

**FACTORS INFLUENCING CERVICAL CANCER SCREENING UPTAKE
AMONG HIV/AIDS PATIENTS IN NANDI COUNTY, KENYA**

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**BACHELOR OF SCIENCE IN HEALTH RECORDS AND INFORMATION
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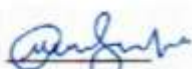
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DEDICATION

I dedicate this work to my entire family my parents, my husband Eliud Cheluget and my children Keith Kipkoech, Lynn Chebet and Eddie Kimutai, for their moral and emotional support and understanding during the entire period of my studies. God bless them all.

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.

ABSTRACT

AIDS and cervical cancer are both diseases that affect the tissues of the cervix. Women with HIV/AIDS are at a higher risk of persistent Human Papilloma Virus infection, which ends up in a multiplied threat of growing premalignant lesion of the cervix. If cervical cancer is identified through screening early, it is treatable. Therefore, factors affecting the use of cervical cancer screening in HIV/AIDS sufferers in Nandi County being evaluated in this study. The study used a mixed-methods descriptive study design, with findings computed for quantitative variables. The target population were 670 HIV/AIDS patients. This was the estimated number of female HIV/AIDS positive patients that visited the Nandi County Referral Hospital's comprehensive treatment center from July to October 2020. A sample size of 190 based on Fisher et al formula, and a purposeful and systematic random sampling technique was used to recruit the participants. Utilizing both open-ended and closed-ended questionnaires, primary data was gathered. The data was entered and coded using Microsoft Excel 2016, and SPSS was utilized to examine it (version 25.0). Frequencies, percentages, and means were created with the aid of descriptive statistics. The association between socioeconomic and demographic characteristics and the adoption of cervical cancer screening was examined using the Chi-Square test of independence. Tables, bar graphs, and pie charts were utilized to display the findings. The average age of the respondents was 33.8 years. 77.3 percent of women had learned of cervical cancer, and 47.3 percent had learned about it from the media. the proportion of responders who were aware of early cervical screening initiatives and were associated with any screening procedures was 83.2% and 62%, respectively. 51.1% of participants said they had been screened, and 57.1% listed the Pap smear test as a screening tool. Since $p < 0.05$, the chi-square test's findings were significant. ($\chi^2(4, N=190) = 1.930, p = .003$). In addition, 69.9% of respondents stated that they avoided screening because they were afraid they might already have cervix cancer. Further, awareness on cervical cancer screening was high with mass media being a leading platform; however, uptake of check-up was low. This indicates that awareness did not translate to screening uptake. Therefore, the study recommends increase of health sensitization on importance of screening.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACS	:	American Cancer Society
ART	:	Anti-retroviral therapies
CACX	:	Cancer of the cervix
CANSA	:	Cancer Association of South Africa
CC	:	Cervical Cancer
CCC	:	Center for Comprehensive Care
CCS	:	Screening for Cervical Cancer
CCSS	:	Services for Cervical Cancer Screening
GLOBOCAN:		Global Cancer
HAART	:	High-dose anti-retroviral medication
HIV	:	HIV (human immunodeficiency virus)
HPV	:	Human Papilloma Virus
MCH-FP	:	maternity care and family planning
MOH	:	Ministry of Health
MTRH	:	Moi Teaching and referral hospital
MTRH,KE	:	Moi Teaching and referral hospital, Kenya
NAYS	:	Kenya National Adolescents and Youth Survey
NCD	:	Non-Communicable Diseases
NGO/s	:	Non-Government Organizations
NHS	:	National Health Service
PATH	:	Program for Appropriate Technology in Health
STI	:	Sexually transmitted disease
VCT	:	Voluntary Testing and Counselling
VIA	:	Visual assessment with acetic acid

- VILI** : visual inspection with Lugol's iodine
- WHA** : World Health Association
- WHO** : World Health Organization
- WRA** : Women of Reproductive Age

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

One form of cancer that affects the cells of the cervix is cervical cancer. It is an illness associated with AIDS (acquired immunodeficiency syndrome). HPV contracted women also with HIV are more prone to develop pre-invasive lesions that, if left untreated, can evolve into aggressive cancers (WHO, 2022). Despite the fact that the immune system usually clears illnesses as well as cervical intraepithelial lesions caused by HPV in women between the ages of 15 and 18 who engage in sexual activity; these risks increase as women grow older (Van Kerrebroeck, & Makar, A., 2022). The sexually transmitted infection known as the human papilloma virus is a significant contributing factor in the majority of occurrences of cervical cancer (HPV).

Human immunodeficiency virus (HIV) compromises the cells that fight infection thus rendering one susceptible to infections. (WHO, 2022)

It is anticipated that there will be 604 000, new cases and 342 000 fatalities in 2020. This ranked cervical cancer the fourth commonest cancer among the women across the world. Almost 90% of them were from low- and middle-income countries (WHO, 2022).

These fatalities could be prevented because cervical cancer is preventable and treatable with early detection and treatment. The yearly 6.6 instances per 100,000 people are affected by the illness, adjusted females (National Cancer Institute, 2019).

According to estimates, there were 4210 fatalities and 12,200 reported infections of cervical cancer in the US in 2016. (American Cancer society, 2018). However, since

comprehensive screening was implemented, the number the patients mortality in the United States has significantly decreased (American Cancer Society, 2018).

In Africa, cervical cancer leads death counts with 25.7 of 36.9 million persons with HIV/AIDS (WHO, 2018). Majority of cervical cancer incidences occur in women who don't undergo regular screenings (WHO, 2022).Nigeria has a prevalence of 250 cases per 100,000 women. (Adewole and others, 1997). According to Oguntayo et al. (2018), the illness represented 65.7% among all gynecological malignancies in Northern Nigeria and was the main cause of those tumors. With 62.7% and 72.6% of cases, respectively, in Ibadan and Maiduguri (both in Nigeria), this increasing percentage was also noted (Pindiga et al., 2020). Although there is still a lack of cancer awareness in Nigeria, the mortality rates are some of the greatest in the world. A practical way to improve cervical early diagnosis and care is to combine screening with HIV/AIDS services, as the Zambian Cancer Screening - Preventive Programme proved (Parham & Mwanahamuntu, 2017).

Estimated yearly cervical cancer incidences in Kenya are 2454, with 1676 annual fatalities (Nyangasi et al., 2018). Also, the count of new cervical cancers in Kenya is projected to 4261 by 2025 annually (WHO, 2018).

The ministry of health program called the National Commission Cervical Cancer - Preventive Program (2019) aims to reach at least 70% of girls in the age associated the greatest risk. The program takes into account the benefit ratio, community involvement to raise awareness and support, the use of economical pre-cancer screening and management techniques, and having suitable management for overt cervical cancer sufferers inside of the constraints of the resources at hand.

The county of Nandi is on track to meet this goal. Though, these metrics and reports offer the ideal setting for conducting research. based on this study's objective which is

to determine socio-economic and demographics shaping screening of cervical malignancy among females with HIV/AIDS in Kenya's Nandi County. This study finds screening-related mediating factors. Therefore this study ensures that Nandi County achieves the target of the risk group by enhancing preventive and health promotion services and economic empowerment.

1.2 Problem Statement

One woman succumbs to cervical cancer within two minutes, posing a serious and ongoing risk to women's lives. Actually, cervical cancer risk is 4-5 times higher in people with HIV/AIDS, currently estimates of 2454 1676 disease-related deaths and new cases occur yearly in Kenya. (Nyangasi et al.,2018).

Nandi County still experience a challenge in that people living with the HIV/AIDS avoid because of the prejudice associated with Aids in the society, being checked for cervical cancer fear that they already contracted cervix cancer as a reason for avoiding screening, inaccessibility of services due long distances and inadequate staffing. (Nandi County MOH report, 2019). This leads to delay in seeking treatment for they come in when the disease has already advanced.

Anti-retroviral medication may save many women's lives, but some of those women may go on to pass away from an illness, identified and stopped within the facility in which they received their therapy for anti-retroviral. This is due to the fact that most practitioners refrain from conducting additional examinations when a patient has a known chronic condition (Nandi County MOH report, 2019).

This study's goal is to evaluate the factors that affect how many HIV/AIDS patients at Nandi County Referral Hospital get screened to prevent cervical cancer Control and prevention of cervical cancer are public health issues that need to be addressed. This

will be through enhancing preventive and health promotion services and economic empowerment to the community.

1.3 Justification

There are several reasons which prevent the utilization of services for cervical cancer screening by women in Nandi County especially those with HIV/AIDS. This study was justified because it sought to establish the effectiveness of the factors that influence the disease in Nandi County, Kenya.

1.4 Significance

The study involved HIV/AIDS Positive female only because they are susceptible to HPV. The research will be important for understanding the socioeconomic and demographic factors that influence whether HIV/AIDS victims in Nandi County use cervical cancer screening programs. Separate cervical cancer screening vaccinations, including non-governmental organizations, HPV vaccine providers, screening coordinators, and managers, may use this information to expand policies, standard operating procedures, and instructions to improve screening in HIV-positive individuals.

It will also give staff members the ability to develop preventative initiatives, boost public trust, and increase screening uptake among those in risk groups, in addition to grading demographic aspects linked to cervical cancer screening uptake. Additionally this may support incorporation of gains realized in primary, secondary and tertiary preventive programs for cervical malignancy. Eventually, it will positively impact prevention and management of cervical malignancy among People living with HIV/AIDS increasing cervical cancer screening coverage.

1.5 Study objectives

1.5.1 Overall Objective

Figuring out the variables affecting the patients at the Nandi County Referral Hospital who are HIV/AIDS positive for cervical cancer screening.

1.5.2 Specific Objectives

1. To determine the demographic factors associated with uptake of cervical cancer screening among HIV/AIDS patients in Nandi County referral hospital.
2. To determine the socio-economic determinants of uptake of screening cervical cancer among HIV/AIDS patients in Nandi County referral hospital.
3. To assess the screening for cervical cancer in people with HIV/AIDS patients in Nandi County referral hospital.

1.6 Research Questions

The following are research questions to be used in addressing the objectives:

1. What demographic factors are related to HIV/AIDS patients' use of cervical cancer screening at the referral hospital in Nandi County?
2. What socioeconomic factors affect the usage the cancer screening tool among HIV/AIDS patients at the hospital that receives referrals from Nandi County?
3. What percentage of HIV/AIDS patients at the referral hospital for Nandi County have had their cervixes screened?

1.7 Assumptions of the Study

It was expected that respondents provided accurate, honest, factual and unbiased information to the researcher. Another assumption was that the questionnaires were administered properly and without bias.

1.8 Delimitations of the Study

The study only included females who visited the Nandi County Referral Hospital's comprehensive care center and tested positive for HIV or AIDS. Given this scenario results were generalized to the whole county.

1.9 Limitations of the Study

There were some limitations to this study that were taken into account. First, because Nandi County's population size, it was impossible to reach all females. It was difficult to manage the respondents' emotions, attitudes, social interactions, and refusal to answer specific questionnaire questions because of each person's culture and values, but every attempt was made to guarantee the participants of the highest level of confidentiality.

1.10 Theoretical Framework

The Health Belief Paradigm is the health psychology paradigm that has been applied most frequently (Rosenstock, 1974). It implies that a person's decision to undergo a wide range of psychological factors, which include demographic characteristics like age, race, and ethnic group, as well as gender, as well as psychosocial traits like social class, personal traits, and social pressure, as well as structural variables like information and prior contact, have an impact on cancer screening. The variables affect how a person perceives the danger posed among both cancer and HIV/AIDS. Women also require cues to act, such as suggestions for health promotion, media campaigns, and invitations with screening clauses. However, a person's real propensity to undergo screening is influenced by the perceived gains excluding the alleged costs (Rosenstock, 1974). Thus, a person is more expected to participate in screening if she has a strong commitment to her health, believes she is at risk for developing cancer, understands

how serious cancer is, and thinks the benefits of missing work to participate in screening and vaccination exceed the cost of lost wages.

1.11 Conceptual Framework

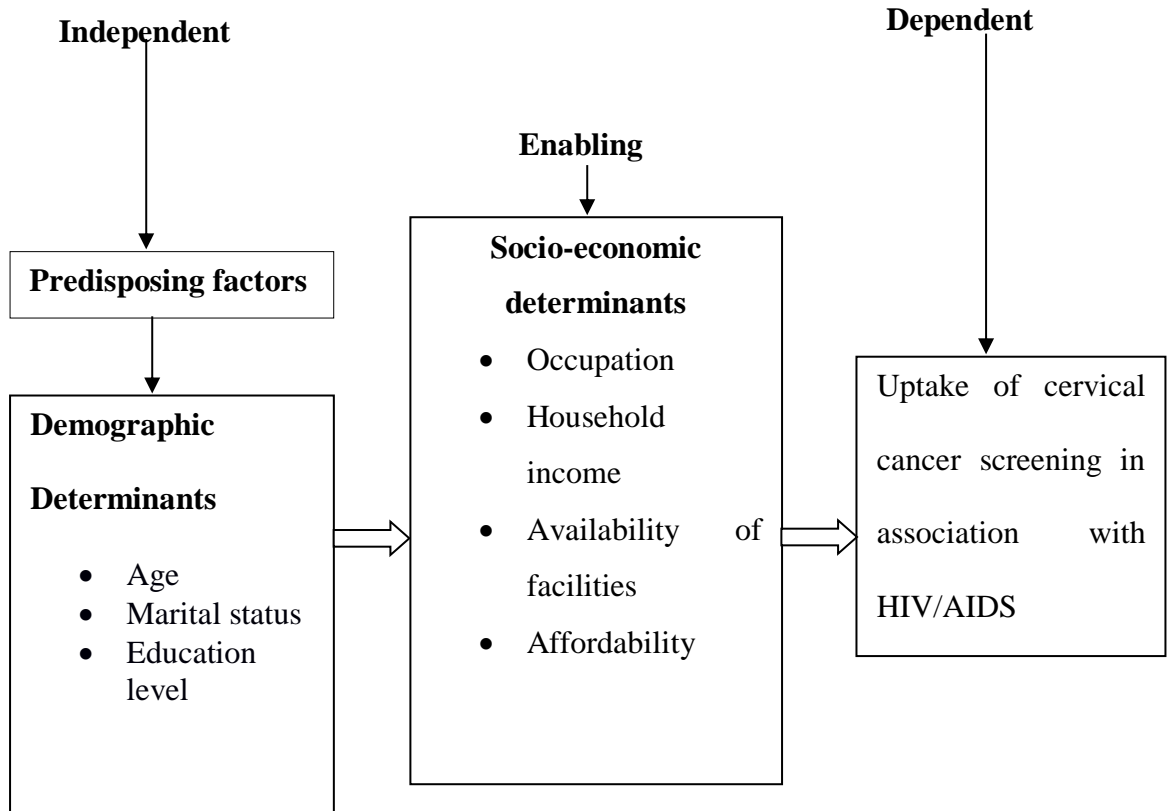


Figure 1.1: Conceptual Framework

Source: Researcher (2022)

The dependent and independent variables were linked explicitly in the conceptual framework to show how they connect to one another in this study. The demographic characteristics are invariant external factors that directly and indirectly influence behaviour towards cervical cancer screening. Demographic The independent variables were factors which interacted with the socio-economic factors and therefore determined the uptake level among HIV/AIDS-positive female patients in the comprehensive care unit at Nandi County Referral Hospital of cervical cancer screening tests.

1.12 Definition of Terms

Cervical cancer: Malignancy that forms in tissues of the cervix (the organ connecting the uterus and vagina).

Determinants: Influencers of use of screening for cervical malignancy.

HIV-positive woman: A female adult confirmed to be infected with HIV and has been obtaining treatment in the clinic studied.

Household: All persons living in a single home, a house, apartment, a mobile abode, set or single rooms inhabited separately. The members could be a nuclear family, an individual residing alone, a couple or more families residing together, or any other group of related or unrelated persons who share living space.

Uptake of screening: It indicates the percentage of HIV/AIDS patients who have been checked for cervical cancer.

Pap smear: Papanicolou smear approach to check for cervical malignancy that identifies possibly pre-cancerous and cancerous changes in endocervical channel (transformation zone).

Screening: This is the presumptive delineation of unknown ailment by use of a test on an asymptomatic population.

Screening uptake: Refers to the percentage of females who have been examined for cervical malignancy.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Chapter two elaborates factors influencing cervical malignancy screening and its association with HIV/AIDS which includes demographic and socio-economic factors.

2.1.1 Concept of Cervical Cancer and its Association with HIV/AIDS

The ‘dual epidemics’ of HIV/AIDS and cervical malignancy and its antecedents, account for the premature deaths of thousands of women in the poorest countries, mostly in the Global South (Denny, 2018). Cooperation is especially urgent in poorer contexts, where 9 out of 10 cervical cancer fatalities occur and most women with HIV/AIDS are living.

In Africa, cervical cancer leads death counts with 25.7 of 36.9 million persons with HIV/AIDS (WHO, 2018) few of the many recorded investigations on the relationship between HIV/AIDS contamination and cervical intra-epithelial neoplasia (CIN) demonstrated that HIV/AIDS infection was directly involved in the disease, with the exception of immune-suppression, in invasive cervical cancer.

There are numerous risk factors that may play a role to early chance of developing cervical cancer; like smoking, human papilloma virus infection, having a weakened immune system, sexual history, having several full-term pregnancies, using contraception frequently, being pregnant for the first time at a young age, and family history (Bruni et al., 2016; Georgia Cancer Centre, 2017). In spite the fact that these risk factors can always increase the odds of contracting cervical malignancy, not all females with these risks will develop cervical cancer disease.

Although the immune system is able to clear the most of diseases and cervical intraepithelial lesions brought on by HPV, young, sexually mature Females between the ages of 15 and 18 have a significant risk of catching the virus; this risk increases as the woman gets older (Van Kerrebroeck, & Makar, A., 2021). An important factor in the majority the human papillomavirus, a sexually transmitted disease, accounts for a significant portion of instances of cervical cancer (HPV). HIV weakens the cells' ability to resist infection, making a person more prone to illnesses. According to GLOBOCAN (2021), the HPV causes diseases ranging from benign lesions to aggressive malignancies, making a significant contribution to global illness and mortality each year. According to GLOBOCAN (2021) projections, the burden of HPV infections and cervical cancer is a global issue that adds to the problem that HIV/AIDS brings about on women, particularly teenage girls particularly young women from third world countries. Given the link between HPV and HIV/AIDS, steps must be made that are intensive and comprehensive to protect the wellbeing of women.

The use of HPV vaccine, education, screening, and treatment must be combined with efforts to prevent, diagnose, and treat cervical cancer. Apparently, in emerging nations, the prevalence of cervical cancer is rising, where it kills women in their prime, when they are most required by their families to take care of the family, raise children, and make general economic and social contributions to society (WHO, 2018).

One of the most effective strategies to support access to and use of these services is to offer screening opportunities and raise awareness of cervical cancer. A person's decision to screen is one that is based on their view of themselves and their consideration of the value of such services. The simplest gynaecologic cancer to prevent is cervical malignancy, which can be avoided with routine screenings and

follow-up (Ebu et al., 2018). Moreover, HIV/AIDS positive women need frequent screening for the malignancy compared to their counter parts (Dim et al., 2019).

In reality, the second-most frequent malignancy among women from low- and medium-income countries is cervical cancer, is four to five times more likely to strike those with HIV/AIDS than those without the disease (WHO, 2019).

The absence of or poorly implemented cervical cancer screening programs have contributed to an increase in mortality associated with the disease in developing regions worldwide (WHO, 2018).

According to (WHO, 2018) cervical malignancy check should be carried out at interval of 2 to 5 years for general population. In view of this, more frequent cervical cancer examination is recommended among HIV positive women. For instance, Workowski et al., (2006) recommended pap smear test to get a disease diagnosis, followed by a follow-up examination after six months only if the test was negative, then subsequent screening to be done yearly.

Given the current HIV/AIDS pandemic in the nation, it is especially concerning that the incidence of HPV, CIN, and advanced cervical cancer in a highly populated like that in the Nandi region is unknown. This emphasizes the need for research on the effects of HIV/AIDS, CIN predictors, and invasive cervical malignancies.

Prior studies advocated the importance of early cervical malignancy assessment due to the CIN and invasive cervical malignancy are becoming more common and prevalent amongst females living with HIV/AIDS. For the detection of premalignant cervical lesions, many of these studies also suggested the use of visual screening tests, especially in low-resource settings (Misael, 2021). According to WHO (2018), cervical cancer is the second most lethal cancer in the world, with an estimated 493,243 women now living infected with it and 273,505 women passing away from it each year.

Females between the ages of 15 and 44 are also second most likely in the globe to develop cervical cancer.

In developing nations, there are no or poorly organized screening facilities for cervical cancer, which has contributed to an increase in mortality related to the disease (WHO, 2020).

In Finland, it is estimated that 2.23 million females over the age of 15 could develop this cancer, and that of the 164 women who are diagnosed with it each year, 81 will pass away as a result of it. In Finland, it is the 4th most prevalent cancer for women and the 15th most common overall (WHO, 2018). The prevalence of the disease, which was formerly the deadliest malignancy in the US, decreased by 70% between 1955 and 1992 as a result of increased pap smear use and public awareness; the statistics are still high even if there is a 3% annual drop, according to the American Cancer Society (ACS,2022). According to the ACS, there's going to be 4,280 fatal cases due to the disease and 14,100 newly reported cases of cervical cancer in 2022. Smith and others (2012).

Cervical malignancy arises from Human Papilloma virus conveyed via sexual intercourse, and mostly the male carries the papilloma virus. Notwithstanding the potency of HPV both males and females seldom know about it and its risks (Roland et al., 2019). This cancer is a serious health challenge globally. The disease affects developing nations disproportionately, where age-standardized death rates are double those of developed nations. In developing nations, where it is the main factor in cancer-related fatalities., 80% of the nearly 500,000 new cases of cervical malignancy recorded each year occur (Akbas, 2017).The huge discrepancy in illness and death across developing and advanced regions is because the latter have affected reliable measures for the deterrence of malignancy of the cervix, lowering incidence and death

by as much as 80% in some areas (Programme for Appropriate Technology in Health, 2018).

Southern Africa records among the highest age-standardized cases of the malignancy (above 40/100,000 women) and the disease's occurrence is rising in pockets of the sub-Saharan Africa (Denny & Anorlu, 2018). Significant cancer-related disease and mortality among women are caused by cancer in South Africa (Fonn, 2019). Each year, there are about 5000 new instances of the illness., making up 16.7% of all reported malignancies. Although black women are more likely to get the condition than any other group of women, it is still completely prevented.

WHO (2018) states that HIV-negative women are more often at risk than HIV-positive women.

The Cervical Cancer Prevention Program, which connected cervical cancer screening with HIV/AIDS care, established in Zambia a profitable way to increase cervical cancer screening and treatment (Parham & Mwanahamuntu, 2019). This program integrated a national cervical cancer deterrence strategy into an already-existing HIV/AIDS program over a five-year period, raising the number of women receiving cervical cancer screening to over 100,000 (28% among whom were HIV/AIDS positive) (Parham et al., 2017).

Most of the interviewees in a Nigerian study on the acceptance and disposition of CC check-up among HIV/AIDS-positive women knew about check-ups, but the rates of screening were still quite low (Olanyika & Lynette, 2022).

Many HIV/AIDS positive women in Kenya, according to a case study carried out in the Kayole Sub-District Hospital in Nairobi's mother and child health clinic, have a poor knowledge of a pap smear (Gichangi et al., 2021).

Additionally, 50% had never known about Pap smear, and those knowledgeable had not used it, unless where a clinician suggested. Through teaching healthcare professionals on how to provide the service using the "see and treat" technique, The Division of Reproductive Health (DRH) of the Kenyan government has ensured integration of the HIV/AIDS program into routine treatment of HIV/AIDS-positive women. Nonetheless, an inquiry at KNH indicated that screening for cervical malignancy among HIV/AIDS-positive women remains low, whereas most of the screened patients presented invasive cervical malignancy (Gichangi, 2021).

Were et al (2018). According to a study conducted in the Kenyan Eldoret Rift valley, the majority of women never think of themselves as being at risk of developing cervical cancer and don't get screened as a response.

In Nandi County, the growing number of cervical cancer cases could be connected to inadequate awareness of the cervical cancer risk factors; available examination and treatment routes, and access to the services. This study aims to assess the variables that affect how frequently HIV/AIDS patients use screening.

In Kenya, this cancer type is second-most popular in women and lead precursor of cancer deaths in females of reproductive age. Kenya now has an estimated 2454 annual incidences of cervical cancer, with 1676 annual fatalities (Nyangasi et al., 2018). The count of new cervical cancers in Kenya is projected to 4261 by 2025 annually (WHO, 2018).

The Kenya Cancer Registry (2019) hospital based registries revealed that 70-80% of genital tract cancers were cervical cancers. It also reported that between 1981 to 1990 cancer cases accounted for 8-20% of all cases with 10-15 new cases of cervical malignancy reported in Nairobi each week.

3.2% of Kenyan women between the ages of 18 and 69 have had a cervical cancer screening. Despite how serious the problem is in Kenya and how simply it can be resolved (WHO, 2018).

Nandi County had an estimated population of 885,711 people as of the 2019 Kenya Population and Housing Census, with a population size of 261 women per Km² and a 2.9% annual growth rate. According to the Central Bureau of Statistics (CBS), 2013, the age distribution was 0 to 14 years, 15 to 64 years, and over 65 years. Nandi County has 6 sub County hospitals, 13 Health centers, 125 Dispensaries, 1 Faith based and 4 privately owned institutions. Cervical cancer screening services are available only in Nandi County referral hospital once a week specifically every Thursday.

Because the pathology-based cancer registry has not been kept up to date, uncertain statistics exist regarding that number of women who are identified with and pass away from this cancer. There is little study on county hospitals because the majority of cervical malignancy screenings are conducted in national referral hospitals. In Nandi County Hospital, cervical cancer screening rates in 2013 and 2015 were 7.9% and 5.9%, respectively (DHIS2, 2022).

2.2 Demographic Characteristics

2.2.1 Age

Women over the age of 40 are more likely than younger women to develop cervical cancer (WHO, 2018). Kenya has documented mean cervical rates of cancer of 1002 (15-44 years), 650 (45-54 years), and 555 according to age categories (55–64 years). Although younger women have lower CC incidence rates, these women must nonetheless receive the HPV vaccine if the fight against cervical cancer is to be defeated (WHO, 2018). Any woman who has engaged in sexual activity is susceptible to the cancer, and the danger rises with age, claim Van Kerrebroeck & Makar (2022).

The best indicator of risk for cervical cancer is age. However, because of their physiology and riskier sexual behavior, young women have greater likeliness than older women to obtain precancerous lesions, but they are also more likely to recover from HPV infections.

Age was discovered to be the most significant thing that affects cervical malignancy check, particularly for women just below age of 30 and above the age of 65, according to Wangi and Lin's (2018) study of demographic characteristics linked to non-participations among Taiwanese women, in which 40% of women randomly selected had never had a Pap smear and 86% had not in the past 12 months. Women under 30 were so much more definitely possible to have had a Pap test within the preceding three years, whereas women over 65 were 13 times more likely to not have had one in the previous year (Wangi & Lin, 2018). Age was a key determinant in influencing Pap smear use, according to Hayward and Swan (2018), with greater rates of involvement amongst middle-aged population (40-60 years). According to reports, younger ladies (20-29 years old) have lower screening age rates than older females (beyond 60 years old) (Liao et al., 2017). In Swaziland, cervical cancer is more commonly diagnosed among younger women living with HIV/AIDS.

According to a study on the risks and difficulties of cervical screening done amongst 219 women who attended the MCH-FP Center at the Moi Training and Medical Center (MTRH) in Kenya, just 12.3% of respondents from Kenya have had their cvd tested. Additionally, data discovered that older women (30+) underwent screenings more frequently than younger women (Were et al., 2022).

In addition Nairobi Cancer Registry,(2019) reported that despite the high magnitude of cervical malignancy related issue in Kenya and the mere fact that the malignancy can

be prevented easily; the screening coverage in Kenya for women in reproductive age that is 18-69 years is only 3.2%.

2.2.2 Marital Status

Research shows that married women and those who live with a spouse are more likely to get checkups than widowed and divorced women (Liao et al., 2017). On the other hand, other According to statistics, unmarried women are more likely to have pap tests than married women (Cyril et al., 2019 & Singh et al., 2019).

Married women were more likely than single or widowed women to have their cervixes checked, based on the conclusions of a cross-sectional survey involving 424 participants carried out in Kenya to evaluate factors influencing cervical cancer screening among women aged between 18 and 49. (Ministry of Health and Social Services, Namibia Windhoek; 2021).

Additionally, according to a study done in India, not getting screened is associated with marital status since there, women are only permitted to undergo a Pap smear test after getting hitched (Singh & Badaya, 2019). In contrast, all sexually active women in Namibia, regardless of their marital status, are eligible for the test (Ministry of Health and Social Services, 2017). Building a global grassroots movement that accurately portrays cancer regardless of marital status, preventing stigma from impeding women in their efforts to control cancer, and assisting women obtaining the assistance, resources, and information they need to require will all contribute to lowering the global cancer burden. Patient advocacy must be strengthened in international settings (Ndikom, 2019).

2.2.3 Education Level

Numerous studies have shown that educated women utilize screening at higher rates amenities (Liao et al., 2017&Fernández et al., 2019). However, this cohort may not

always go for examination (Abotchie & Shokar 2018) thus, other forces may be at play. Trends in the data from a survey of Malaysian women indicate that women under the age of 43 who had completed at least a high school education and were employed outside the household were much more inclined to perceive information screening favourably (Wong, 2018).

Most with a high school education or higher likely to know more about cervical cancer and screening compared to women with less education, according to a qualitative survey conducted in Nandi County to determine the health issues facing young women. The survey according to NAYS (2018) revealed the primary school net enrolment rate is 96 percent compared to the secondary school net enrolment rate of 51 percent. The difference in the rate indicates a large number of school dropouts in the county. This high enrolment rate in primary schools could be partly attributable to the Free Primary Education (FPE) strategy of the National Government.

Education plays a role in defining sexual and reproductive health, especially for girls. In terms of their reproductive health, girls who finish secondary and higher education do better; they are less likely to unintentionally become pregnant and are more likely to be in higher socioeconomic positions (Ministry of Health, 2019). Education raises the uptake of preventive care for various reasons, since better educated persons are more informed about health and education inculcates in them self-drive, confidence, incentive, patience and social inclusion (Sabates et al., 2017). Better educated people are more effective at producing health and education, as well as in imparting self-efficacy, courage, motivation, patience, and social inclusion, which boosts the uptake of preventative treatment, according to Sabates et al. (2017). Women should also be informed about the recommended age for the initial test as well as the frequency of follow-up screenings.

2.3 Socio-economic Factors Influencing Uptake of Cervical Cancer Screening

2.3.1 Household Income

An investigation at St. Paul's Teaching and Referral Hospital in Ethiopia revealed a clear correlation between women's low monthly income and their poor utilization of cervical cancer screenings. Women with lower monthly incomes were less likely to get cervical cancer screenings, per Elit et al. (2018). Additionally, a Belgrade-based study found that, even when services are provided without fee, poorer socioeconomic position has a significant impact on cervical cancer screening. For instance, cervical cancer screening is free in Ethiopia, but a number of factors, such as transportation costs and follow-up appointments, are mentioned as barriers to low-income women using the service (Matejic et al., 2022).

According to Knekt (2018), since women are the foundation of families, the burden brought on by cervical cancer infection throughout women's reproductive and economically productive periods in their life affects their families and society as a whole. This directly translates to inflated treatment costs, especially for late-stage diseases that demand specialized care and pricey medications and hence drain the family's finances in contrast to cases where the sickness is identified and treated early. A cost analysis carried out in South Africa revealed that treating cervical malignancy precursors early on costs 80% less than dealing with invasive malignancies (WHO, 2014).

Early cervical cancer identification and treatment have a cost that is 80% less than that of malignant tumors (Knekt, 2018).

2.3.2 Availability of Facilities

Availability refers to distance to screening sites (WHO, 2020). Covering long mileage to the health facilities is also a key barrier for to access screening services. In three

qualitative studies the participants noted that the hospital where they provided screening were too far (Chadza et al., 2022; Lee, Makin & Mtengezo, 2019; Ports et al 2017) reported that the average time to walk to the nearest clinic was 45 minutes. Maseko and colleagues (2021) found that participants covered a distance between one and five kilometres to get to the screening centres.

Maseko et al., (2021) discovered that only 33.3% (7/21) of the facilities provided both screening and cervical cancer treatment services. Cervical cancer services were offered at primary, secondary and tertiary level. At tertiary level, the access of health care is often misunderstood and confusing in the country especially in the districts that offer all three levels of care like Lilongwe, Malawi. There is a policy that women must visit the health centre for primary care and the health care providers must refer an individual to a district hospital for secondary care and the district must refer to a central hospital for tertiary care. Even if a woman lives close to district hospital or central hospital, one cannot access health care directly. Although the district is in a metro pole area, some health clinics are far from the district and central hospital. Therefore, women may visit the clinics when the disease is at an malignant phase (Chadza et al., 2022; Lee et al., 2021 & Port et al., 2019).

2.3.3 Accessibility

Long commutes to such screening services decrease the likelihood that women will be screened (Jo et al., 2017). A cross-sectional community study revealed that inadequate mobility is another barrier (Bener et al., 2017). The results of past studies were compared to research on the advantages and disadvantages of examining cervical cancer from the viewpoints of women, men, and medical experts in five Latin American republics. The main challenges were pricing, politeness of facility managers, uncomfortable and unprivate facilities, accessibility and ability to receive decent

amenities (Agurto et al., 2019). Others were unfavourable clinic routines, lack of female practitioners and poor guidance.

No one thought that cervical cancer could be prevented (Agurto et al., 2019). One of the most frequent barriers to screening in Bangladesh was the low priority for seeking care for symptoms, according to a research of 220 men, women, and children's opinions on cervical cancer and its screening (Ansink et al., 2017).

In Nandi, the County Assembly Report of October (2018) noted with concern from the members that there should be a follow up of cancer examination in various health centres within the county because it is a challenge in respect to transport that is sometimes unaffordable (County assembly report, 2018). Though the service is available at the County Referral Hospital but it cannot serve all women at the grass root level because they consider transport expenses as a hindrance to accessing the services.

2.3.4 Affordability of Cervical Cancer Screening

Affordability is the capacity to afford for the expenses associated with a cervical cancer examination (WHO, 2020). In Malawi, public health services are free. Maseko and colleagues (2021) found that while cervical cancer tests and treatment are free in public health institutions, women must buy health passports if they don't already have one, which may be a barrier to getting screened for the disease. The fact that the supplied services are not gratis presents another issue: financial limitations.

Since there is a significant rate of poverty in our community and some women view it as an unthinkable situation if they are proven positive but lack the funds for treatment, it is preferable to forego screening (Nygrdet al., 2017). According to a Swedish study, time waste and financial constraints are positively correlated with not getting regular cervical screenings (Nygrd et al., 2006). Due to the time constraints caused by the

responsibilities placed on women, screening is prioritized less in real-world situations (Nygrd et al., 2006). The majority of screening treatments use the Pap smear, which is difficult to perform and expensive to do so, particularly in developing countries with weak healthcare systems and infrastructure (Ashford & Collymore, 2022).

Malignancy of the cervix screening approaches that involve traditional cytology and the need for many visits make them unworkable in low resource settings. To ascertain the cost-effectiveness of cervix malignancy screening in five developing countries (Thailand, Peru, Kenya, South Africa and India), computer-based models helped to evaluate some malignancy of the cervix screening approaches. The analysis revealed that the strategies with the fewest visits necessary and the best follow-up testing and monitoring were the most economical ones. This study discovered that in low resource settings, VIA or DNA testing for HPV in one or two counselling sessions is an effective replacement for cytology-based screening services (Goldie et al., 2021). A 2018 investigation by the Underserved Women's Cancer Screening Consortium of the National Cancer Institute found that, women in underserved and underprivileged regions are less likely to use Pap smear screening and follow up after an abnormal Pap smear. The factors that contributed to these women's low uptake were divided into three major categories: organizational, psychological, and demographic. Age, income, education, and marital status are some examples of the demographic characteristics (Claeys, 2017). The views of vulnerability to and the severity of the disease, public awareness of it and screening, and screening barriers such as fear of discomfort and shame are some of the psychological aspects of cancer. Service limitations and restricted access to testing facilities are examples of organizational barriers.

In Botswana, it was shown that a variety of factors, such as lack of information, access to care, financial restrictions, attitudes of caregivers, etc., contribute to irregular or

absent use of screening for cervical cancer (McFarland, 2019). The main determinants of a woman's likelihood to undergo cervical cancer screening are perceived vulnerability to the disease, apparent severity of the disease, benefits of screening, and perceived barriers to seeking screening, although attitudes of healthcare professionals, accessibility, and cost are also significant determinants (WHO, 2018).

If screening is available and affordable, as it is with VIA/VILI tests, it will be based primarily on the presumptive vulnerability of women to cervical cancer, the evident harmfulness of cervical cancer, the purported price of undertaking cervical cancer screening, and the presumptive obstructions to attempting to obtain screening. These concerns must be acknowledged and taken into account when establishing and executing successful cervical cancer screening programs to decrease the death and morbidity caused by cervical cancer if utilization is to increase in order to reach the intended goals. 2018 (Patil et al.)

According to WHO (2020), the East Africa region has the highest cervical malignancy globally. As revealed by American National Cancer Institute, widespread vaccination can reduce deaths from the malignancy worldwide by as much as two-thirds (Bradley et al., 2022). The expense of vaccines is viewed as being excessive in the majority of underdeveloped nations. Rwanda, Kenya's neighbor, has undertaken a public-private vaccination delivery model, showing what is possible (Brotherton et al., 2018). With vaccines granted by Merck, Rwanda adopted a progressive nationwide strategy to avail vaccine protection to all girls in a span of three years. Similarly, Kenyan authorities began a mass vaccination of girls for HPV. This vaccination initiative was launched in October 2019 in Mombasa. The vaccine was given freely to all 10-year-old females under the country's regular immunization plan that girls were to receive two doses every six months (MOH, 2019).

Moreover, a study done in Eldoret, Kenya at the MTRH with 219 women visiting the MCH-FP clinic revealed that 11.4% of them lacking the funds to pay again for test, which they cited as evidence they opted against going for screening. (Were et al., 2022). A study done in Bangladesh found that one of the most common obstacles to testing is the high cost of testing services (Ansink et al., 2017). In Uganda, cost has been identified as another crucial variable in determining access to services (Mutya et al., 2017).

2.3.5 Stigma

As a substantial psychological impediment and crucial social factor affecting health, stigma is becoming more widely acknowledged. Similarly stigma has negative impact on health and potential role undermines the cancer care continuum (White et al., 2022). It is also becoming more important to understand and research cancer-related stigma in India. For instance, a research undertaken in India on stigma associated with cancer noted that respondents believed others at times thought cancer was a product of “sin,” subsequently the sick could be ostracized by their communities and kin due to the false notion that cancer is infectious. Moreover, the correlation of cervical malignancy with HPV, a popular STI, has added to the stigma around the disease (Gupta et al., 2018). According to Dyer KE (2019), stigma is a strong social phenomenon happening in the milieu of power; Link and Phelan explain it as starting with labelling, then stereotyping, leading to isolation, and culminating in status loss and segregation. Segregation is the unfair and discriminatory treatment of a person or a group based on their status or other traits, real or imagined. Because of this, women are stigmatized for differences in their health state (such as those caused by diseases) and other factors (e.g. poverty, sexuality). People or groups with many stigmatized conditions or traits frequently experience multiple forms of stigma together, which worsens its harmful

effects. Seeking care is also severely hampered by a lack of knowledge and the illness' established stigma (WHO, 2018).

2.4 Uptake of Cervical Cancer Screening

2.4.1 Awareness and Knowledge

The number one factor influencing testing is people's awareness and knowledge about cervical cancer and its precursors. Less educated people are less likely to request screening because they know less about cancer and how to prevent it. In a study done in Moshi, Tanzania by Lyimo and Beran (2018), they discovered that (59.6%) of 354 females between the ages of 18 and 69 knew very little to nothing about the disease and its prevention. Additionally, only 80 (22.3%) women indicated that they had undergone screening. The research also revealed that those with substantial expertise were more likely to be screened than those with little or medical understanding regarding the illness and its prevention (Lyimo & Beran, 2018).

In a Zimbabwean study on information Regarding attitudes towards cervical cancer in terms of health, college students had knowledge gaps regarding dangers and screening times (Witness et al., 2019). Only 7.9% of people taking part were aware of HPV, despite the American Cancer Society's assertion that it's the main risk factor for acquiring cervical cancer (Witness et al, 2019).Only 30.6% and 23.6% of the 300 married randomly selected women in Kuwait who participated in the study with the primary goal of assessing knowledge, disposition, and practice related cervical malignancy testing had tolerable predispositions and actions toward the test, respectively (Mona & Farida, 2019). The biggest excuse for not having a Pap test was the fact that doctor hadn't yet recommended it, according to the Kuwait study. This demonstrates how little women know about the advantages of testing.

A study on cervical cancer screening in Bangladesh that included 220 men, women, and children revealed that while the population was generally aware of the disease, awareness of its roots was lacking (Ansink et al., 2017). Another investigation including 356 women in the Zimbabwean area of Mutoko and Shurugwi found that 95.8% of the females interviewed had never had screening and were poorly informed about the causes, prevention, and treatment of the disease (Mangoma et al., 2017). Therefore, in environments with constrained resources, sensitivity to services that are offered is essential.

According to a study on the factors influencing the Nsagi community's acceptance of comprehensive care facilities and its implications on testing, ignorance is a major factor of the causes of cervical cancer was one of the biggest challenges in screening adoption in Uganda (Mutyaba et al., 2017). Less than 40% of the 310 medical professionals who participated in the study at Mulago Hospital in Uganda's capital city were found to be knowledgeable about the cervical cancer risk factors. Nevertheless, 81% had never had screening (Mutyaba et al., 2017).

According to a Kenyatta National Hospital (KNH) investigation, 32% of people in Kenya were aware of Pap smears, 22% had had screening, and approximately half (51%) were alert of cervical cancer. Women were anticipated to obtain a cervical cancer screening because they were aware of the disease. A cross-sectional survey of 384 female teachers in primary schools in Kenya, for instance, found that 75% of them were familiar with the Pap screening test and 87% of the women knew about the risk factors for cervical cancer (Ombech et al., 2022).

It is crucial to emphasize that only 41% of respondents had previously undergone screening and that only 39% of people knew that HPV infection increased the risk of cervical cancer (Ombech et al., 2022). 17.3% of the females who had ever had cervical

malignancy testing in Thika said that there were significant barriers to testing, including a lack of knowledge about it and the financial benefits of early detection strategies (Ngugi et al., 2020).

Furthermore, a study conducted in 2021 by Gichangi et al. at Nairobi's Kayole Sub District Hospital found that 50% of HIV/AIDS positive women had never heard of a pap smear and that many had little to no knowledge of its importance. But aside from being a health advice, those who had learned of it had not used it. Further research at KNH in Nairobi, Kenya, found that the likelihood of a positive Pap smear increased with the patient's knowledge of the disease, level of education, usage of family planning, and age (35 years and older) (Gichangi et al., 2021). However, the study found no correlation between Pap smear and perceived cervical cancer vulnerability (Gichangi et al., 2021).

According to a comparable study carried out in Nyeri, Kenya, the utilization of cervical cancer screening had been as low as 24.7% despite the research team comprising of extremely well girls having autonomous thinking and significant kin support. Only 20% of them knew how important it was to get screened for cervical cancer, and the most (80%) could only identify one or two characteristics that increase one's risk for developing cancer (Gichogo, 2021). Obstacles to Kenya's fight against cervical cancer include a lack of awareness, screening, and HPV vaccine availability.

Due to knowledge gaps, which is a factor affecting the uptake of cervical cancer screening in Nandi County, fewer women are participating in the screening, which is only conducted on Thursdays each week. The advantages of early detection methods and The significance of the lack of understanding concerning cervical cancer testing obstacles that must be overcome.

2.4.2 Cervical Cancer Screening

Finding precancerous lesions and malignancy in otherwise healthy women detecting cervical cancer is its goal. Cancer infections can be avoided with early diagnosis and treatment of pre-cancerous lesions (Ferlay, 2018). Additionally, early cancer detection through screening enables women to undergo extremely effective therapy (Jemal & Bray, 2021).

In wealthy countries, a decrease in cervical cancer mortality and incidence has been linked to human papilloma virus (HPV) vaccine and screening programs. The two types of cervical cancer, squamous cell carcinoma and adenocarcinoma, both have risk factors and early stages of disease that can be identified through screening. Invasive cervical cancer can be prevented from spreading and have a lower mortality rate with the use of precursor and presymptomatic therapy (Ladner, 2022).

Cervical cancer screening is still required despite the fact that receiving an HPV vaccine greatly lowers the risk of developing cervical cancer. Increased or intensified screening should be done even in places where the vaccine is accessible, especially for women who currently have Disease or who have not gotten the vaccine (Louie & Mayaud, 2020). This includes secondary prevention as well (treatment of invasive cervical cancer in affected women), secondary prevention (screening and treatment), and primary prevention (HPV immunizations) in young girls before they have their first sexual experience (WHO, 2022). A thorough approach is necessary to reduce cervical cancer fatalities, and it should be built on a multifaceted strategy that delivers efficient programs over the course of the individual's life.

In many developed countries, precancerous cervix lesions have seen a considerable decrease in incidence and mortality thanks to population-based screening programs for adult women, early detection, and treatment. If early detection and adequate treatment

are given to precancerous lesions, screening may be able to prevent the majority of cases of cervical cancer and fatalities even though it may not be able to prevent HPV infection. In low - and - middle countries, screening is frequently poor, and sexually active females—who are most at risk for this cancer, especially those who have HIV/AIDS—are also among the lowest screened. Low screening rates are a result of a lack of resources in low- and medium-income countries (Louie & Mayaud, 2020).

The Swaziland Breast and Cervical Cancer Network recently conducted a survey on female reproductive cancer awareness in Swaziland, and found that among Swazi women, CC is the primary reason for cancer-related hospitalisation (SBCCN). This is a result of women in that country having a high prevalence of HIV/AIDS. WHO figures published in May 2020 show that the number of CC fatalities in Swaziland was 112, or 0.83% of all deaths (World Health Rankings, 2019) Contrary to high-income countries, Swaziland does not currently have access to cytology-based screening due to the significant Investments in technology, infrastructure, human resources, and finances are needed to sustain such projects. Precancerous lesions can be detected by VIA with sensitivity equivalent to or greater than clinical examination (60%; range 35-84%), according to studies. Hence it can be used in places with limited resources instead of cytology-based screening for CC (ACCP, 2019). Additionally, competent practitioners can implement VIA as a great secondary prevention strategy for CC in environments with limited resources. When used in conjunction with cryotherapy (ultra-cold treatment for precancerous cervical lesions), especially in an one visit strategy (SVA), it promotes the connection between screening and management and is effective quickly (Sherris, 2018).

Additionally, Rockville (2021) established a link between screening and care to lower the incidence of CC, mortality, and precancerous growths. Guidelines for screening

should therefore weigh the advantages of early diagnosis of treatable lesions and a decrease in the mortalities of cervical cancer against the potential risks of false positives, unnecessary treatments, and other issues. While the potential advantages and risks are influenced by age, health history, and predisposing factors. In addition, there are debates over who should be screened, the best testing techniques (Pap, HPV, or both), and the frequency of testing (Globocan, 2021). According to a recent study based on the International Agency for Cancer Research on Cancer's (IARC et al., 2018) global cancer statistics for 2018, 529,512 women had cervical malignancy, which corresponds to the age-standardized incidence rate (ASIR) of 15.4/100,000. An estimated 274,967 women per year died from the illness, with an Age Standardized Mortality Rate (ASMR) of 7.8/100,000. (Arbyn, 2008). The majority of cases (85.5%) originated in underdeveloped areas. Studies conducted in Sweden and Regular CC screening with a follow-up of anomalies, as demonstrated in the United States, significantly reduced the incidence of the disease and death rates (Saslow et al., 2022; Bergstrom et al., 2019). Any woman who is sexually active or older than 21 should follow the advice of the American Cancer Society. Receive annual CC testing for the first three years (Saslow et al., 2022). In Zambia, testing for cervical cancer started in 2006, and in 2013 a pilot program for the HPV vaccine was launched. CC is still the most prevalent type of cancer, though. Education, social contact, health-related habits, and religion are all thought to be factors that may influence screening as well as immunization routines. According to a research among KNH patients in Nairobi, In Kenya, the likelihood of receiving a Pap smear was greatly increased by having cervical cancer, being aware of the disease, appearing to have some education, using access to contraception, or being 35 years of age or older. But the research also revealed

that Pap smear examination was unrelated to the belief that cervical cancer was predisposed (Gichangi et al., 2021).

Only 12.3% of the 219 women who participated in the Comprehensive Care Centre clinic at the MTRH, according to a second study conducted in Kenya on the risks and challenges of CC testing, had ever been screened (Were et al., 2022). Furthermore, older women than younger women had a higher rate of CC screening (Were et al., 2012). The Were et al., (2001) study also discovered that among women visiting the MTRH's family planning clinic, the percentage of positive tests was 16.9% and 13.9% (VIA) (VILI). A second study was carried out on Kenyan women who had VIA in HIV/AIDS treatment and care clinics between October 2017 and October 2019 in order to evaluate the efficacy of cervical cancer screening. 87% of the women who were provided screening chose to use it, and 15% of responders received either a favorable or unfavorable VIA (Huchko et al., 2021).

One of the most important factors influencing a screening status that is insufficient is the gap on poor use of services for cervical cancer screening. Cervical cancer and Pap testing awareness have been shown to have a favorable impact on the use of cervical cancer screening services, according to Aboyeji et al. research from 2019.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Introduction

This chapter explains numerous approaches that were employed in the collection and analysis of data. The methodology included a geographical summary of the study region, the design of the research, the intended audience, the sample size, the sampling method, the instrument for data collection used, the process that was used, and analysis. Finally, it covers the ethical problems involved in performing the research. The validity and dependability of the research instrument are also discussed.

3.2 Study Area

The investigation was conducted at the six sub-county hospitals that make up the Nandi County Referral Hospital, 45 dispensaries, and 19 health centres with a doctor to population ratio of 1:94,000. Nandi County is home to over 885,711 women (50.2% male and 49.8% female), according to the 2019 National Census. Secured livelihood of Nandi County is subsistence agriculture growing maize, vegetables, and beans. Livestock rearing, cash crop farming; sugar cane, wheat and tea supplements their income and consequently majority of the population work on tea plantations and factories. Nandi County is located within Rift Valley and edges the County of Uasin Gishu Northwards and Eastwards, to the South East and South, Vihiga County South in the Westwards and to the West. Its GPS coordinates are latitude 0° 10' 0.00" N and the longitude 35° 08' 60.00" E as indicated in Figure 3.2

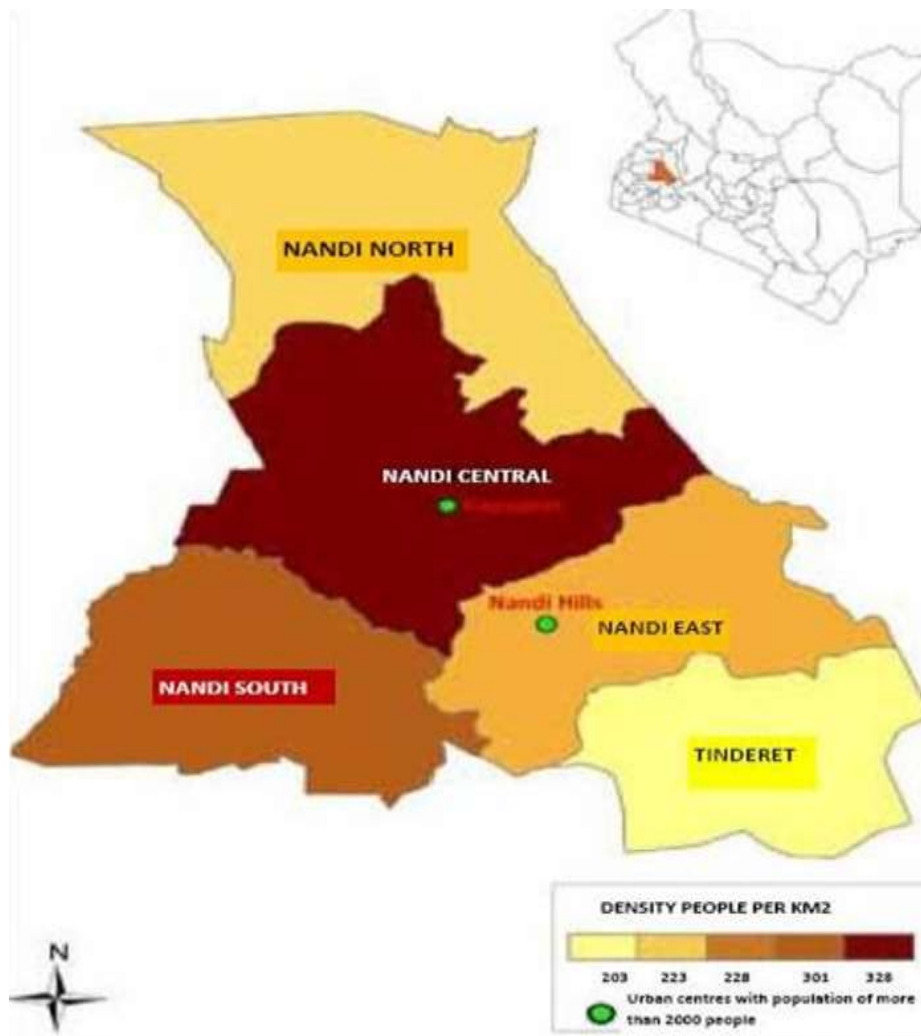


Figure 3.2 Nandi County Sub-counties

Source: IEBC, Nandi County

Different colour shades illustrate densities of women per area, while the green spot markings show urban centres with more than 2000 women. The coordinates for Nandi county are: Latitude 0° 10' 0.00" N: Longitude is 35° 08' 60.00" E.

3.3 Research Design

Descriptive study design mixed research methods was used in this study. It makes use of the advantages of both the quantitative and qualitative research designs. The goal of a mixed methods research design, in accordance with J. Creswell (2019), which entails gathering, examining, and "mix" qualitative and quantitative data and approaches in a

one study to understand a research problem. This approach offers a better understanding of the socioeconomic and demographic characteristics that at one point in time affected the utilization of cervical cancer screening in HIV-positive females within County of Nandi. A complete description of women's perceptions of the social world and interpersonal interactions was obtained using this design (Grimes, 2018).

3.4 Target Population

Patients at Comprehensive Care Center made up the study's sample population, Nandi County Referral Hospital. The target people in Nandi County includes females who were HIV/AIDS positive.

3.4.1 Inclusion and Exclusion Criteria

3.4.1.1 Inclusion Criteria

- i. Only female patients at the Comprehensive Care Center who were HIV/AIDS positive
- ii. Participants who had the ability to provide complete information

3.4.1.2 Exclusion Criteria

- i. All of the Comprehensive Care Center's female patients who were HIV/AIDS positive took part in this study.
- ii. Females who were not HIV/AIDS positive
- iii. Females who were HIV/AIDS positive but were not willing to consent.

3.5 Sample and the Sampling Techniques

3.5.1 Sample Size Determination

Fisher et al's (2003) approach was used to calculate the sample size of 190 women, assuming a CC screening uptake based on information from a demographic research conducted in the past, of 22.3% with a similar make-up in Moshi,

Tanzania (Lyimo & Beran 2018).

N is equal to $Z^2 \frac{P(1-P)}{d^2n}$ = the required sample size

Z = the critical value associated with the level of significance

P = the estimated Sero-prevalence (0.223)

d = degree of precision chosen for the study

$Z = 1.96$ for 95% level of confidence

$P = 0.223$

$d = 0.05$ degree of precision

$n = 1.96^2 \frac{P(1-P)}{d^2} = 1.96^2 \frac{0.223(1-0.223)}{0.05^2}$

$n = 266$.

The Nandi County Referral Hospital's comprehensive care center serves a total of 670 women of all genders (the study population). From this population size, the suitable sample size (nf) was determined using the formula for endless populations (which is less than 10,000). (2000) Fisher et al.

Where:

The required sample size is $N=266$ (once the population under investigation becomes less than 10,000)

That projected women's number utilizing Nandi County Referral Hospital's comprehensive care facility.

$$nf = \frac{266}{1 + (266/670)}$$

$$nf = \frac{266}{1 + 0.39701}$$

$$nf = \frac{266}{1.39701}$$

$$nf = 190 \text{ (HIV/AIDS positive females)}$$

3.5.2 Sampling Techniques

The subjects were chosen via systematic random selection and purposeful sampling. In addition, "purposeful sampling" describes a class of non-probability sampling techniques where units are picked because they meet the criteria for your sample (Nikolopoulou, 2022).

A type of probability sampling approach called systematic sampling selects sample participants from a larger population using a randomized beginning point and a predetermined periodic interval. Due to the large population and representation of the sample frame provided by these approaches, they were appropriate.

Nandi Referral County hospital has an approximate client base of 670 clients for three months attending the health facility. Therefore, the number of females for the study conducted within the period of three months was 670. This next method was employed to establish the sampling interval.

$$\text{Nth Value} = N (\text{Total population})/n (\text{Sample size})$$

$$\begin{aligned} \text{Nth value} &= 670/190 \\ &= 3.5263 \text{ (rounded off to one decimal place)} \\ &= 4 \end{aligned}$$

The first participant was selected at random, every fourth person and those subsequent consumers were chosen by multiplying the previous number by the sampling interval of 4. (Lemeshow et al., 1990).

3.6 Instruments of data Collection

3.6.1 Questionnaires

Quantitative data collecting was used for the investigation. Primary data were gathered employing a questionnaire that is self-administered and has both closed or open-ended questions (Appendix 1).Some of the inquiries that the respondents had trouble

understanding were translated for them by the investigator and a research assistant. The respondents who consented to take part did so (Appendix II). The choice of this tool was shaped by the characteristics of the data that will be collected, the time available, and the study's objectives. The questionnaire incorporated the study objectives which included demographic characteristic and socio-economic aspects linked to the usage of CC screening.

3.6.2 Validity of the Instrument

The questionnaire was carefully designed so that it would be easy for the responders to understand. This was accomplished through extensive discussion between the investigator and the supervisors who provided guidance. To check that the instruments' face and content validity, peer proofreading was also used. This aided in determining whether the instrument was appropriate and meaningful in light of the investigation's goals.

3.6.3 Pilot Study

A pre-test of the questionnaire took place at Mosoriot Sub-County CCC that has similar set up as those in Nandi County CCC. The respondents in Mosoriot sub county hospital were HIV/AIDS positive women attending comprehensive centre. Samples of 19 questionnaires which represent 10% of the sample size were randomly administered. Corrections and amendments on the questionnaire were made in line with study objectives to raise the dependability and quality of the research instrument.

3.7 Ethical considerations

NACOSTI - Appendix III: The researcher received approval from the Commission for Sciences, Technology, and Creativity to carry out the investigation. The Researcher also received authorization from research Ethics committee (REC) of the University of Eastern Africa Baraton -Appendix IV: Research Authorization. The Nandi County

health committee was notified in advance of the intention to conduct the study there, and the researcher obtained an introductory letter from Kisii University. To minimize any disruption at the participants, appointments to the comprehensive care center were made prior to the visits. Questionnaires were used to gather the data. The information gathering forms were identifiable by a research identity code, rather than the client or patient's name. Respondents received assurances that the information gathered about them would be handled in strict confidence and only to carry out the goals of this study. Participants in the study were asked for their informed consent, and for responders under the age of 18, the consent of their parent or legal guardian was also requested. The research method was not forced onto people who did not want to participate, nevertheless. Data was collected by researcher and assisted by two research assistants.

3.8 Methods of Data Analysis

Data analysis, according to Dawson (2006), entails looking at the information gathered during a study and drawing conclusions. Microsoft Excel 2016 was used to enter, code, and sanitize the acquired data. Data was kept in cloud storage.

Statistical analysis used were quantitative data analysis methods that is descriptive statistics and inferential statistics which were carried out utilizing SPSS software version 25 (Statistical Package for Social Sciences) (SPSS Inc., USA). The findings were presented using frequency distribution tables, charts and narrative form, frequencies, percentages and mean. Chi-Square test of independence tested for association between demographic factors, socio-economic and uptake of cervical cancer screening. Inferential statistics also helped the researcher to draw conclusions or inferences about

CHAPTER FOUR

RESULTS

4.0 Introduction

The research on the socioeconomic and demographic factors impacting cervical cancer screening adoption among HIV/AIDS victims in Nandi County is presented in this part. The findings are derived from the methods applied in chapter three. It presents these findings in tables, charts and graphs. A total of 190 respondents completed the questionnaires representing 100% response rate therefore 'n' was 190.

4.1 Demographic Factors of Respondents

Demographic factors help us to understand the social structures of a study population. These enable us to contextualize the results acquired and gave correct interpretations. The aspects that were examined included; age, education, religion and marital status. Age was the first demographic element to be examined. The majority of 64 people (33.7%) were in their 30s to 39s, while the least 16 (8.4%) were in their 10s to 19s and older than 50. The participants' average age was 33.8 years. In terms of marital status, The remainder 70 (36.8%), 17, 8, 9, 13, and 6 (3.2%) people were single, widowed, divorced, or separated, whilst 84 people (44.2%) were married (Table 4.1).

Table 4.1 Demographics factors of the Participants

Socio-demographic characteristics	Frequency	Percentage (%)
Age		
10-19yrs	16	8.4
20-29	58	30.5
30-39	64	33.7
40-49	36	18.9
above 50yrs	16	8.4
Marital status		
Single	70	36.8
Married	84	44.2
Separated	6	3.2
Widowed	17	8.9
Divorced	13	6.8
Level of education		
Certificate	58	30.5
Diploma	66	34.7
University	29	15.3
Masters	18	9.5
Primary	11	5.8
Secondary	8	4.2
Number of children		
0-1	38	20
>2	152	80
Religion		
Christian	179	94.2
Muslim	9	4.7
Atheist	2	1.1

The bulk of consumers (66, or 34.7%) had a diploma, whereas the lowest percentage (8, or 4.2%), had only completed high school. In terms of the total number of children born among the participants, 152 (80%) of the people involved had more than two children, while 38 (20%) had just one child. The majority of participants (179, or 94.2%) identified as Christians, followed by Muslims (9, or 4.7%), and atheists (2, or 1.1%), in that order (Table 4.1). According to the data as a whole, the majority of participants were adults who were either married or single, had completed a higher education, had two or more children, and belonged to a particular religion.

4.2 Socio-Economic Factors Influencing Cervical Cancer Screening

The result indicates that the nearest health facilities were dispensaries which could be accessed within 2-5 Km on foot. Moreover, almost half of the participants could access sub- county and county hospitals where screening services are offered for free. (Table 4.2)

Table 4.2 Socio-economic Characteristics of the Participants

Variable	Frequency	Percentage (%)
Occupation		
self-employed	59	31.1
Employed	67	35.3
casual worker	20	10.5
Unemployed	44	23.2
Household income per month		
less than 5000	87	45.8
between 5,001-10,000	53	27.9
between 10,001-15,000	16	8.4
over 15000	34	17.9
Nearest health facility		
Dispensary	59	31.1
health centre	48	25.3
sub-county hospital	35	18.4
county hospital	48	25.3
Distance in Kilometres (Km) between home and facility		
below 1km	63	33.2
2-5kms	80	42.1
6-10kms	36	18.9
over 10kms	11	5.8
Means of transport to access the facility		
Walking	63	33.2
Bodaboda	75	39.5
Matatu	47	24.7
personal car	5	2.6
Cost to the nearest Health facility		
Nil	56	29.5
kshs. 10-50	54	28.4
kshs 60-100	38	20.0
above kshs100	42	22.1
Charges for cervical cancer screening		
Yes	43	22.6
No	147	77.4
Hospital insurance cover		
Yes	92	48.4
No	98	51.6

4.3 Uptake of Cervical Cancer Screening

4.3.1 Overview of the participants

The study's subjects were HIV/AIDS-positive women. HIV/AIDS spread according to certain clinical traits, such as the usage of (HAART) Extremely Active Antiretroviral Treatment and other underlying medical disorders. Table 4.3.1 provides a general overview of the participants, including the duration of HAART use, the time after HIV/AIDS diagnosis, and any other before the medical conditions.

Table 4.3.1 Overview of Nandi County Women Followed in the CCC in Nandi County Referral hospital (n=190)

Characteristics	Frequency	Percentage (%)
Time since HIV/AIDS diagnosis		
1 year and below	10	5.3
1-2 years	123	64.7
2 years and above	57	30.0
ART Duration (years)		
1 year and below	60	31.6
1- two years	93	48.9
more than two years	37	19.5
Had other medical conditions		
Hypertension	65	34.2
Diabetes	56	29.5
Stress	48	25.3
Others	21	11.1

4.3.2 Source of Information on Cervical Cancer

In Nandi County, the availability of resources for wellbeing-related data were quite a lot, together with the internet and female colleagues. The participants were asked to select their primary information source on cervical cancer from the following options: friends, health experts, mass media (TV, radio). The majority of participants' information on CC came from the media (radio and television) with 90 (47.4%), led by

medical experts with 66 (34.7%) and friends with 34 (17.9%) as the lowest percentage (Figure 4.3.2)

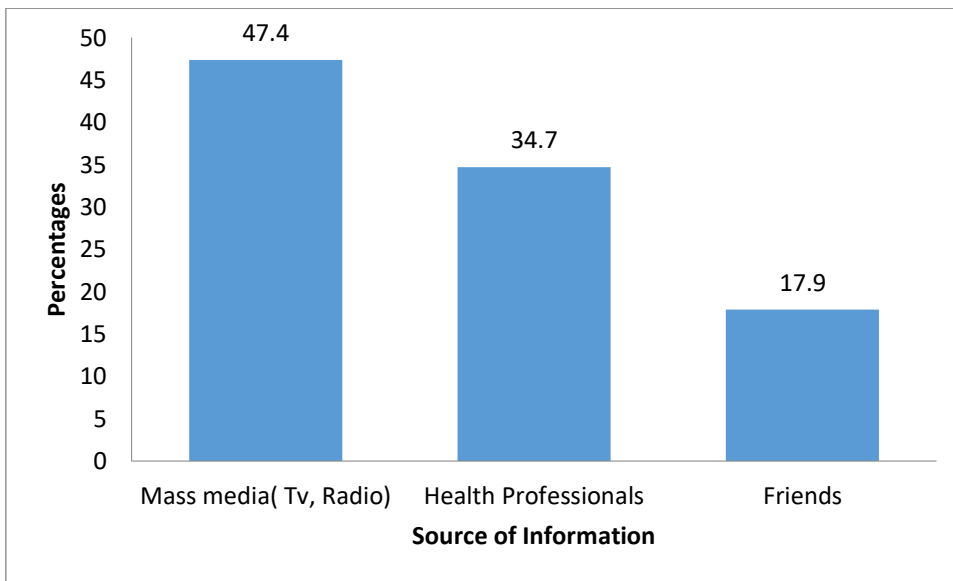


Figure 4.3.2 The primary method for detecting cervical cancer in women with HIV.

The columns show the number of respondents and their chosen information source.

4.3.3 Risk Factors for Cervical Cancer

The majority of participants, 107 (56.3%), identified sex with other people as the main risk factor for cervical cancer. Other risk factors included HIV infection, repeated STI exposure, having sex before the age of 18, and having too many children, at 20 (10.5%),

53 (27.9%), 5 (2.6%), and 5 (2.6%), respectively (Figure 4.3.3).

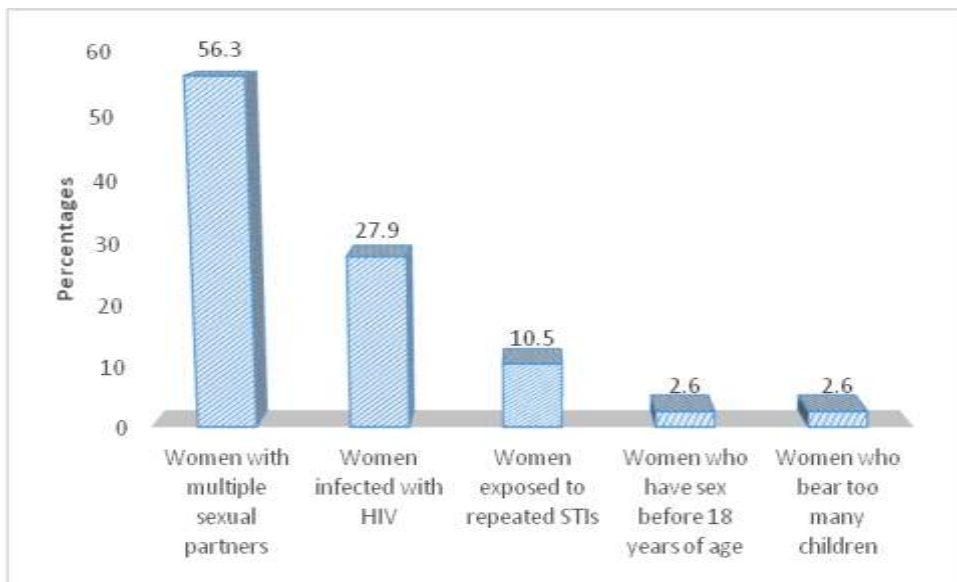


Figure 4.3.3 Participants' identification of cervical cancer risk factors

4.3.4 Knowledge and identification of Cervical Cancer Signs and Symptoms

In order to assess the 94 respondents' comprehension of the symptoms and signs of cervical cancer, they were given the option to select one of four different options (Table 4.3.4). 54 (75.4%) of the participants reported excessive vaginal discharge, with the majority reporting bleeding and pain after sex (47.5%), followed by irregular bleeding between periods (45.7%), and foul vaginal discharge (42.7%), which was stated by the smallest proportion.

Table 4.3.4 Respondent's Knowledge on Signs and Symptoms of Cervical Cancer

Signs and symptoms of cervical cancer	Yes	No
Unpleasant uterine discharge	42 (44.7%)	52 (55.3%)
Excessive vaginal discharge	54 (57.4%)	40 (42.6%)
Abnormal bleeding between menstruations	45 (47.9%)	49 (52.1%)
Bleeding and pain after sexual intercourse	47 (50%)	47 (50%)

Table 4.3.4 is dichotomous since there are only two viable answers: yes or no. The word "Yes" denotes a yes answer from the participants, whereas the word "No" denotes a no answer from the participants. For each item, the participants voiced their opinions.

4.3.5 Awareness of Cervical Cancer and its screening services

Table 4.3.5 summarizes responses to questions about services for cervical cancer screening. 158 people responded, 158 (83.2%) had heard of CC screening whereas 98 (51.6%) were familiar with the screening process.

56 (57.1%) of the individuals indicated the Pap cervical biopsy as a screening method; 49 (50.5%) had previously had screening; and 65 (69.9%) had never undergone screening because they were terrified of being discovered to have the infection (Table 4.3.5).

Table 4.3.5 Awareness of Cervical Cancer and its screening services among HIV/AIDs patients in Nandi County Referral Hospital

Variable	Frequency	Percentage (%)
Aware of cervical cancer screening		
Yes	158	83.2 %
No	32	16.8 %
knew any cervical cancer screening procedure		
Yes	98	51.6 %
No	92	48.4 %
Methods used for screening		
pap smear test	56	57.1%
VIA (Visual inspection using acetic acid)	26	26.5%
Colposcopy	6	6.1%
Biopsy	8	8.2 %
Others	2	2 %
Had ever been screened		
Yes	97	51.05%
No	93	48.94 %
Number of times screened		
Once	49	50.51 %
Twice	25	25.77%
Thrice	12	12.37 %
more than four times	11	11.34 %
Reasons for not screened for Cervical cancer		
Distress of even now being afflicted	65	69.89 %
Incapable to pay for	2	1.1 %
absence of knowledge regarding the location of the initial test	2	1.1 %
screening services are lacking at the	5	2.6%
Others	5	2.6%

Although the most of 158 (83.2%) contributors were alert to the options for cervical cancer screening, as evidenced by the result that 51.1% of respondents had ever been

screened, this did not result in adoption of the screening. Additionally, the participants' levels of education were correlated with their ability to discern between individuals who could clearly recognize cancer indications and those who could not. The majority of those 65 and older (69.9%) said they had not received a screening for cervical cancer because they afraid of the results. (Table 4.3.5)

4.3.6 Cervical Cancer Prevention

Cervical pre-cancerous tumors can be discovered and begin treatment to lower the risk for cervical cancer. The study focused on how participants perceived the possibility of cervical cancer prevention in this regard. Cervical cancer is preventable, according to the majority of participants—150—while 40 (21%) said it is not (Figure 4.3.6).

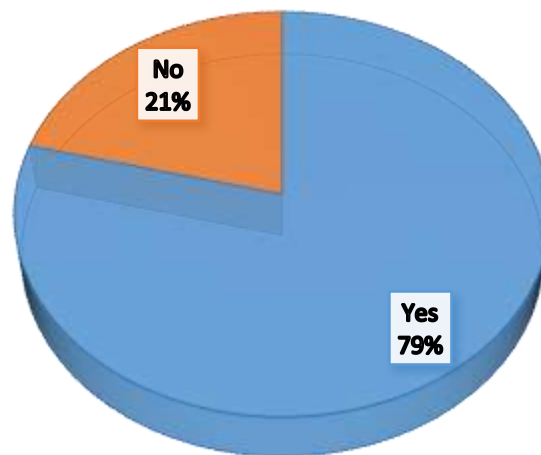


Figure 4.3.6 Percentage of participants and their perception on prevention of cervical cancer

Those who believe cervical cancer is controllable and those who do not believe it are represented by "Yes" and "No," respectively.

4.3.7 Modes of Cervical Cancer Prevention

Women can take a number of steps to help avoid cervical cancer. These include utilizing the HPV vaccine and routinely checking for precancerous tumors. 90 people (47.4%) in the majority agreed that getting routine Pap tests is a way to prevent cervical

cancer from forming. The remaining methods of protection include using contraceptives 56 (29.5%), restricting the number of sex partners 38 (20%), and deferring sexual debut 6 (3.2%). Fig. 4.3.6

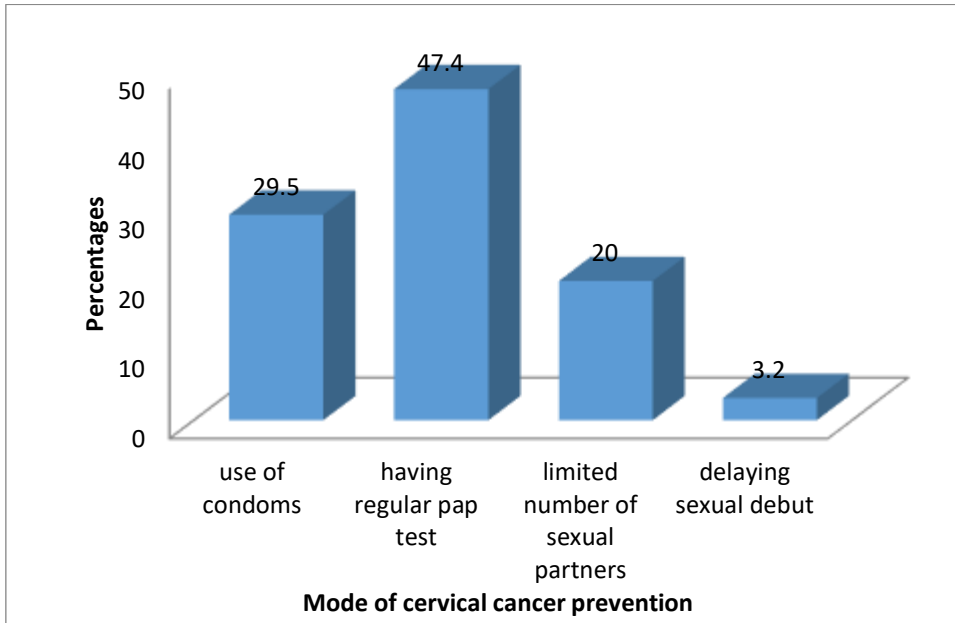


Figure 4.3.7 Participants' identification of several cervical cancer prevention strategies

4.3.8 Treatment Option

Patients with infectious cervical cancer can get a range of therapies, such as chemotherapy, radiation, and surgery. According to the survey on treatment choices, the majority of participants—124, or 65.3%—identified chemotherapy as the best course of action for treating cervical cancer, while 42, or 22.1%, were ignorant of any. Another 19 (10%) suggested radiotherapy, while only 5 (2.6%) suggested surgery as a potential course of action (Figure 4.3.8)

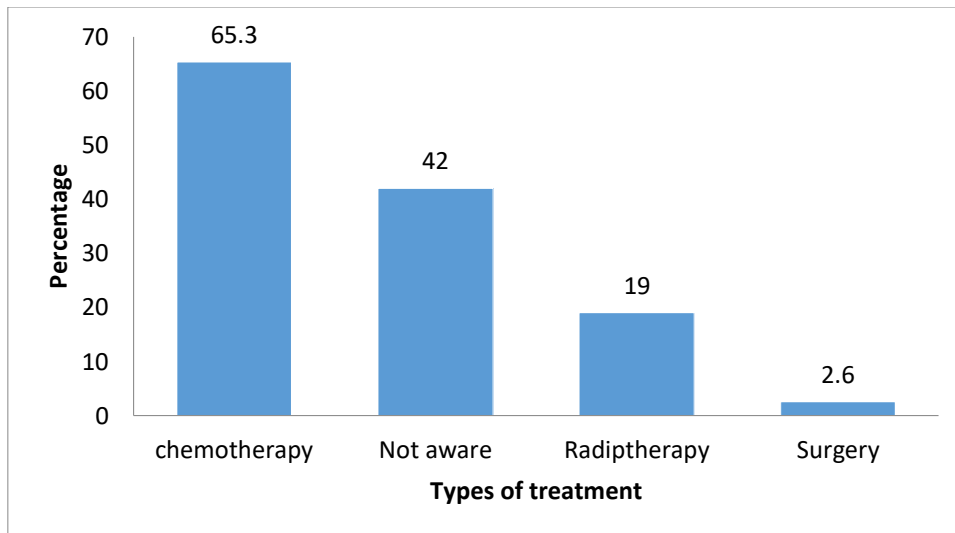


Figure 4.3.8 Options for Treating Cervical Cancer,

Together, these findings imply that more people were aware of cervical cancer, its risk factors, and the available choices for treatment and prevention.

4.3.9 Relationship between level of education, Occupation and Household Income

These made up the factors that significantly influenced the uptake of cervical cancer screening. Figure 4.3.9's (a), (b), and (c) represent, in that order, the household income, the occupation, and the level of schooling.

Members with advanced degrees were more likely to turn up for screening than those with only certificates. because they were more knowledgeable, which increased their likelihood of doing so. The results also showed that those with diplomas may still be screened even though they were working but regrettably making less money (Figure 4.3.9 a)

In addition, respondents who were self employed or were employed had a greater likelihood of undergoing cervical cancer screening than individuals with no income or work. (Figure 3.9 b). Furthermore the respondents who had a household income of less than 5000 were found to have gone for screening than those earning more than them. (Figure 4.3.9 c)

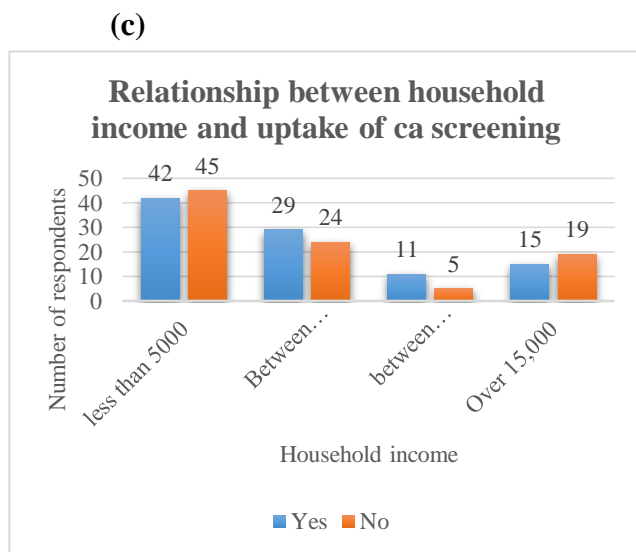
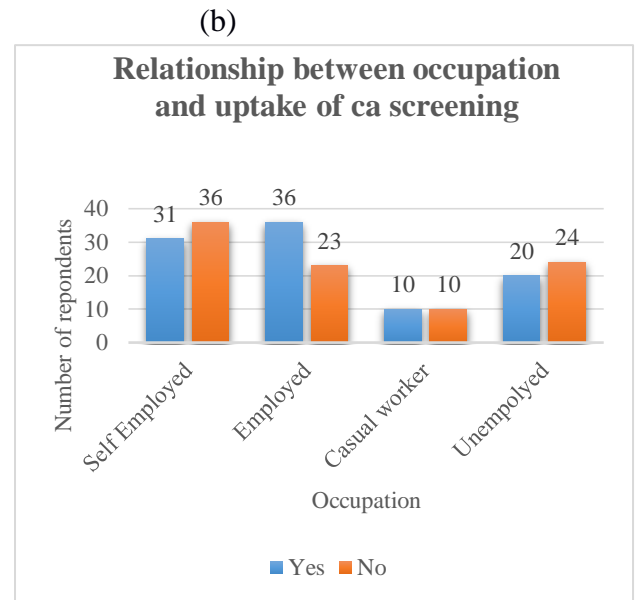
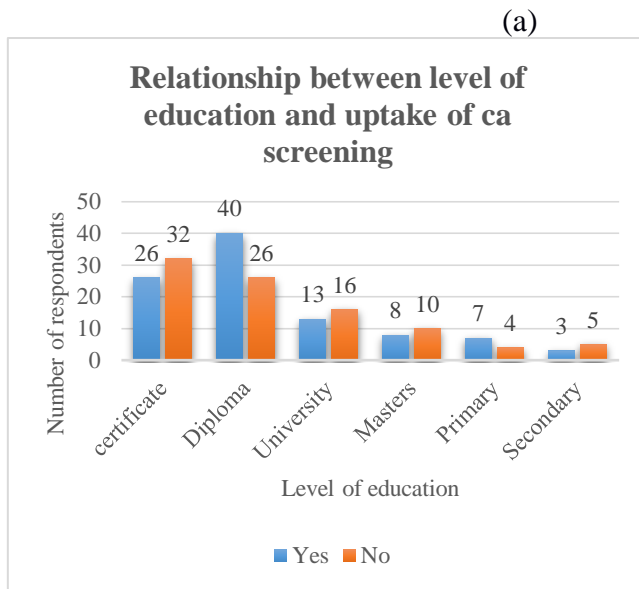


Figure 4.3.9 Relationship between level of education, Occupation and Household Income

4.3.10 Association between Participants' Characteristics and Cervical Cancer screening uptake

According to the study, women between the ages of 30 and 39 had a strong connection with using CC screening. When compared to those over 50 (9.3%), this group used screening the most frequently. This demonstrated a connection between age group and CC screening uptake. According to the findings, out of all females (n=97), 51% had a

cervical cancer screening, while the remaining 49% did not (Table 4.3.10). The results showed substantial association between age, marital status, and educational attainment, $\chi^2(4, N=190) = 1.930, p = .003$, $\chi^2(4, N=190) = 1.037, p = .032$, $\chi^2(4, N=190) = 5.359, p = .001$ respectively since $p < 0.05$. (Table 4.3.10)

Table 4.3.10 Association between Participants' Characteristics and Cervical Cancer Screening Uptake

Variables	Ever been screened?		Df	χ^2	P-Value
	Yes	No			
Age					
10-19yrs	10(10.3%)	6(6.5%)	4	1.930	*0.003
20-29	28(28.9%)	30(32.3%)			
30-39	34(35.1%)	30(32.3%)			
40-49	16(16.5%)	20(21.5%)			
Above50 yrs	9(9.3%)	7(7.5%)			
Relational Status					
Single	38(39.2%)	32(34.4%)	4	1.037	*0.032
Married	42(43.3%)	42(45.2%)			
Separated	3(3.1%)	3(3.2%)			
Widowed	7(7.2%)	10(10.8%)			
Divorced	7(7.2%)	6(6.5%)			
Education level					
Certificate	26(26.8%)	32(34.4%)	5	5.359	*0.001
Diploma	40(41.2%)	26(28.0%)			
University	13(13.4%)	16(17.2%)			
Masters	8(8.2%)	10(10.8%)			
Primary	7(7.2%)	4(4.3%)			
Secondary	3(3.1%)	5(5.4%)			
Number of children					
1-2 children	13(13.6%)	43(46.2%)	2	6.938	0.741
>3	84(86.6%)	50(53.8%)			

CHAPTER FIVE

DISCUSSIONS

5.0 Introduction

The discussion is based on previous studies on cervical cancer screening uptake compared to study findings and objectives.

5.1. Demographic factors Affecting Cervical Cancer Screening

The analysis showed an association between screening for cervical cancer demographic factors measured by age, marital status and education level of participants. The results of the analysis of the participants' screening status showed a significant connection and that women over 30 were more likely than women in younger age groups to have had screening. The aforementioned results corroborated those of (Were et al. 2022), who discovered that older women seemed most likely to have had a cervical cancer screening than younger women.

However, in sexually active women younger than 25, HPV infection can occur. The majority of the facility's HIV-positive female clients were in the risk group, between the ages of 30 and 39. It's interesting to note that a tiny percentage of mostly teenage females between the ages of 10 and 19 also attended the health center for HIV/AIDS treatment. The implication is that because teenage females in Nandi County are already involved in sexual activity due to the fact that they too are HIV positive, they are also at danger of contracting cervical cancer. However, it is possible that some do not engage in sexual intercourse and only got HIV infection by other means e.g. from birth, exposure to HIV contaminated blood among others. (Rodvall et al., 2020).

The percentage of married women who had undergone screening was much higher than the percentage of widowed and split women (7.2%), at 43.3%. This is in line with the claim that women who are married are more likely to engage in preventative measures because they will look out for one another and make sure the other gets the greatest medical treatment (Rodvall et al., 2020).

The study also revealed that single women (70, 36.8%) went for cervical cancer screening this was contrary to a study on Indian women that were only permitted to have Pap smear tests after they marry (Singh & Badaya, 2019). This was due to the fact that the unmarried females were not supposed to engage in any sexual relationships until they are married.

Furthermore, women with education beyond a high school diploma were more likely to have cervical cancer screenings, probably as a result of their increased knowledge of the disease. Women with a high school diploma or less were less likely to be checked for cancer. This is consistent with what Sabate et al. (2017) discovered, who found that education has a role to play in the adoption of preventive care for a number of reasons, including better health, confidence, motivation, patience, and social inclusion in pursuit of health interventions. The majority (94.2%) were Christians, which can be due to the fact that they were geographically more common than Muslims in the area.

5.2 Social Economic Factors Affecting Uptake of Cervical Cancer Screening

During the learning it was revealed that socio-economic factors that influenced access to CC screening were occupation of the participants and their household income. The findings revealed that 35.3% were employed and had a household income of below Ksh.5000 per month. The proportion of participants who were employed and self-employed had the highest likelihood of uptake to screening where 37.1% and 32% respectively as opposed to casuals and those not employed. This corresponds with

Kihara et al., (2018) who claimed that working women were more interested in getting a cervical cancer screening. Regarding accessibility to the health facility, 31.1% of the respondents identified dispensaries as the nearest health facilities. Moreover, 42.1% resided within a distance of 2-5 Km while boda boda was the means of transport utilized by 35.9% of the participants, 29.5% did not incur any cost to reach the facility and 77.4% of the participants indicated being no charges in order to detect cervical cancer. screening and testing for cervical cancer comes with a lot of test hence majority of the women will not be able to afford. Similarly, cervical cancer testing being offered for free is not enough but the distance and availability of the services in the community are hindered by diverse reasons like transportation fees, and follow-up visit (Matejic et al., 2022).

5.3 Uptake of Screening of Cervical Cancer

According to the research, a higher proportion of persons (83.2%) were aware of cervical cancer. The numbers back up Assoumou et al(2019) .'s finding that 414 out of 452 Gabonese women, or 91.6% of them, were aware of cervical cancer. Furthermore, 47.4% as well as 34.7% of those surveyed said that the mainstream media (TV, radio) was their primary source for knowledge about cervical cancer awareness, respectively. According to a research by Adibe et al. (2017), 23% of respondents identified the media as their primary source of data on cervical cancer. If Kenyan government uses social media more, the media's function in spreading knowledge might improve. The new place for daily interaction and information sharing between groups and individuals is social media (SIMElab Africa, 2019).

Another interesting conclusion was that 57.1% of respondents acknowledged using Pap tests as a cervical cancer screening tool. In contrast, it was discovered that more women (83.2%) were conscious of the condition. Franceschi (2017), on the other hand,

discovered that practically all women were ignorant of the screening alternatives or locations where they might receive a screening service, which is critical for the acceptance of cervical cancer screening and treatment. In contrast to this study, Dim et al. (2018) found that very few women were aware of the screening services that were available for this dangerous condition.

According to the study's findings, the biggest excuse given for not getting a test result was fear of getting a disease (69.9%). According to Bessler et al. (2018), a number of impediments to monitoring were identified as anxiety that a Pap smear may reveal cervical cancer, and over half of respondents said they feared the discomfort of the Pap test.

In contrast to Eze et al(2018) .'s findings that few women were aware of cervical cancer deterrence, the survey showed that 79% of women were aware of the possibility of preventing or reducing cervical cancer. This discrepancy in knowledge is likely due to the two studies' differing levels of education, with 25.3% and 94.0% of respondents having completed tertiary education, respectively. Furthermore, nearly all respondents (65.3%) named chemotherapy as the most effective approach for treating cervical cancer, while only 2.6% (5) mentioned surgery as a possible course of action. The results were comparable to those of Jia et al. (2018), who found that 81% of people knew that CC might be treatable.

When asked about who is most exposed, the proportion of respondents (107, 56.3%) identified the main potential risk for cervical cancer as having intercourse with other people. Other risk factors included HIV infection, repeated STI exposure, having sex before the age of 18, and having too many children (53, 27.9%), 20.5%, 5.6%, and 5.6%, respectively. Early detection and thus improved outcomes depend on women who are susceptible to CC being able to recognize its symptoms and seek medical care.

These include sex-related pain, unusual menstruation, and unusual vaginal blood or discharge. The participants, as well as relatives and friends could seek out preventive services with the aid of this information. Several factors enhance a woman's chance of developing cervical cancer, according to Ombech et al. (2022). However, having one or many predisposers does not guarantee that a person will develop cervical cancer; rather, the likelihood of developing cervical cancer increases as the number of risk factors increases.

Anorlu et al. (2018) conducted a separate study that found that understanding the causes and contributing elements of cervical cancer will help women change their behavior and take preventive measures.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Demographic factors played a major role in screening for cervical cancer (CC) among women in the target age group of 30 to 39 years old and those who attained diploma level were the majority who went for screening. However, the study concluded that religion, marital status and number of children did not play major role in influencing screening.

Since the majority of women with income underwent cervical cancer screening, socioeconomic characteristics like occupation had a substantial effect on the uptake of the screening.

The research also showed that few women were going for cervical cancer screening despite there being no charges for the screening services. This was due to other factors such as patients' fearing that they might have the disease and inaccessibility of services to majority of the women in rural areas.

Despite the high knowledge of CC screening, just slightly more than half (51.1%) of the female patients at the comprehensive care center (CCC) at the Nandi County Referral Hospital had undergone a CC screening.

6.2 Recommendations

1. The County government of Nandi to come up with mechanisms such as health education and promotion among women of reproductive age to increase cervical Cancer screening uptake.
2. There is need for the government of Nandi County to encourage and increase services for all women for cervical cancer screening in Nandi County.

3. Nandi County government should consider putting up more Cervical Cancer screening centres in the county to increase uptake.

6.3 Recommendations for Further Study

1. A study on determinants influencing cervical cancer testing service usage among all women to ascertain the uptake of screening in Nandi County.
2. A study to determine whether male partner participation in cervical cancer screenings will have any positive effects on the adoption of cervical cancer screenings amongst women who are HIV/AIDS positive.
3. Further research to include Medical personnel to give the in-depth perception from professional point of view on cervical cancer screening uptake.

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APPENDICES

APPENDIX I: INTRODUCTION LETTER

Research Information Sheet for Participants

Dear Respondent,

I'm Ruth Ngetich and I'm a student at Kisii University working for a master's degree in epidemiology and disease prevention. I am performing research as part of the course requirements on: *Factors Affecting HIV/AIDS Women in Nandi County, Kenya's Uptake of Cervical Cancer Screening.*

The findings of this study will be helpful to the policy makers in the hospital to recognize gaps and find ways to the prevention of cervical cancer and support for females of reproductive age to just go for scanning and teenage girls to go for HPV vaccination. I kindly request your participation in providing responses to the attached questionnaire. Kindly put a tick (✓) where appropriate and fill in the blank spaces at the end of each question provided.

Your responses will be retained confidential as well as anonymous and used exclusively for the research.

The dangers of taking part in this study are non-existent. The participant in this survey does not receive any financial rewards.

Without fear of retaliation, you are able to stop participating in the study whenever you want. Your signature serves as evidence that you freely and voluntarily agreed to take part in the research.

Signature of the participant _____

Date Consented _____

In case of any inquiries on the questionnaire please contact the principal investigator Ruth Ngetich - 0722987929

Thank you for your cooperation and assistance

APPENDIX II: QUESTIONNAIRE

SECTION A: DEMOGRAPHICFACTORS

1. What is your age?
 - a. Between 10 – 19 years
 - b. 20 – 29 years
 - c. 30 – 39 years
 - d. 40 – 49years
 - e. above 50years

2. What is your marital status?
 - a. Single
 - b. Married
 - c. Separated
 - d. Widowed
 - e. Divorced

3. What is your highest level of education?
 - a. Certificate
 - b. Diploma
 - c. University
 - d. Masters
 - e. Other (specify).....

4. What is your religion?
 - a. Christian
 - b. Muslim
 - c. Hindu
 - d. Atheist
 - e. Others (specify)

5. Number of children you have given birth?

SECTION B: SOCIO-ECONOMIC DETERMINANTS

1. What is your occupation?
 - a. Self –employed
 - b. Employed
 - c. Casual worker
 - d. Unemployed
2. What is your estimated household income per month?
 - a. Less than 5000
 - b. Between 5,001-10,000
 - c. Between 10,001-15,000
 - d. Over 15000
3. After HIV/AIDS testing, have you disclosed your status?
 - a. Yes
 - b. No
4. If yes, what was the reaction of those you informed?
 - a. Accepted
 - b. Rejected
5. Which is your nearest health facility;
 - a. Dispensary
 - b. Health Centre
 - c. Sub-County Hospital
 - d. County Hospital
6. How far is the closest medical facility to your house or place of residence?
 - a. Below 1 km
 - b. 2 – 5 kms
 - c. 6 – 10 kms
 - d. Over 10 kms
7. Which means of transport would you use to access the facility that can test for cervical cancer?
 - a. Walking
 - b. BodaBoda
 - c. Matatu
 - d. Personal car
8. How much does it cost you to reach the nearest Health facility?
 - a. Nil
 - b. Kshs 10 – 50
 - c. Kshs 60 – 100
 - d. Above Kshs. 100

9. Are you charged for cervical cancer screening?
 - a. Yes
 - b. No
10. Do you have health insurance for hospitals?
 - a. Yes
 - b. No
11. If so, does cancer evaluation and treatment fall under the scope of health insurance?
 - a. Yes
 - b. No
12. Are you aware of any government initiatives designed to encourage those with HIV/AIDS to have a cervical cancer screening?
 - a. Yes
 - b. No

SECTION C: LEVEL OF SCREENING OF CERVICAL CANCER

1. Do you have any information on cervical cancer?
 - a. Yes
 - b. No
2. If yes, what was the source of information on cervical cancer?
 - a. Mass media (TV, radio)
 - b. Friends
 - c. Health professionals
3. Do you know of any symptoms of cervical cancer?
 - a. Yes
 - b. No
4. If yes, which one
 - a. Offensive vaginal discharge
 - b. Excessive vaginal discharge
 - c. Abnormal bleeding between menstruations
 - d. Bleeding and pain after sexual intercourse
5. Is there any history of cervical cancer in your family?
 - a. Yes
 - b. No
6. Who is most at risk for cervical cancer?
 - a. Women infected with HIV
 - b. Women with multiple sexual partners

- c. Women who have repeatedly had STIs []
 - d. Women who had sex before turning 18 []
 - e. Too many children are born []
7. Do you consider yourself at risk for cervical cancer?
- a. Yes []
 - b. No []
 - c. I don't know []
8. How many lifetime sexual partners have you had?
- a. Single []
 - b. Multiple []
9. Can cervical cancer be prevented?
- a. Yes []
 - b. No. []
10. If yes, how?
- a. Use of condoms []
 - b. Having regular pap test []
 - c. Limited number of sexual partners []
 - d. Delaying sexual debut []
11. Are you aware of cervical cancer screening?
12. a. Yes [] b. No []
13. Do you know of any cervical cancer screening procedure?
- a. Yes []
 - b. No []
14. If yes, which one?
- a. Pap smear test []
 - b. VIA (Visual inspection using Acetic acid) []
 - c. Colposcopy []
 - d. Biopsy []
 - e. Others.....
15. Have you ever had a cervical cancer screening?
- a. Yes []
 - b. No []
16. If so, how often have you had a screening after being told you have HIV/AIDS?
- a. Once []
 - b. twice []
 - c. thrice []
 - d. more than four times []

17. When should one start screening for cervical cancer?
- a. From 18 years and above
 - b. After menopause
 - c. When one gets symptoms of cervical cancer
 - d. When one get a sexually transmitted infection
18. Do you know of any treatment options?
- a. Chemotherapy
 - b. Radiotherapy
 - c. Surgery
 - d. Not aware
19. How many years have you lived with HIV/AIDS?
- a. Less than 1 year
 - b. 1-2 years
 - c. More than 2 years
20. If yes, how many times have you ever screened since you were diagnosed with HIV/AIDS?
- b. Once
 - b. twice
 - c. thrice
 - d. more than four times
21. Do you have any other medical condition?
- a. Yes
 - b. No.
22. If yes, which one?
- a. Hypertension
 - b. Diabetes
 - c. Stress
 - d. Others specify.....

APPENDIX III: CONSENT FORM FOR RESPONDENTS

I have had enough time to think about whether or not to join in this study after reading the participant information page.

I am aware that participate in this research is purely optional and that I can end it at any time.

I am informed that my involvement in this research is private and that nothing that might be used to identify me specifically will be included in any studies' papers.

I am aware of who to speak with regarding the study if I have any questions.
I thus give my permission to take part in the study.

Signature:.....**Date:**.....

In the presence of (Researcher)

Name:..... **Signature:**.....

Date:.....

APPENDIX IV RESEARCH AUTHORIZATION LETTER



KISII UNIVERSITY

DEPARTMENT OF PUBLIC HEALTH

SCHOOL OF HEALTH SCIENCES

Telephone : +254 763499798
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P. O. Box 408-40200
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To: whom it may concern,

13TH December 2019

Re: RUTH NGETICH

This is to inform you that **Ms. Ruth Ngetich** Reg. No. **MHS16/40049/14** is a Bonafide student of **Kisii University** Department of Public Health. **Ms. Ruth Ngetich** is currently pursuing her **Masters Degree in Public Health (Epidemiology Option)**. **Ms. Ruth Ngetich** has successfully defended her proposal entitled **“Epidemiology and Social Economic Factors Influencing Screening of Cervical Cancer among the HIV/AIDS Patients in Nandi County Kenya”**.

This Letter is to request your office to facilitate the processing of **her research permit**. Kindly contact the undersigned in case you have questions.

Thanks in advance.


Sincerely,


Tabitha Wanjau, PhD.

Post graduate Coordinator School of Health Sciences



APPENDIX V: NACOSTI PERMIT



REPUBLIC OF KENYA



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

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This is to Certify that Ms.. Ruth - Ngetich of Kisii University, has been licensed to conduct research in Nandi on the topic: EPIDEMIOLOGY AND SOCIO-ECONOMIC FACTORS INFLUENCING SCREENING OF CERVICAL CANCER AMONG HIV/ AIDS PATIENTS IN NANDI COUNTY, KENYA for the period ending : 29/June/2021.

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Original Article

Demographic Factors Associated with Uptake of Cervical Cancer Screening among HIV/AIDS Patients in Nandi County, Kenya

Ruth Ngetich^{1*}, Alexander M Mbeke², Kevin Kamanyi³

ABSTRACT

Introduction: Cervical cancer is an AIDS-related sickness, since HIV-positive women have a higher incidence of persistent HPV infection, which increases the risk of developing premalignant lesion of the cervix. Early detection by screening is one way to manage cervical cancer. The study assessed the socio-demographic determinants of cervical cancer screening uptake among a target of 670 HIV/AIDS patients attending the Comprehensive Care Centre at Nandi County Referral Hospital between July and October 2020 in Kenya. **Methods:** It adopted a descriptive cross-sectional research design, employing quantitative approach. The sample size was 190, calculated using Fisher's formula. Sampling was by systematic and purposeful random techniques. Primary data was collected using an open- and closed-ended questionnaire. It was then analysed using Microsoft Excel and Statistical Package for Social Sciences, Version 25.0. Descriptive statistics were used to generate frequencies, percentages and means for presentation. Chi-square test of independence and logistic regression helped to test for association between socio-demographic factors and uptake of cervical cancer screening. **Results:** From the findings, the average was 33.8 years; majority were Christian (84.2%) and most, 152(80%), had over two children. A significant relationship existed between age (0.003), level education (0.001), and uptake of cervical cancer screening ($p < 0.05$). However, marital status (0.904) and number of children (0.829) did not significantly influence uptake of cervical cancer screening ($p > 0.05$). **Conclusion:** Evidently, socio-demographics of HIV-positive women greatly influence their uptake of cervical cancer screening. Consequently, the government should increase awareness on cervical cancer screening through in the county health facilities and in communities.

Key words: Socio-Demographic, Cervical Cancer Screening, HIV/AIDS Patients, HPV Infection.

INTRODUCTION

Cervical cancer is a type of cancer that occurs in the cells of the cervix. Human papilloma virus (HPV) is a sexually transmitted infection that plays a role in causing most cervical cancers. As such, women living with HIV/AIDS who get infected with HPV are more likely to develop pre-invasive lesions that can, if left untreated, quickly progress to invasive cancer.¹ In fact, women living with HIV/AIDS are at 4-5 times greater risk of developing cervical cancer, which is the second greatest common form of cancer popular in women living in low- and middle-income countries.¹ In 2012, 528,000 fresh cases of cervical cancer were detected, and 266,000 women died of the disease, with nearly 90% of them in low- and middle-income countries.² These deaths are avoidable because cervical cancer is preventable and curable if detected early.²

The Human Papilloma Virus (HPV) is a notable contributor to worldwide morbidity and mortality each year, instigating diseases that range from benign lesions to invasive cancers.³ Projections based on the GLOBOCAN estimate that the burden HIV/AIDS places on women, predominantly teenage girls and young women from low- and middle-income countries is compounded by the international problem of HPV infections and cervical cancer.³

Synergies between the HIV/AIDS response and exertions to prevent, diagnose and treat cervical cancer through HPV vaccination, education, screening and treatment must be maximized. The burden of cervical cancer seems to be growing in developing and developed countries, showing a substantial rise in its morbidity and mortality, which is attributed to lack of screening services and monetary constraints linked with these services among women in the developing countries.⁴ There is absence of or poor organization of screening services on cervical cancer in developing countries and this has steered the upsurge in deaths associated with cervical cancer.⁵ Providing screening opportunities and creating awareness for cervical cancer is certainly one of the greatest operative ways of endorsing access and utilization of these services. Screening is a person's decision reached upon self-perception and deliberations on the significance of such services. Cervical cancer is the easiest gynaecologic cancer to prevent, with regular screening tests and follow-up.⁶

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Demographic Characteristics and Cervical Cancer Screening

Cancer of the cervix occurs predominantly in women over the age of 40.⁷ Average numbers of new cases of Cervical Cancer reported in Kenya by age are 1002 (15-44 years), 650 (45-54 years), 555 (55-64 years) and 428 (65+ years).⁸ Even though the incidence rates of cervical cancer are lower in women below 15 years of age, it is important to vaccinate these women against HPV, if the war against cervical cancer is to be won.⁸

Wangi and Lin studied the socio-demographic factors associated with non-participation in cervical cancer screening among Taiwanese women.⁹ The study revealed that 40% of women sampled never had a pap smear and 86% had not had one in the past year. Majority also reported age as the strongest factor affecting cervical cancer screening, particularly for women below the age 30 and above 65 year olds. Women aged 65 years and older were found to be 13 times more likely not to have had a pap smear in the past year, while women aged less than 30 years were more likely to have had a pap smear test in the past 3 years.⁹ A related study by Hayward and Swan also found that age was the most important factor in determining Pap smear use with higher rates of participation among the middle-aged groups (40-60 years).¹⁰

Regarding age, therefore, rates of screening are substantially lower in younger women aged 20-29 years and elderly women aged 60 years and above.¹¹ A study in Kenya on the risks and barriers to cervical cancer screening among 219 women attending MCH-FP clinic at the Moi Teaching and Referral Hospital (MTRH) found that only 12.3% of the participants had ever been screened. In another study in Kenya, women aged over 30 years were more likely to have screened for cervical cancer than younger women.¹²

Concerning marital status, studies have found that unmarried and widowed women are less likely than married women or women living with a partner to go for screening.¹³ In addition, some studies have found that single women are more likely than married women to have pap screening.^{13,14} A study conducted in India revealed that failure to have the cervical cancer screening done is associated with marital status since women in the study said they were only allowed to go for a Pap smear test once they were married.¹⁴ A cross-sectional study with 424 participants conducted in Namibia investigated the determinants of cervical cancer screening among women of reproductive age 18-49. The findings indicated that a high number of married women were screened for cervical cancer compared to a low number of single and widowed women who were screened.¹⁵ Therefore, in Namibia, as opposed to India, all sexually active women are eligible for the test irrespective of their marital status. Evidently, from the above studies, there is need to strengthen patient advocacy in international settings to build a global grassroots movement that portrays accurate perceptions of cancer regardless of the marital status. This recommendation has been underscored by Ndikom and Ofi who also suggest the need to prevent stigma from inhibiting people in their cancer control efforts.¹⁷ Moreover, the scholar underscores the need to help people affected by cancer receives the support, services, and information they need.

As already mentioned, several studies have found that majority of women with high screening rates also happen to have a high level of education.¹¹ However, another study has also reported that women with high education may not necessarily seek screening so that additional factors related to women's education must be sought to explain uptake of screening services.¹¹ Wong *et al.* conducted a study among Malaysian women and found that women who were younger than age 43 had achieved a secondary level of education or higher.¹⁸ Moreover, those who were employed outside of the home were more likely to have a positive attitude towards screening before receiving information.

Gatune and Nyamongo undertook an ethnographic study among rural women in Limuru, Kenya, and established that about 40% knew of cervical cancer.²⁰ The most common source of information on cervical cancer was friends (73.4%), followed by radio (21.9%), books, articles and magazines (20.3%), educational talks at the hospital (18.8%), television (7.8%), seminars/conferences (6.3%) and experience or knowledge with someone who had suffered from disease (6.3%). Meanwhile, 70% preferred education on cervical cancer and its prevention to be in places frequented by women.

In Nandi County, the National Council for Population and Development conducted a qualitative survey to establish the health issues affecting young women in Nandi County.²¹ The results of the study indicated that women with a secondary level of education or higher were significantly more likely to be aware of cervical cancer and screening compared to those with lower levels of education. This was also witnessed during the interpersonal one-on-one conversations in informal settings (qualitative observations). Therefore, education level is an important determinant for sexual and reproductive health particularly among girls. Girls who complete secondary and higher education have better sexual and reproductive health outcomes – they are less likely to have unwanted pregnancies and more likely to have higher socio-economic status.²²

From the studies there were gaps in awareness and education about the etiology, risk factors, symptoms, necessity of screening, and availability of treatment options. Further, women should be informed about recommended age for first screening and frequency of re-screening. In essence, education was found to be an important determinant of awareness of cervical cancer and screening in this study population.

Problem Statement

HIV/AIDS-positive women who live longer with HPV infection that is left untreated are at an increased risk of developing premalignant lesion of the cervix. The risk of developing invasive cervical cancer in HIV/AIDS-positive women is ten years earlier than in HIV/AIDS-negative women.² Cervical cancer poses a serious and persistent threat to women's lives, with one woman dying of cervical cancer every two minutes. HIV/AIDS infected women are up to five times more at risk of contracting cervical cancer.¹

The Cervical Cancer Prevention Programme in Zambia has demonstrated that linking cervical cancer screening and HIV/AIDS services is a cost-effective way to improving cervical cancer screening and treatment.²³ This programme, which integrated a national cervical cancer prevention programme into an existing HIV/AIDS programme, led to an expansion of cervical cancer screening to more than 100 000 women (28% of whom were living with HIV/AIDS) over a period of five years. Therefore, this study endeavoured to assess determinants influencing cervical cancer screening uptake among HIV/AIDS patients in Nandi County, Kenya.

With the recognition that cervical cancer is a major cause of morbidity and mortality among HIV/AIDS-positive women, the HIV/AIDS programme in Kenya is making significant efforts to integrate cervical cancer screening into the minimum comprehensive care package.¹⁴ In Nandi County, there is still a challenge since when the patients are diagnosed with HIV/AIDS they do not bother to be screened for cervical cancer because of fear that they might have the disease and low knowledge on the availability of cervical cancer screening services and its importance.²⁵ Furthermore, Nandi County lacks sufficient guidelines for prevention and treatment strategies for cervical cancer, which largely is based on limited evidence in Kenya. Although many women may be saved by anti-retroviral therapy, they may die later of a disease that could have been detected and prevented at the facilities where they receive their anti-retroviral therapy since majority of clinicians do not bother to carry out other investigations when the patient has a known chronic disease.²⁷

APPENDIX VII: PLAGIARISM REPORT

FACTORS INFLUENCING CERVICAL CANCER SCREENING UPTAKE AMONG HIV/AIDS PATIENTS IN NANDI COUNTY, KENYA

ORIGINALITY REPORT

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