 34.0% of the participants with 1-2 children showed poor knowledge of cervical cancer screening.

Table 4. 6 Association between sociodemographic characteristics and knowledge of respondents on cervical cancer screening.

Variable	Knowledge on CC screening		X^2	P-value
	Good Knowledge (194)	Poor knowledge (97)		
Age			5.342	**0.011**
15-24	46(24.0)	12(12.4)		
25-34	53(27.0)	33(34.0)		
35-44	68(35.1)	35(36.1)		
45-54	27(13.9)	17(17.5)		
Marital Status			0.842	0.346
Not married	98(50.5)	20(20.6)		
Married	59(30.4)	41(42.3)		
Ever Married	37(19.1)	36(37.1)		
Educational Status			2.332	0.741
Primary	51(26.2)	24(24.7)		
Secondary	108(55.7)	51(52.6)		
Tertiary	35(18.1)	22(22.7)		
Employment Status			2.148	0.478
Employed	93(48.0)	45(46.4)		
Not Employed	58(29.9)	33(34.0)		
Self Employed	39(20.1)	19(19.6)		
Religion			3.502	**0.032**
Christianity	44(22.7)	18(18.6)		
Islam	126(65.0)	56(57.7)		
Traditional religion	24(12.3)	23(23.7)		
Parity			0.379	0.062
0	46(24.0)	12(12.4)		
1 – 2	53(27.0)	33(34.0)		
3 – 4	68(35.1)	35(36.1)		
4+	27(13.9)	17(17.5)		
Knowledge level				

Good Knowledge	132(68.0)	55(56.7)	5.279	**0.001**
Poor knowledge	62(32.0)	42(43.3)		

4.8 Factors Associated with Cervical Cancer Screening Uptake of Cervical Cancer Screening

Respondents between the ages of 25 -34 years, and 35-44 years are 1.24, and 1.81 times more likely to go for screening as compared to those who are aged 15-24 years (aOR=1.24; 95% CI:1.06,3.35) and (aOR = 1.81; 95% CI: 1.28, 4.32) and these were statistically significant 0.006 and 0.003, respectively.

Married respondents are 0.42 times less likely to go for cervical cancer screening than ever married respondents (aOR = 0.39;95% CI:0.08,1.85) with single respondents as reference category.

Respondents with tertiary education were 2.69 times more likely to take up cervical cancer screening compared to those with Secondary education (aOR=1.15;95% CI:0.09,3.38) and the reference category being primary education.

Self-employed respondents were 0.77 times less likely to go for cervical screening compared to other employed persons by (aOR = 0.08; 95% CI:0.003) with not employed as the reference category

Respondents were asked if there was treatment for cervical cancer, those who answered No were used as the reference category and the Yes were 0.42 times less likely to go for screening at a statistically significant level of 0.07.

Respondents who answered No to the perception of risk of cervical cancer were 1.42 more likely to go for cervical cancer screening compared to those who answered Yes who answered Yes

Table 4. 7 Factors Affecting Uptake of Cervical Cancer Screening

	Odds Ratio	(95% CI)	p-value
Age group			
15-24	Ref		
25-34	1.24	(1.06, 3.35)	0.006
35-44	1.81	(1.28, 4.32)	0.003
45-54	0.18	(0.07, 0.98)	0.144
Marital status			
Never married	Ref		
Married	0.42	(0.12, 1.48)	0.177
Ever married	0.39	(0.08, 1.85)	0.235
Educational level			
Primary	Ref		
Secondary	1.15	(0.09, 3.38)	0.916
Tertiary	2.69	(0.26, 4.13)	0.408
Employment status			
Not employed	Ref		
Employed	0.08	(0.02, 0.42)	0.003
Self-employed	0.77 (0.26, 2.30)		0.636
Religion			
Christianity	Ref		
Islam	1.32	(0.65, 2.71)	0.443
Traditional	1.38	(0.45, 4.21)	0.574
Parity			
0	Ref		
1 to 2	1.	79 (0.45, 7.21)	0.412
3 to 4	0.58	(0.12, 2.94)	0.513

Knowledge of treatment options			
No	Ref		
Yes	0.42	(0.16, 1.10)	0.079
Perception of risk			
May be	Ref		
No	1.41	(0.51, 3.89)	0.504
Yes	0.42	(0.14, 1.26)	0.122
knowledge of screening centre			
No	Ref		
Yes	7.17	(2.03, 9.33)	0.002

4.9 Sensitivity Analysis

The performance and dependability of the predictive model are clarified by the sensitivity analysis carried out on the provided dataset. The analysis shows how well the model can identify real positive cases, with a sensitivity rate of 33.33%. The significant false-negative rate for actual positives of 66.67%, however, suggests that a sizeable fraction of positive events may be overlooked. This implies that the model may benefit from enhancements to better identify and categorise positive cases, possibly through improved feature selection or model tuning.

The model's ability to reliably identify true negative cases is demonstrated by its specificity of 93.69%, which also demonstrates its ability to differentiate non-positive examples. This observation is supported by the model's encouragingly high negative predictive value of 83.87%, which shows the model's accuracy in foretelling unfavourable outcomes. True negatives have a false-positive rate of 6.31%, which indicates a slight chance of misclassifying real negative situations.

Furthermore, the 58.82% positive predictive value highlights the fraction of positively classified cases that are actually accurate. On the other hand, the false-positive rate for identified positives,

which is 41.18%, indicates that there is still considerable opportunity for improvement in reducing incorrect positive classifications. A considerably higher performance in this area is suggested by the false-negative rate for classified negatives 16.13%, which suggests a relatively lesser proportion of negative cases are misclassified. Targeted interventions should concentrate on enhancing the model's sensitivity and positive predictive value while preserving the commendable specificity and negative predictive value already attained in order to maximise the model's performance.

Table 4.8 Sensitivity Analysis

Sensitivity	33.33%
Specificity	93.69%
Positive predictive value	58.82%
Negative predictive value	83.87%
False + rate for true ~D	6.31%
False - rate for true D	66.67%
False + rate for classified +	41.18%
False - rate for classified -	16.13%

CHAPTER FIVE

DISCUSSION OF RESULTS

5.0. Introduction

This is the discussion section of the thesis report and presents an objective-by-objective discussion of the relevant findings. The descriptive and demographic statistics of the research participants is also provided in this portion. The final line of the chapter is a conclusion to the discussion.

5.1. Respondents Description

Study participants who are employed women took up screening more, accounting for 12.4 percentage points more as compared to unemployed respondent, 1.0%. This conclusion is consistent with findings from earlier studies that indicated the majority of women screening positive for cancer of the cervix were working (Ampofo et al., 2020; Assefa et al., 2019; Enyan et al., 2022; Getachew et al., 2019; Lyimo & Beran, 2012a). This might be because the majority of employed women have higher economic status and can pay for services and other cost associated with screening cancer of the cervix. The age group of 25 to 44 accounted for a larger percentage of participants 62.7%. The majority of Ghanaian women, according to the Ghana Demographic and Health Survey (GSS, 2023), are under 45 years old. These results are consistent with such findings. Due to their early age, the sample may have had a high fertility rate, as seen by their age distribution. To address these women's requirements for sexual and reproductive health, reproductive health services must be made available.

According to research findings, 17% of women had screenings for cervical cancer. Findings from a study in Kenyase in the Ashanti region showed that cervical cancer screening prevalence was

3% (Ampofo et al., 2020). Also, other studies results revealed that 8% and 0.8% of college students and women in the general population were screened for cervical cancer (Binka et al., 2016; Ebu et al., 2014a). A study in Ethiopia and India found the proportion cervical cancer screening uptake to be 15.5% and 7.1% (Nigussie et al., 2019; Reichheld et al., 2020).

Globally, fewer women in lower-middle income countries undergo screening of cancer of the cervix, despite the benefits associated with screening.

The urban nature of the Sagnarigu district, access to radio campaigns about cervical screening, other information sources and availability of numerous private hospitals may account for higher cervical cancer screening. Screening services are available to women who know the gravity of cancer of the cervix. However, this study finding is a lower proportion compared other prevalence rates of 22.9% and 22.6% in Ethiopia and Tanzania respectively (Lyimo & Beran, 2012a; Tekle et al., 2020). The lower screening prevalence among women at risk reported by this study may be attributed the lack of district hospital in Sagnarigu, cultural/religious misconceptions and women's little awareness about screening of cancer of the cervix. Findings from a study confirms that poorly resourced health systems and cultural/religious barriers account for low cervical cancer screening (Petersen et al., 2022). Although, respondents in the Islamic faith screened slightly higher in absolute and percentage terms, 9.6% than those in the Christian faith, 7.5% the difference in percentage points are proportionately less as compared to the difference in percentage terms among the total respondent between the two faiths, 2.1% and 22.7%, respectively.

The high Islamic population in the Sagnarigu district could account for the low uptake in cervical cancer screening as a study in Ghana collaborates Islamic modesty to be associated with low cervical cancer screening (Enyan et al., 2022).

5.2. Knowledge Level on Cervical Cancer

We found that majority (77.3%) of respondents knew cervical cancer affects women. This is consistent with the results of a previous Ghanaian investigation which states that the majority study participants had been screened (57.7%) and knew about cervical cancer (64.6%) (Tawiah et al., 2022). The majority of participants in a comparable facility-based research conducted in Ethiopia had heard about cervical cancer and screening (Nigussie et al., 2019; Woldetsadik et al., 2020). In contrast, a study in showed that less than half of respondents (43.1%) have knowledge on cervical cancer (Tekle et al., 2020). The high awareness about cervical cancer may be due to the increased campaigns and social marketing about the condition on both mass media and social media by health authorities and civil society organizations.

In Ethiopia, it was discovered that having good information of cervical cancer was positively correlated with getting screened for the disease (Nigussie et al., 2019). It was found in other studies in Ethiopia that increased awareness of cervical cancer and its risk factors were positive predictors of uptake of cervical cancer screening (Assefa et al., 2019; Getachew et al., 2019; Tekle et al., 2020). A community-based study found similar results of respondents with good knowledge on cervical cancer likely to undergo screening (Tawiah et al., 2022). This may be due increased likelihood to good health seeking behaviour vis a vis adequate knowledge about the risk factors of cervical cancer. Furthermore, having solid information on cervical cancer may have debunked unfavorable myths about the disease and raised awareness of the advantages of screening. It's possible that respondents' behavior to seek medical attention increased as a result of the information supplied on the significance of cervical cancer screening.

5.3. Factors Affecting Cervical Cancer Screening

Age varied participation in cervical cancer screening history. The study revealed that participants in the age bracket of 25-34 and 35-44 had cervical cancer screening as compared to the age of 15-24 and the differences were statistically significant. This is similar to a study in Italy that found 25-44 years were significantly associated with the uptake of cervical cancer screening (Gallo et al., 2017).

Also, another study from Italy found age of women to have statistical relationship with the uptake of cervical cancer screening (Gallo et al., 2017). Furthermore, women in Ghana who were between the ages of 35 and 44 were shown to be more likely to use cervical cancer screening (Tawiah et al., 2022). Additional research conducted in Ethiopia revealed that compared to women under 40, women between the ages of 40 and 49 had a higher likelihood of having a cervical cancer screening (Woldetsadik et al., 2020; Yeserah et al., 2020). In contrast, some other studies found that older women of reproductive age were associated with low cervical cancer screening (Møen et al., 2017; Rodríguez-Salés et al., 2013). It is possible to argue that younger women (25–44 years old) have higher uptake since they are more likely to seek healthcare providers due to their desire to become pregnant.

Cervical cancer screening was connected with employed respondents. This is comparable to a Finnish study that discovered Somali women's employment is linked to a lower rate of cervical cancer screening (Idehen et al., 2018). A study in Denmark found that unemployment was a significant predictor of low cervical cancer screening (Hertzum-Larsen et al., 2019). A different study conducted in Ghana found that women without jobs were less likely than those with jobs to be interested in getting screened for cervical cancer. This may be because unemployed women are financially incapable to afford the cost associated with cervical cancer screening (Ampofo et al., 2020). However, a study in South west Ethiopia found that being a government employee was a

positive significant factor affecting cervical cancer screening. Additional research conducted in Ghana revealed that women in employment had a much higher likelihood of getting screened for cervical cancer (Tawiah et al., 2022). This can be attributed to the fact that the majority of working women have higher educational backgrounds and have access to a wide range of resources for cervical cancer detection and screening (Nigussie et al., 2019).

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.0. Introduction

This chapter presents a summary of the thesis report and provides conclusions to the study findings. The chapter then makes recommendations pursuant to the study findings to guide policy and practice.

6.1. Summary of key findings

On sociodemographic characteristics, the study found that 31.6% of women, were within the 25-34-year range, 31.3% were within 35-44 years, 22.7% were about 15-24 years old, 61.2% of them were married, 70.8% had attained tertiary education, 58.8% were employed, 60.5% belonged to the Islamic religion, 37.8% belonged to the Christianity religion, 39.5% had 1-2 children, 21.3% had no a child.

The study found 66.6% of the participants to have good knowledge of cervical cancer screening as 100% participants had heard about cervical cancer before, 77.3% said cervical cancer is a disease that affects only women, 19.93% think cervical cancer is a disease affecting women and children, 12.2% believe cervical cancer is gotten through STI infections, 27.6% responded that it is brought through multiple sexual partners, 36.38% agreed that regular medical screening could detect cervical cancer early for treatment, 40.8% chose surgery as the treatment option, and 36.9% respondents selected chemotherapy

On the perception of the women with cervical cancer, 66.6% said yes they were at risk of getting the disease, all 100.0% asserted cervical cancer screening takes place at health facilities, 72.5% revealed they do not discuss cervical cancer screening with their partners, 67.7% indicated they would like to be screened for the disease, 90.4% said their partners have never given them money for screening, 72.2% said they would support a cervical cancer patient, 92.5% said healthy adult women should get screened every two years, 83.2% of the respondents agreed that women who have had many sexual partners need to be screened for cervical cancer.

With regards to the factors affecting the uptake of cervical cancer screening, 5.5% indicated they had ever visited the hospital for cervical cancer screening/ pap smear before, 56.3% of them indicated they had been screened for cervical cancer for about 1-2 years, 56.3%, of the women, revealed they tested negative for the disease, 31.3% of them revealed cost of service to be their hindrance, 28.5% of them indicated distance to health facility, 3.4% indicated they were scared of results or outcome of the diagnosis, 81.7% revealed would go for screening in the future, 64.6% indicated it should be free and 22.0% said the screening should be done only by women.

The study found the age, religion, and knowledge of respondents and knowledge of cervical cancer screening showed a statistically significant association (X^2=5.342, P=0.011), (X^2=3.502, P=0.032) (X^2=5.279, P=0.001).

6.2. CONCLUSION

The findings indicate that a significant majority of women possess good knowledge of cervical cancer screening, demonstrating an awareness of its importance in preventive health care. Furthermore, the perception of risk is notably high, with more than half of the participants acknowledging their vulnerability to cervical cancer. Importantly, all respondents affirmed that cervical cancer screening is available at health facilities, highlighting accessibility.

However, several barriers to screening were identified. A substantial portion of women reported cost and distance to health facilities as significant hindrances to accessing screening services. Additionally, a smaller group expressed fear regarding the potential outcomes of diagnosis. Despite these challenges, there is a positive outlook, as two-thirds of the participants indicated their intention to undergo screening in the future.

The desire for accessible screening is evident, with more than half of women advocating for free services, while one-third believe screening should be exclusive to women. These insights underscore the need for targeted interventions to address barriers and enhance awareness, ensuring that cervical cancer screening becomes more accessible and widely utilized among women.

6.3. RECOMMENDATION

On the basis of the findings in this study, the study makes the following recommendation for policy and practice.

6.3.1. Education and practice

- The Municipal Health Directorate should partner with the Municipal Education Directorate to organise cervical cancer awareness and screening campaigns in the various educational institutions within the Municipal.

- The Sagnarigu Municipal Health Directorate should allocate funding to its public health unit to embark on cervical cancer education and screening through various media and Outpatient Departments (OPD), at the Antenatal Clinic (ANC) and Postnatal Clinic (PNC). Also, access to screening site should be improved to women of reproductive age in the communities for easy accessibility for the uptake of the service.
- The Sagnarigu Municipal Health Promotion Office and Public Health Nurse should team-up to design social behavioural change communication strategies to target employed women since the study revealed that they were less likely to take up cervical cancer screening. Employers should be sensitized to ensure there is cervical cancer screening for their female workers regularly.
- Leaders of religious groups such as churches and mosques should be encouraged to organise health screening services like cervical cancer screening periodically and invite health care professionals and public health expert to give education to their members and members of the Sagnarigu Community on cervical cancer, early detection and early screening.

6.3.2. Further Research

Although this study it was very useful in unearthing barriers to uptake of cervical cancer screening, it is recommended that.

- The study can be replicated in other setting of the northern part of Ghana to see if the findings are like add additional evidence and clarity to the issue of women taking up cervical cancer screening.

- It is also recommended that qualitative in-depth study is conducted for male and female partners to understand their perspective on cervical cancer screening to provide bases for structuring public health education.

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APPENDIX I

INFORMED CONSENT FORM

STUDY TITLE: Barriers To Uptake Of Cervical Cancer Screening Among Women Of Reproductive Age In Sagnarigu Municipal Of Northern Region, Ghana.

I voluntarily agree to be part of this research.

Name of Participant……..

Participants' Signature …… OR Thumb Print……

Date:…….

I interpreted the purpose and contents of the Participants' Information Sheet to the aforementioned participant to the best of my ability in the English language to his proper understanding.

All questions and appropriate clarifications sought by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter…… Date:……

Signature of Interpreter…….. OR Thumb Print …….....

Contact Details:…….

I confirm that he/she was given the opportunity to ask questions/seek clarifications and the same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:……

Signature…….. OR Thumb Print …….....

Date:……

INVESTIGATOR'S STATEMENT AND SIGNATURE

Researcher's name…….

Signature …….

Date…….

APPENDIX II

My name is Mariam Kubanue Danah; a student offering Masters of Public Health from the School of Public Health, University for Development Studies.

I am carrying out research on "Barriers To Uptake Of Cervical Cancer Screening Among Women Of Reproductive Age In Sagnarigu Municipal Of Northern Region, Ghana**.**" in pursuance of my master's degree in Public Health.

This study seeks to determine the barriers to cervical cancer screening among women of reproductive age in Sagnarigu Municipal.

In addition to this, you would be asked specific questions about your use of social background, your understanding of cervical cancer and opportunities available for screening and prevention. This would be carried out in a time frame of 10 minutes. Please respond carefully and sincerely to the best of your knowledge. All information you give will be kept confidential and used for research only.

Potential Risks: There would be no anticipated risk or harm from the Study. The participants will be informed about the general nature of the study and assured of no potential harm during the study.

Benefits: Though you may not have any immediate or direct benefits from the Study, your responses would be helpful in policy planning and formulation of recommendations to appropriate authorities concerning the barriers to uptake of cervical cancer screening among women of reproductive age in sagnarigu municipal of northern region and subsequently, other parts of the region and parts of the country.

Costs: Participation in this Study will not cost you any money. You will also not receive any money/incentives for participating in this research.

Compensation: You will not be compensated for your participation and loss of time

Declaration of Conflict of Interest: The researcher has no conflict of interest in this Study.

Confidentiality: Your name and identity will not be taken in this Study. However, the information you are going to provide will be coded and will be treated strictly confidential. You are assured of total confidentiality to the information you will give. Apart from the researcher and supervisor of this research, no one else will have access to information provided whether in part or whole. Data files would be kept for six months, after which they would be destroyed or discarded.

Dissemination of Results: The findings of this Study will be made available to the general public through conference presentations, seminars, and general awareness programmes in collaboration with the Media, Government agencies and Academic/Research Institutions in print, electronic and audio forms.

Voluntary participation/withdrawal: Participation is voluntary. You are free to choose if you want to take part in this Study. Also, you can withdraw your consent at any time without further explanation, and without any adverse consequences.

Outcome and Feedback: Data gathered will help to improve policy formulation on cervical cancer screening among women in the Sagnarigu municipality of the Northern region of Ghana.

Feedback to participant: No feedback will be given to you as an individual but a report will be given to the various stakeholders involved in formulating policies on cervical cancer screening in Ghana.

Funding information: The principal investigator is funding this Study.

Sharing of participants Information/Data: Data gathered will be kept in my possession and will not be shared with any other organisation(s) or individuals. It will be solely mine.

Storage of samples: Data files would be kept for six months, after which they will be destroyed or discarded. Clearance will be sought from the Ethics Review Committee of the Ghana Health Service before it would be used for any other purpose.

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

For Further Clarification: If you have a concern about any aspect of this research, please contact **Mariam Kabanue Danah** at the School of Public Health, Tamale Campus or speak to me directly on telephone number **+233246169005** or my supervisor, Dr. Azaare

Appendix III: Instrument for data collection

SCHOOL OF PUBLIC HEALTH,

UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE

Questionnaire on Barriers To Uptake Of Cervical Cancer Screening Among Women Of Reproductive Age In Sagnarigu Municipal Of Northern Region, Ghana.

Questionnaire No. _____
Date of Interview____/____/_____

Hello,

I am a student of the University for Development Studies, Tamale, carrying out research on the topic "**Barriers To Uptake Of Cervical Cancer Screening Among Women Of Reproductive Age In Sagnarigu Municipal Of Northern Region, Ghana**". I would be grateful if you could provide answers to the following questions. All information provided by you will be treated with utmost confidence/confidentiality.

Thank you.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. Age

   (a) 18-24 [ ] (b) 25-31 [ ] (c) 32-37 [ ]

   (d) 38-43 [ ] (e) 44+ [ ]

2. Marital status

   (a) Single [ ] (b) Married [ ]

   (c)Divorced [ ] (d)Widowed [ ]

3. Educational status

   (a) No formal education [ ]

   (b) Primary education [ ]

   (c) Secondary education [ ]

   (d) Tertiary education [ ]

4. Occupation

   (a) Trader [ ] (b) Dress-maker [ ] (c) Hair-dresser [ ]

(d) Civil servant [ ] (e) Others [ ] (specify) ……

5. Employment status

   (a) Employed [ ] specify ……(Government or Self)

   (b) Not employed [ ]

   (c) Student [ ]

6. Religion

   (a) Christianity [ ] (b) Muslims [ ]

(c)Traditional [ ] (d)Others [ ] specify……..

7. Parity

(a) 0 [ ] (b) 1-2 [ ] (c) 3-4 [ ] (d) 5+ [ ]

SECTION B: KNOWLEDGE AND SOURCES OF CERVICAL CANCER INFORMATION

8. Have you heard about cervical cancer? (a) Yes [ ] (b) No [ ]
   a. If yes, what have you heard about cervical cancer?
      i. It a disease affecting only women [ ]
      ii. It's a disease affecting women and children [ ]
      iii. It's disease affecting only men [ ]
      iv. It's a disease affecting men and women [ ]
   b. If 'no' (what type of cancer do you know?)

   END QUESTIONNAIRE

9. How can one get cervical cancer? {tick all mentioned}
   a. Multiple sexual partners [ ]
   b. Smokers [ ]
   c. Early sex initiation [ ]
   d. Prolong use of pills (FP) [ ]
   e. Having two or more children [ ]
   f. STI infection-HPV [ ]
   g. Don't know [ ]
10. What are some of the signs that show chances of having cervical cancer?

(a) Irregular menstrual bleeding

(b) blood stained discharge from vagina

(c) weight loss

(d) difficulty in passing urine

(e) bleeding after sexual activity

(f) others (specify).....

11. In what way can cervical cancer be prevented? ? {tick all mentioned}

(a) Regular medical screening [ ]

(b) Vaccination [ ]

(c) Delaying sexual debut [ ]

(d) Being a faithful partner [ ]

(e) Regular and consistent use of condoms [ ]

(f) Others [ ] specify ……

(g) Don't know [ ]

12. Do you know any treatment options for cervical cancer?

a) Yes b) No (Skip to question 13)

13. If yes to question 12, what treatment option(s) do you know? {tick all mentioned}

(a) Radiation therapy [ ]

(b) Surgery [ ]

(c) Chemotherapy [ ]

(d) Others specify…….

(e) Don't know [ ]

14. At what stage can cervical cancer be cured / treated? {tick one}

(a) Early [ ]

(b) Can't be cured [ ]

(c) Anytime [ ]

(d) Late [ ]

(e) Don't know [ ]

15. Where do you access cervical cancer information?

(a) Television

(b) Health institution

(c) Social media

(d) Internet

(e) Friends

(f) Others (specify).....

16. Are you satisfied with the information you have access to?

(a) Yes

(b) No

.

SECTION C: ATTITUDE OR PERCEPTION TOWARDS CERVICAL CANCER SCREENING

17. Do you think you are at risk of getting cervical cancer?

(a) Yes [ ] (b) No [ ] (c) Maybe [ ]

18. Do you know where the screening is done?

(a) Yes [ ] (b) No [ ]

19. If yes to question 18, where can one do screening?

…….

20. Have you ever discussed screening with your partner?

(a) Yes [ ] (b) No [ ] (c) Maybe [ ]

21. Would you like to be screened for cervical cancer?

(a) Yes [ ] (b) No [ ] (c) Maybe [ ]

22. Has your partner ever given you money for screening?

a) Yes b) No

23. Would you personally support a cervical cancer patient?

(a) Yes [ ] (b) No [ ] (c) Maybe [ ]

Below are some statements concerning general information about cancer screening. Please read each statement carefully. Once you have read it, indicate whether you agree or disagree with the statement by picking TRUE for those you agree with, and FALSE for those you disagree with.

24. Healthy adult women should get screened every two years.

(a) True

(b) False

25. Cervical cancer screening is not important for a woman at my age.

(a) True

(b) False

26. Only women who have had many sexual partners need to screen for Cervical cancer.

(a) True

(b) False

27. The purpose of cancer screening is to detect early signs of cervical cancer.

(a) True

(b) False

28. Cervical cancer screening is necessary even if there is no family history of cancer.

(a) True

(b) False

SECTION D: CERVICAL CANCER SCREENING EXPERIENCES

29. Have you visited the hospital for cervical cancer screening/ pap smear before?

(a) Yes [ ]

- How many times did you go for screening? …….
- Last date of screening…..... (1-2years, 3-4years, 5+years)
- What was the Outcome?

(b) If 'no' …why haven't you been screened before? [choose as many as apply]

- Cost
- Distance
- Friends experience of pain
- Staff attitude
- Don't know of screening sites
- Partner refusal
- Scared of results or outcome
- Not sexually active

30. Would you go for screening again in the future?

(a) Yes [ ] (b) No [ ] (c) Maybe [ ]

31. What would be your expectation/recommendation in the future regarding cervical cancer screening?

(a)It should be free [ ]

(b)It should be available in every health facility []

(c) It should be done by only women [ ]

(d) Others (specify……