DETERMINANTS OF CERVICAL CANCER SCREENING AMONG WOMEN OF REPRODUCTIVE AGE IN BOMACHOGE CHACHE SUB COUNTY, KISII COUNTY

BY

BENSON OSORO SIBOTA

A THESIS IS SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN NURSING (MATERNAL AND NEONATAL HEALTH - MNH)

MOI UNIVERSITY

DECLARATION

Declaration by Candidate

This thesis is my original work and has not been produced or presented for an award of a degree in any other institution of learning or for examination purposes. No part of this thesis may be replicated without the prior consent of the author and/or Moi University.

Benson *19th April, 2024*

Signature:……..Date:……..……

Benson Osoro Sibota

SN/PGMNH/05/17

Declaration by the Supervisors

This thesis has been submitted for examination with our approval as the University Supervisors.

Signature:……..Date:……..……

Dr. Priscah Mosol PhD.,

Senior Lecturer,

School of Nursing and Midwifery

College of Health Sciences,

Moi University,

ELDORET-KENYA.

Signature:……..Date:……..……

Dr. Emily Nyaga DNSc.,

Lecturer,

School of Nursing and Midwifery

College of Health Sciences,

Moi University,

ELDORET-KENYA.

DEDICATION

The research work is dedicated to survivors of cervical cancer, their families, and health care workers involved in cancer care.

ABSTRACT

Introduction: cervical cancer, the second most prevalent cancer after breast cancer in Kenya but the leading cause of cancer deaths, has had an increasing incidence. Between 2020 and 2021 the prevalence stood at 28.7% with a mortality rate of 50% of the cases diagnosed in 2020. In spite of the possible prevention with early detection through screening, only 4% of reproductive age women in Kisii Sub-County were screened for cervical cancer in the year 2017 against the national target of 75%.
Objectives: to examine the determinants of cervical cancer screening among women of reproductive age in Bomachoge Chache Sub County, Kisii County, Kenya.
Methods: the study utilized mixed methods applying convergent parallel design. A total of 394 participants from seven health facilities were selected for the study through stratified random sampling. Quantitative data was gathered using questionnaires while qualitative data was obtained via focused group discussions. Data analysis was done using Statistical Package for the Social Sciences (SPSS) version 27. Chi-square test was used to determine predictors of cervical cancer screening prevalence and bivariate regression analysis determined the association between determinants of cervical cancer screening and screening practices. A p-value of less than 0.05 (typically ≤ 0.05) was considered statistically significant. Qualitative data was analyzed thematically. Data was presented in tables and pie charts,k and narratives for qualitative data.
Results: 206 (57.5%) of the participants were aged between 16 to 19 years, 190 (53%) were married with over 67% of them having at least secondary school education. Notably, although 248(69.2%) of the participants were aware of cervical cancer only 104 (41.9%) were screened. Cervical cancer screening was positively associated with feeling of being at risk of cervical cancer ($p < .0001$), not being afraid of screening procedures ($p < .0001$), preference of being attended by a female ($p < .0001$), a distance of <1km from the nearest screening center ($p < .0007$). Participants perceived cervical cancer to be caused by witchcraft, curses and sexual immorality. They also had misconceptions such as prayers being a cure to cervical cancer. Further, delay in service delivery was attributed to shortage of health care professionals and inadequate hospital infrastructure.
Conclusions: study participants were aware of cervical cancer, risk factors, and warning signs. Screening practices were positively associated with knowledge on cervical cancer, source and monthly income and level of education. Participants perceived that they were not at risk of cervical cancer and believed that witchcraft and sexual immorality were causes of cervical cancer and prayers perceived as the cure.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome.
CC	Cervical Cancer
CIN	Cervical Intraepithelial Neoplasia
ERC	Ethical Review Committee
GOP	General Outpatient Department.
GPS	General Practitioners
HIV	Human Immunosuppressant Virus
HPV	Human Papilloma Virus
ICC	Invasive Cervical Cancer
ICO	International Council of Obstetrics
ICT	Information Communication Technology
PAP Test	Papanicolaou Test
STI	Sexually Transmitted Infection
VIA	Visual Inspection by Acetic Acid
VILI	Visual Inspection by Lugol's Iodine
WHO	World Health Organization

OPERATIONAL DEFINITIONS OF TERMS

For the purpose of this study, the following definitions were applied and used within the context in which they are explained:

Barriers - anything that acts as a hindrance to cervical cancer screening.

Cervical Cancer - means a disease in which abnormal/cancer cells grow in the cervix.

Cervical Cancer Screening - the use of visual inspection with acetic acid and visual inspection with lugol's iodine to detect abnormal cells of the cervix.

Determinants - Causal element or factor for cervical cancer.

Health-Seeking Behavior - Any conscious action by women of reproductive age in response to symptoms of cervical cancer for the purpose of finding remedy.

Opportunistic Screening - when an individual visits a health facility and makes contact with a health professional for a particular reason other than for cervical cancer screening purposes and the cervical cancer-screening test is offered.

Organized Screening - when individuals in a pre-defined age group are invited for cervical cancer screening at predefined intervals.

Pap Smear Test –a test study of exfoliated cells from the cervix to detect cervical cancer.

Perception - A belief or opinion often held by many people and based on how things seem on cervical cancer.

Screening - the systematic application of a test or inquiry, to identify individuals at sufficient risk of cervical cancer in order to benefit from further

investigation or direct preventive action, among persons who have sought medical attention on account of symptoms of cervical cancer.

Under-screened women - women who are screened for cervical cancer below 75%, which is the national recommended screening target.

Unscreened Women – refers to women who have never had a screening test for cervical cancer.

Women of Reproductive Age- years of life between menarche and menopause, roughly from ages 15 to 49; this period the woman is likely to give birth (WHO, 2018).

ACKNOWLEDGEMENT

I would like to acknowledge the valuable support and guidance of my supervisors; Dr. Priscah Mosol and Dr. Emily Nyaga, throughout the process of writing this thesis. I would also like to thank my colleagues and lecturers of Moi University who encouraged me during the process. I also appreciate the moral and financial support

From my family and friends.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter outlines the background literature, problem statement of the study, justification, study objectives and research questions to be answered by the study. Additionally, covers significance of the study, scope of the study, limitations of the study, basic assumptions of the study, theoretical and conceptual framework.

1.1 Background Information

Globally, cervical cancer is the fourth most common cancer among women of reproductive age with an estimated incidence of 604,000 and mortality of 342,000 in the year 2020 with approximately 90% of these occurred in low- and middle-income countries (Ferlay et al., 2018).

In Low- and Middle-income Countries (LMICs) the proven effectiveness of intervention measures, such as vaccination against the most oncogenic Human Papilloma Virus (HPV) types 16 &18 and screening, makes cervical cancer a largely preventable disease (WHO, 2020). In developed countries remarkable progress in terms of reduction in cervical cancer incidence and mortality has been achieved, where high quality screening, timely treatment, and follow-up care services are routinely available (Hull et al., 2020). However, in LMICs, where the vast majority of cases and deaths occur, progress in reducing incidence and mortality has been slow, with a number of countries reporting increases in incidence or mortality rates in the past decade (Sung et al., 2021).

In 2020, WHO launched the global Cervical Cancer Elimination Initiative to accelerate the elimination of cervical cancer, aiming to reduce incidence below a threshold of 4

cases per 100000 women per year in every country and thus narrow international disparities associated with this disease. The 90–70–90 target set by the initiative to be achieved by 2030 requires 90% of girls to be vaccinated by age 15 years, 70% of women to be screened with a high-performance test at least two times by age 45 years, and 90% of women identified with cervical pre-cancer or cancer to be treated. The WHO elimination strategy has emphasized the need for continuous and improved surveillance and monitoring for cervical cancer as a fundamental step forward for action that will enable programme managers to identify gaps and take specific actions (Singh et al., 2023).

In Africa, the highest regional incidence and mortality is in countries located in East, South, and West Africa. When compared with North America and west Asia, incidence and mortality is 7-10 times higher in Africa (Sung et al., 2021).

In East Africa, cervical cancer is the most common female cancer with the age standardized incidence and mortality rate of 42.7 and 27.6 per 100,000 women respectively (Cecilia, Rosliza, & Suriani, 2017).

In Kenya, cervical cancer, the second most prevalent cancer after breast cancer but the leading cause of cancer deaths, has had an increasing incidence. Between 2020 and 2021 the prevalence stood at 28.7% with a mortality rate of 49.8% of the cases diagnosed in 2020 (WHO, 2021).

A study done in Kisii County by Kei et al., (2016) had shown low cervical cancer screening with common screening methods being, Visual Inspection with Acetic acid (VIA) and Visual Inspection with Lugol's Iodine (VILI) (Kei, M'Ndegwa, Ndwiga, & Masika, 2016).

It is of no doubt that early detection with low-cost screening techniques such as VIA and VILI, that can be carried out by health care providers with five days training is a key intervention to decrease the incidence of cervical cancer (MOH, 2018). However, such interventions remain underutilized. The study therefore aimed at assessing determinants of cervical cancer screening among women of reproductive age in Bomachoge Chache Sub County, Kisii County, Kenya.

1.2 Problem Statement

Cervical cancer remains the most commonly diagnosed cancer in 28 countries and the leading cause of cancer death in 42 countries, the vast majority of which are in Sub-Saharan Africa and South-Eastern Asia. The highest regional incidence and mortality rates are seen in Africa (Mwenda et al., 2023).

It is estimated that Kenya has a population of 16.8 million women aged 15 years and above who are at risk of developing cervical cancer. Every year approximately 5,236 women are diagnosed with cervical cancer and 3,211 die from the disease (IARC, 2019).

Despite the acknowledgement that screening is the best approach towards cervical cancer treatment, it is apparent that the level of screening, particularly in Kenya, remains low (Mwenda et al., 2023). The ministry of health (MOH, 2018) provides policy guidelines on 90–70–90, which requires 90% of girls to be vaccinated by age 15 years, 70% of women to be screened with a high-performance test at least two times by age 45 years, and 90% of women identified with cervical pre-cancer or cancer to be treated. In the year 2017, Bomachoge Chache Sub County attained cervical cancer screening coverage of 4% against a national target of 75% (DHIS, 2017). Therefore,

this study sought to examine the determinants of cervical cancer screening among women of reproductive age living in the sub county to inform policy.

1.3 Justification of the Study

Although many studies have examined factors that promote cervical cancer screening, majority of the studies used quantitative research methods and approaches (Gatumo, Gacheri, Sayed, & Scheibe, 2018; Kei et al., 2016; Morema, Atieli, Onyango, Omondi, & Ouma, 2014; Nthiga, 2014) , most of which did not elicit exhaustive information on the perceptions of women.

Matters relating to sex and sexuality are culture sensitive, cervical cancer included particularly in Africa. This study therefore utilized mixed methods approach by combining information from both questionnaires and focused group discussions with women to assess their perceptions on determinants of cervical cancer screening. The study findings will inform reproductive health policies aimed at better management and care of cervical cancer patients. Further, information obtained about the knowledge levels on cervical cancer and screening will be shared with Sub County and County to improve cervical cancer awareness.

1.4 Research Questions.

The study was guided by the following research questions;

a) What is the level of awareness about cervical cancer and screening practices among women in Bomachoge Chache Sub County?
b) What are the perceptions about cervical cancer screening services among women in Bomachoge Chache Sub County?
c) Which factors influence access to cervical cancer screening services in Bomachoge Chache Sub County?

1.5 Objectives

1.5.1 Broad Objective

To examine the determinants of cervical cancer screening among women of reproductive age in Bomachoge Chache Sub County, Kisii County, Kenya.

1.5.2 Specific Objectives

a) To determine the awareness levels about cervical cancer and screening practices among women in Bomachoge Chache Sub County.
b) To describe women's perceptions about cervical cancer screening services in Bomachoge Chache Sub County.
c) To determine factors associated with access to cervical cancer screening services in Bomachoge Chache Sub County.

1.6 Significance of the Study

This study determined and identified factors that are associated with the utilization of cervical cancer screening. Although, early detection of cervical cancer leads to improved cure rate, it remains a national burden to health care and families in Kenya. Majority of the women report to diagnostic facilities late when treatment is not viable. It is important to identify factors associated with seeking healthcare and screening as a basis for policy guidelines to reduce morbidity and mortality associated with cervical cancer.

Delayed diagnosis results in metastasis of cancer cells leading to increased prevalence. The goal for cervical cancer screening is early diagnosis, which leads to early treatment. The study addressed the determinants of cervical cancer screening in the sub county through advocacy. The report of this study was shared with the sub county and county

to plan and prioritize activities geared at improving cervical cancer screening in the county.

1.7 Scope of the Study

The scope of the study was to examine the determinants for cervical cancer screening among women of reproductive age in Bomachoge Chache Sub County, Kisii County.

1.8 Limitations of the Study

The study was limited only to Bomachoge Chache Sub-County, considering that factors influencing cervical cancer screening could be culturally or religiously based, the results of the study cannot be generalized to other regions in the country. There was loss of data due to translation of verbatim from local dialect to English.

1.9 Basic Assumptions of the Study

The study assumed that the participants correctly and truthfully answered the questions as posed orally and in the questionnaire. It is also assumed that the study participants fully understood the questions asked in the questionnaire hence able to respond accordingly.

1.10 Theoretical Frame Work

The study utilized Health Belief Model (HBM) theory, developed in the 1950's by social psychologists Hochbaum, Rosenstock and others (Carpenter, 2010)..

The model explains and predicts health-related behaviors, particularly concerning the uptake of health services. It is frequently used to predict preventive health behaviors, and it can explain both individual (Gristwood, 2011) and collective (Glanz, Burke, & Rimer, 2011). The model derives from psychological and behavioral theory with the foundation that the two components of health-related behavior are; the desire to avoid illness, or conversely get well if already ill; and, the belief that a specific health action will prevent, or cure, illness.

According to the model, a person's belief in a personal threat of an illness or disease together with a person's belief in the effectiveness of the recommended health behavior or action will predict the likelihood the person will adopt the behavior. The model additionally addresses patients' responses to symptoms and compliance with medical treatments.

Ultimately, an individual's course of action often depends on the person's perceptions of the benefits and barriers related to health behavior. There are five indicators of the theory:

a. Threat perception was construed as two key beliefs: Perceived susceptibility; this refers to a person's subjective perception of the risk of acquiring an illness or disease and perceived severity; this refers to a person's feelings on the seriousness of contracting an illness or disease. For this study, it refers to the level of awareness of women regarding the risk of acquiring cervical cancer.
b. Perceived benefits; this refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease. For this study, it refers to the factors that influence access to cervical cancer screening which may include distance to the hospital, transportation means, and cost of services among others.
c. Perceived barriers; this refers to a person's feelings on the obstacles to performing a recommended health action-For this study, perceived barriers include; cultural beliefs, religion and staff attitude among others which may affect women's decision in seeking cervical cancer screening, hence reducing cervical cancer screening.

d. Cue to action; this is the stimulus needed to trigger the decision-making process to accept a recommended health action. For this study this includes; current government policies in place.
e. Self-efficacy; this refers to the level of a person's confidence in his or her ability to successfully perform a behavior. This refers to cervical cancer screening which the number of women screened evidences.

1.11 Conceptual Framework

This is a diagrammatic illustration of the relationship between dependent and independent variables. The conceptual framework was adapted from the Health Belief Model (Rosenstock, 2005).

The conceptual framework helps in identifying the research objectives and questions, the variables to be studied, how they are measured in terms of indicators and the relationships between them. It also provides a way to visualize the research problem, relate with the methodology and also supports in explaining the research findings. In this study, the dependent variable was cervical cancer screening while the independent variables ware determinants to the cervical cancer screening.

The framework indicates that the number of women who take up cervical cancer screening at the screening facilities is dependent on their personal belief, which is precedented by level of awareness, perception and access to the screening services. The framework further illustrates that this relationship between independent and dependent variables does not occur in a vacuum and hence intervening variable, which touches on government policies in favor or against screening practices.

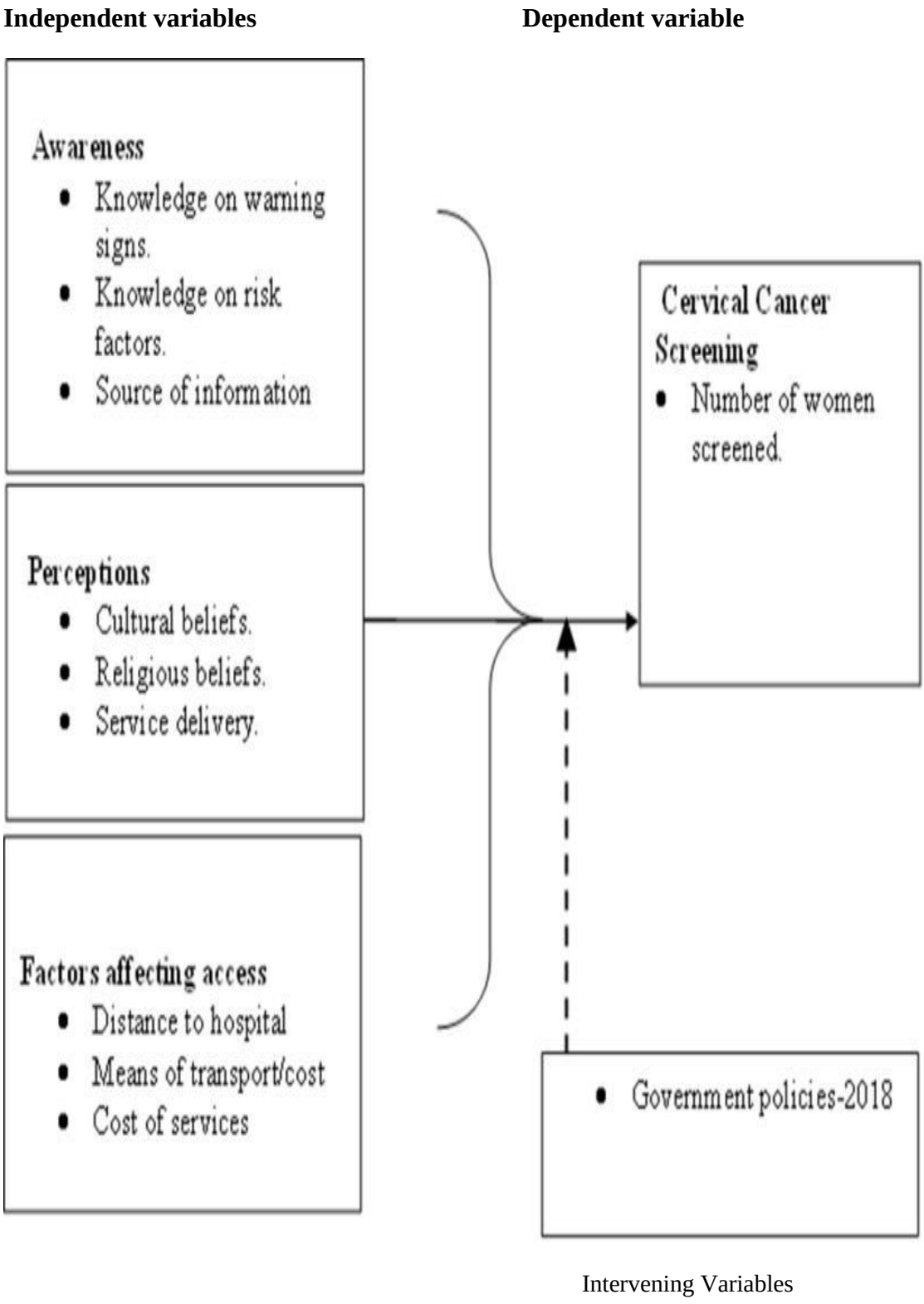


Figure 1: Conceptual Framework

Source: (Adapted from the Health Belief model, Rosenstock, 1966)

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter focuses on general overview of cervical cancer and screening. It critically reviews the empirical literature on cervical cancer and screening on the following aspects; awareness levels about cervical cancer and screening practices, women perceptions about cervical cancer screening and factors influencing access to cervical cancer screening services.

2.1 Awareness levels about Cervical Cancer and Screening Practices.

Globally, studies indicated varied results on awareness among women on cervical cancer. Developed countries demonstrated high levels of awareness as opposed to LMICs. Of concern, is the low level of knowledge and skills in a number of healthcare providers. Studies conducted to assess knowledge on Human Papilloma Virus (HPV) indicate that 50% of the participants had heard about HPV which translated to higher HPV testing among these women. For instance in the USA, testing uptake was 62%, UK 44% and Australia 40 %.(Markovic-Denic, Djuric, Maksimovic, Popovac, & Kesic, 2018).

A study conducted in United Kingdom (UK) to establish the epidemiology of cervical cancer and human papilloma virus (HPV) pathogenesis and transmission identified cervical cancer risk factors as HPV infection, cigarette smoking, immunosuppression and sexual behaviors such as early sexual debut (Choi, Ismail, Pappas-Gogos, & Boussios, 2023). The study also established that understanding HPV infection is crucial in the prevention, detection, and management of a significant majority of cervical cancers in the UK (ibid).

A study conducted in Saudi Arabia by Jeddo (2022), to assess knowledge, perception, and sources of information towards cervical cancer and utilization of Papanicolaou smear found that participants had high levels of awareness of cervical cancer 352 (79.3%) and Pap smear 217 (48.9%). However, only 105 (23.6%) had heard of the human papillomavirus, 65 (14.6%) had a Pap smear screening and only 100 (22.5%) recognized that any woman over 21 years old should be screened for cervical cancer (Jeddo, 2022).

In Africa, 450 Nigerian women who attended HIV clinics at Nnamdi Azikiwe Hospital university teaching Hospital were randomly selected to participate in a study to assess knowledge and awareness on cervical cancer. Of all the participants, the average knowledge level was 9.95 % (Adibe & Aluh, 2018).

Another cross-sectional study in Nigeria, to assess Knowledge, attitude and perception on cervical cancer screening among women attending ante-natal clinic in Owerri west L.G. A, South-Eastern Nigeria. The results showed that there was a high level of awareness (68.8%) of cervical cancer screening. Most women 122 (52.8%) received this information from friends. Although the majority of the participants had heard about the screening, few of them had basic information on the cause of the disease 44 (19%), prevention 32 (13.9%), risk factors 48 (20.8%), and treatment (23.4%) of the disease. Of the 231 women, 59 (25.5%) strongly agreed they were too young to have cervical cancer and hence there was no need for the screening, while a greater proportion (53 (22.9%) agreed that the screening is only meant for older women (30–45 years). Expensive cost of screening 68 (29.4%)) and invasion of privacy by male doctors (34.6%) were also strong reasons for avoiding screening (Dozie et al., 2023).

The Burundian government carried out a descriptive cross-sectional survey among Doctors and Nurses, working at district Hospitals to find out the knowledge and

practices level on invasive cervical cancer. The government's objective was to offer to its citizenry affordable, accessible and acceptable services to ensure adequate coverage to the target population through skilled and competent health care workers. The results indicated that 76.3% of the participants had appropriate knowledge about cervical cancer disease, but risk factors were not well known such as cigarette smoking and the two most important oncogenic HPV; 16 &18 (Ndizeye, Vanden Broeck, Vermandere, Bogers, & Van Geertruyden, 2018).

Across sectional study by Gelassa et., al, conducted at Ethiopia to assess Knowledge and practice of cervical cancer screening and its associated factors among women attending maternal health services at public health institutions in Assosa Zone, Benishangul-Gumuz, Northwest Ethiopia. Results showed that knowledge of cervical cancer screening was 53.5%, and 36% of participants had practiced cervical cancer screening. Family history of cervical cancer, place of residence and availability of health services at nearby were significantly associated with knowledge of cervical cancer screening, while educational status, knowing someone diagnosed with cervical cancer, knowledge of cervical cancer and feeling at risk were associated with the practice of cervical cancer screening (Gelassa et al., 2023).

In Kenya, a cross sectional study was done at Kiambu County to assess cervical cancer knowledge, awareness and related health behaviors amongst women of reproductive age. Results indicated that more than 80% of participants were aware of cervical cancer. Knowledge of (HPV) was particularly low, likely because 55% of the study sample stated they had never heard of HPV. Though 89% of study participants deemed cervical cancer was preventable, more than 60% had an unfavorable attitude towards cervical cancer screening, deeming the process expensive, painful, and embarrassing. In line

with the latter observation, only 20% of our sample had ever been screened for cervical cancer and less than half of this group had undergone regular screening. Notably, knowing a place where cervical cancer screening services were provided had a high likelihood of one screening for cervical cancer. Fear of tests and outcomes was also noted to be a prime concern amongst study participants (Gitonga, Iseme, Mutisya, & Kodhiambo, 2022).

A descriptive study was done at Kisii town, Kisii County to establish challenges of cervical cancer screening among women of reproductive age. The results demonstrated that, majority of the participants 63% did not know the risk factors for cervical cancer, 17.9% believed that no cure exists, 64.2% demonstrated knowledge on cervical cancer screening and 63.6% did not know the screening methods available (Kei et al., 2016).

2.2 Perceptions of Women about Cervical Cancer Screening.

Globally, cultural and religious beliefs, myths and stigma about cervical cancer are numerous, which have contributed negatively towards screening rates of cervical cancer, and have hindered health-seeking behaviors. A qualitative study conducted at Ecuador to explore knowledge and perceptions about cervical cancer and diagnostic tests for HPV of populations living in the rural parish. Results showed that the perception of cervical cancer was focused on its severity, secondary to its infectious process and screening periodicity. However, despite the diverse knowledge, indigenous people do not relate it to the human papillomavirus; in addition, there is also certain resistance to undergo the Pap smear test, for reasons such as inaccessibility and sample collection process which make women feel uncomfortable (Bautista-Valarezo et al., 2022).

In Turkey, a study was conducted among first year female nursing students to establish knowledge and perceptions about human papilloma virus (HPV), cervical cancer and HPV vaccine. The results indicated that 59.4% did not believe to be at risk of developing cervical cancer, only 6.5% believed to be at high risk of getting HPV, on average 17% were of the opinion that cervical cancer is the most serious disease that one could ever get and 51.3% of the students believed that HPV is life threatening (Dönmez, Öztürk, Kısa, Karaoz Weller, & Zeyneloğlu, 2019).

In Africa, Cultural beliefs largely have impacted negatively to the uptake because it distorts the scientific facts which are meant to create awareness to the general population for purposes of making right choices in regard to screening services. Misconceptions, myths and taboos pertaining to sexual organs in most African communities restrict open discussions, because it is considered immoral.

In Ghana, studies have shown social cultural issues, such as stigmatization which leads to low uptake of cervical cancer screening by women regardless of their educational levels. Health workers in the same study were found to hold stigmatizing beliefs about cervical cancer by only recommending preventive interventions to those women they perceived promiscuous (Williams, Kenu, Dzubey, Dennis-Antwi, & Fontaine, 2018).

A qualitative study conducted in Ethiopia aimed to assess the availability of cervical cancer care; explore care barriers and sources of delay; and describe women's and providers' perceptions and experiences of care. Results indicated that Providers lacked equipment and space to screen and treat patients and only 16% had received in-service cervical cancer training. Consequently, few facilities provided screening or preventative treatment. Patients reported low perceptions of risk, high stigma, a lack of knowledge about cervical cancer, and delayed care initiation. All but one patient sought

care only when she became symptomatic, and pre-diagnosis, only half of the patients knew about cervical cancer. Even among those aware of cervical cancer, many assumed they were not at risk because they were not sexually active. Misdiagnosis was another common source of delay experienced by half of the patients. Once diagnosed, women faced multiple-month waits for referrals, and, once in treatment, broken equipment and shortages of hospital beds resulted in additional delays. Barriers to therapeutic treatment included a lack of housing and travel funds. Patient-provider communication of cancer diagnosis was often lacking (Burrowes et al., 2022).

In East Africa, a cross-sectional study done in Kenya and Uganda in Understanding barriers to accessibility and utilization of cervical cancer screening services among women living with HIV. The study assessed six selected health facilities in Uganda and Kenya. Results, showed a negative correlation between the perceived barriers and the risk of accessing the services (-0.95, p-value 0.003) and the perceived severity (-0.95, p-value 0.004), both mean that the barriers for the women are so high that they prefer to delay the visit to the hospital. More so, there was a positive correlation between perceived risk for invasive cervical cancer (ICC) and perceived severity (0.90, p-value 0.01), meaning that a high perception of risk of ICC will increase its severity. Health system barriers to access such as lack of supplies, information, and limited staffing were also revealed (Kamwesigye et al., 2024).

In Kenya, a qualitative exploration study of perceived causes of cervical cancer in Busia and Trans Nzoia, Western Kenya was done with the following results: Overall, patients, Community Health Volunteers (CHVs), and Health Care Providers (HCPs) perceived cervical cancer to be a chronic disease that could be treated but inevitably led to death. All 174 participants alluded to sexual behavior etiologies, including multiple sexual partners, contracting sexually transmitted infections, and early engagement in sexual activities. Patients and CHVs cited unhealthy diet and use of selected family planning methods, while HCPs and CHVs added complications during delivery as causative. Only patients cited commercial sex, lack of vitamin B17, bacterial infections, smoking as factors. Additionally, CHVs added female circumcision, genetics, abortion, and intercourse with men with long penises as causes (Mujumdar et al., 2022).

2.3 Factors associated with Access of Cervical Cancer Screening Services

Access in this context will be discussed in terms of: physical access to the health care facility for reception of services, access to quality and skilled health care providers and access to cost effective screening services.

Studies have demonstrated that cervical cancer screening uptake is anchored on access as one of the determinants (Gibson, Gage, Castle, & Scarinci, 2019). Consumption of screening services is likely to increase with easy access to service delivery centers. When health care facilities are far away from residential areas, with poor road networks and without public transport, it makes the cost of transport to be high; this in most cases is unaffordable to the rural poor. Therefore, it will affect health seeking behaviors, non-compliance to clinic appointments, leading to low uptake of screening.

Health care systems especially in low- and middle-income countries are overburdened with healthcare demands with inadequate health care providers, who at times lack the necessary skills for cervical cancer screening. Uptake in screening is likely to increase

if clients access healthcare providers with the right skills in order for clients to gain confidence in care given, which will encourage compliance to future appointments. Right skills will also reduce waiting time for service delivery because clients will not be referred unnecessarily or their appointments getting rescheduled and also paying for health care services is costly and beyond reach to the majority. Studies have shown that clients with insurance cover have increased screening uptake than those without (Gibson et al., 2018).

A scoping review study was conducted in thirteen European countries; United Kingdom (UK), Romania, Denmark, the Netherlands, Norway, Sweden, Bulgaria, Switzerland, Estonia, Finland, France, Poland, and Portugal, to assess factors associated with cervical cancer screening participation among migrant women (Marques, Nunes, Antunes, Heleno, & Dias, 2020). Findings indicated that Efforts to increase migrant women's participation in cervical cancer screening must target barriers to access to healthcare services in general but also specific barriers, including cultural differences about sexuality and gender, past traumatic personal experiences, and the gender and competences of healthcare professionals performing cervical cancer screening. Healthcare services should strengthen resources to meet migrants' needs, including having cervical cancer screening information translated and culturally adapted, as well as healthcare providers with skills to deal with cultural background. These findings can contribute to improving cervical cancer screening programs among migrant women, reducing health disparities and enhancing their overall health and well-being (Marques et al., 2020).

In Africa, systematic literature review was done to assess cervical cancer screening decentralized policy adaptation: an African rural-context. Results indicated that the economic burden on women and their families greatly limits screening uptake.

Examples of this burden include but are not limited to: the perceived cost of screening or treatment, travel expenses, lost wages because of missing work and fear of hidden costs (Rahman et al., 2019).

In sub-Saharan Africa, a study was done in Five countries, Benin, Cote d'Ivoire, Cameroon, Kenya and Namibia to assess the role played by distance to health facility and socio-demographic factors in cervical cancer Screening among women and results indicated that approximately, 7.9% of women that saw the distance to a health facility as a big problem, tested for cervical cancer compared to 13.5% who indicated that distance to a health facility is not a big problem. More women in urban areas, with a higher level of education, of richest wealth index, aged 40–44 years and using contraceptives who also indicated that distance to a health facility was a big problem tested for cervical cancer compared to those in rural areas with no education, of poorest wealth index, aged 15–19 years and not using contraceptives. Education, age, contraceptive use, frequent exposure to mass media and Sexual Transmitted Infections (STI) had a significant relationship with testing for cervical cancer (Dickson, Boateng, Acquah, Ayebeng, & Addo, 2023).

In East Africa, a study was conducted to establish opportunities and challenges for introducing HPV testing for cervical cancer. The three East African countries, both experience low cervical cancer screening uptake, this is due to insufficient funding to the cervical cancer screening program and the activities are left in the domain of nongovernmental organizations (NGOs). The bulk of the resources from these governments are directed to policy formulation and not for service delivery. There is limited access to skilled care because of inadequate trained health care providers

In Kenya, a descriptive study was done to evaluate a community based cervical cancer screening strategy in western Kenya. The aim was to determine the effectiveness of

Community Health Campaigns (CHC) as a strategy for Human Papilloma Virus (HPV)-based cervical cancer screening. The outcome indicated that screening uptake was 60 % of those eligible women assigned to community health campaigns (CHC), against 37% of eligible women who visited health care facilities; the variance was due to access as a determinant to uptake of screening services (Huchko et al., 2018).

A similar study was conducted in Ngodhe community in Migori County, Kenya. The aim of the study was to educate eligible women for cervical cancer prevention and offer self-administered HPV sample collection for screening.267 women agreed to participate in the health campaign education. Of those, 255 (96%) consented to participate in the survey by obtaining a self-collected vaginal swab for HPV testing. After the exercise, 98% of the participants reported they would test again by use of a self-sample collection method because it ensures privacy and 99% said they would recommend the procedure to a friend if asked. The foregoing study indicates the high screening uptake because of accessibility of the services to their homes (Pinder et al., 2018).

Kenyan guidelines recommend an immediate screen and treat approach using either Pap smear or visual screening methods. However, system (e.g., inadequate infrastructure, weak treatment, referral and tracking systems) and patient (e.g., stigma, limited accessibility, finance) barriers to comprehensive country wide screening continue to exist creating gaps in the pathways of care. These gaps result in low rates of eligible women being screened for CC and a high loss to follow up rate for treatment. The long-term goal of 70% CC screening and treatment coverage can partly be achieved by leveraging electronic health (eHealth, defined here as systems using Internet, computer, or mobile applications to support the provision of health services) to support service efficiency and client retention (Mabachi et al., 2022).

2.4 Summary of Literature Review

From the foregoing studies, the literature review had explored widely on studies done in various countries, on awareness levels about cervical cancer and screening practices, perceptions of women about cervical cancer screening services, and also, factors influencing access to health care services. The following knowledge gaps were identified from the studies to include: low levels of knowledge on human papilloma virus, respondents lacking sufficient awareness on prevention measures, risk factors and warning signs on cervical cancer, existence of unfavorable perceptions as pertains to screening being painful, embarrassing and respondents' belief that they were not at risk of cervical cancer. And also, inadequate availability of space, equipment and insufficient skills among health care providers to ensure quality health care.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the methods used in the collection and analysis of the data. In addition, the chapter includes a description of the study design, the site of the study, and the study population. It also includes a description of the sampling method and the actual process of data collection as well as the instruments used for data collection and data analysis procedures. Additionally, a description of the pilot study and ethical considerations is discussed in this chapter.

3.1 Study Design

The study utilized a mixed methods approach - convergent parallel design where data for both quantitative and qualitative strands were collected at the same phase of the research process, the methods were equally prioritized and kept the strands independent during analysis and results presentations with mixing during the overall interpretation at the discussion level. Mixed methods approach enables a researcher to collect data using strategies, approaches and methods in which the combination or mixture produces complementary strengths with no overlapping weaknesses (Johnson, Onwuegbuzie, & Turner, 2007).

The study design adopted was suitable for this study because it allowed provision for triangulation of the results from questionnaire, and Focus Group Discussions (FGD). The qualitative technique provided detailed description of variables under study and therefore was used to support the quantitative data.

3.2 Study Setting

The study was carried out at Bomachoge Chache Sub County among seven health facilities comprising both public and private/faith-based. The sub county is located in Kisii County, approximately ten kilometers from Kisii town and has a population of 83,740 (KNBS, 2019).The sub county has two level four Hospitals; Ogembo and Misesi, with total bed capacity of 150 beds, four level three Hospitals; Nyamasege, Egetonto, Keragia and Egetuki, with grand total bed capacity of 15 beds, four level two Hospitals; Moogi, Maroba, Kineni and Tunta with abed capacity of 10 beds, six private/Faith based Hospitals; Sengera mission hospital, our lady mission dispensary, Omorembe community hospital, Med link clinic, Ibencho medical and Ogembo medical, with bed capacity of 38 beds and 26 level one community units.

The sub-county Health facilities offer curative, preventive, promotive, and rehabilitative Health care services. The sub-county offered reproductive health services to 6268 women. The Human resource establishment in the sub-county included; 4 Medical doctors, 68 Nurses,10 Pharmacists/pharmaceutical technologists, 12 Laboratory technologists, 18 Clinical officers, 4 Nutritionists, 13 Public Health officers, and 260 community Health volunteers, (Hospital Records 2017).

3.3 Target Population

The target population was women of reproductive age. The study population comprised of women of reproductive age seeking health care services at the sub-county Health facilities.

3.4 Study Sample Size Determination

The sample size for the study was determined using the Raosoft sample size calculator (http://www.raosoft.com/samplesize.html) (Raosoft, 2004). The total population of clients who sought care in the health care facilities in the sub-county in the year 2017

from January-December was 6268. Using the most conservative response distribution of 50%, allowing 2.5% margin of error at 95% confidence interval, the required sample size was calculated to be 362 as follows:

n =Z2pq/e2

Where:

Z is the statistical constant representing a 95% confidence interval = 1.96.

p is the possibility of success =50%.

q is the possibility of failure that is 1-p=0.5

e is the desired precision level or allowed standard sampling error = 5% or 0.05.

n= [1.962 0.5x 0.5] ÷ 0.052

=384.

But the target population is below 10,000. Therefore, the final sample size (nf) was calculated as follows:

nf =n ÷ [1+ (n/N)] where N = target population=6268

nf =384 ÷ [1+ (384/6268)]

nf=384 ÷ [1+ (0.06126356)]

nf=384 ÷1.06

nf=362.

The sample size for the study = 362.

Total sample size for the study was 392: where 362 for quantitative data and 32 qualitative data.

3.5 Sampling Methods

Seven Hospitals out of the sixteen in the sub county were sampled by stratified random sampling.

Table 1: Stratified Random Sampling

Strata	**Facilities**	**Sample**
Level Four Hospitals	Ogembo Hospital	Misesi Hospital
	Misesi Hospital	
Level Three Hospitals	Nyamasege Health center	Nyamasege Health Center
	Egetonto Health Center	
	Keragia Health Center	Egetuki Health Center
	Egetuki Health Center	
Level 2 Hospitals	Moogi Health Center	Maroba Health Center
	Maroba Health Center	
	Kineni Health Center	Kineni Health Center
	Tunta Health Center	
Private/Faith Based Hospitals	Sengera Mission Hospital	Sengera Mission Hospital
	Our Lady Mission Dispensary	
	Omorembe Community Hospital	
	Med link Clinic	Med link Clinic
	Ibencho Medical Center	
	Ogembo Medical Center	

Source: Kisii County, Health Department, 2021

The strata for Level Four Hospitals had Ogembo and Misesi; Misesi was randomly selected. The strata for Level three hospitals had Nyamasege, Egetonto, Keragia and Egetuki.Nyamasege and Egetuki were randomly selected. The strata for Level two hospitals had Moogi, Maroba, Kineni and Tunta; Maroba and Kineni were randomly selected. The strata for Private/Faith based hospitals had Sengera mission hospital, our lady mission dispensary, Omorembe community hospital, med link clinic, Ibencho medical and Ogembo medical; Sengera Mission and Med Link clinic were randomly selected. The sample was distributed proportionately across the levels of care according to their contribution to annual performance in women of reproductive age that were attended to in the sub county in the year 2017.

Systematic sampling technique was used to determine the participants at certain intervals from the entire sampling frame of women of reproductive age seeking services at the sub county health facilities. This gave an equal chance for all participants to be included in the study. The sub county had a client base of 6268 for the whole year, therefore the client base for two months of study was: (6268/12)2=1044. The sampling interval (k) was: 1044/362=2.88. The first participant was chosen randomly from number 1 to 3 and subsequent clients chosen by adding the sampling interval of three to the previous chosen number (Lemeshow et al., 1990).

The 362 sampled participants were proportionately distributed across levels of care. For instance ,Misesi was allocated 181 participants since it was the only level four hospital sampled while the rest of the levels, two facilities were sampled for each and therefore the sample allocated for each level was equally shared between the two.

Qualitative data were obtained through Focused Group Discussion (FGD), among participants of reproductive age. FGDs were conducted among groups of participants of the same characteristics comprising 32 participants. Study participants were selected using purposive sampling (Kombo & Tromp, 2006), selected deliberately based on the belief that they were in the position to give required data. Participants were grouped based on their age, because in the local communities young people may shy away from speaking if included in the group of older adults and vice versa, that was likely to promote homogeneity when giving their opinions about cervical cancer perceptions. The participants for qualitative data were not involved in quantitative data collection and participants were those who brought their children for child welfare and family planning clinic. Four focus groups with eight participants each were selected, one group from each level of care; level two, three, four, and private/faith based. The principal investigator used a guide containing open ended questions to gain knowledge on

perceptions about cervical cancer after participants signed consent forms to allow participation while research assistant took notes and recorded the conversations.

Table 2: Sample Size Distribution

No	Level of Care	Total	Performance	Sample Size Distribution
1	Level four hospitals	2	3126	(3126/6268) 362 = 181
2	Level three hospitals	4	2028	(2028/6268) 362 = 117
3	Level two hospitals	4	846	(846/6268) 362 = 49
4	Private/FBO	6	268	(268/6268) 362 =15
	Total	16	6268	362

Source: Field data, 2021

3.6 Recruitment Process

Mothers seeking services in maternal and child health welfare (M.C.H) clinics participated; those mothers who brought their children for immunization/vaccination, or for family planning services. In all the sampled hospitals, mothers were recruited after being attended to by the healthcare providers.

362 study participants were explained the purpose of the study and that led to obtaining informed consent and assent. The above is provided for in Reproductive Health Policy in Kenya (M.O.H, 2015). For emancipated or mature minors, they signed both assent and consent forms. Emancipated/mature minors are adolescents who are under the legal age, but who are in circumstances where they are clearly outside of parental influence or control. The clients willing to participate were requested to sign the consent form/ assent form. The questionnaires were administered by the researcher with the help of trained research assistants on those who gave consent. Research assistants were qualified volunteer nurses working in the sub county.

Participants for the focus group discussion were selected using purposive sampling (Kombo & Tromp, 2006). Four focus groups were selected, one from each level of care. Each group comprised eight women, those who consented. Focused group discussions were conducted at the tail end of the data collection process; after the quantitative data had been collected.

For the qualitative part of the study, health care workers in the hospital helped the researcher to identify potential participants. The participants were chosen purposely using the eligibility criteria. Focused groups were determined based on Kenya essential package for health (KEPH) service levels; each level of care received one group.

3.7 Eligibility Criteria

3.7.1 Inclusion Criteria

a) All mothers aged 15 to 49 years visiting maternal child welfare and family planning clinic.

b) Residents of Bomachoge Chache sub county.

3.7.2 Exclusion Criteria

a) Women who required emergency care at the time of the study.

3.8 Data collection Instruments

The research instruments used in the study were, questionnaires, and structured interview guide:

3.8.1 Study Tool

A questionnaire is a carefully designed instrument used for collecting data directly from people. According to Kothari (2005), questionnaires are suitable in a descriptive study because the results tend to be more dependable and reliable since the study participants have time to give a well thought out answer (Kothari, Leone, & Wasley, 2005). For this study, questionnaires were chosen because the information needed came from a large number of study participants.

The questionnaire was adapted from Cervical Cancer Awareness Measure Toolkit (Appeal & Initiative, 2007), and Health belief model (Rosenstock, 1966) and modified based on objectives of the study. Each item in the questionnaire is developed to address a specific objective. The items in the questionnaire are arranged in a logical sequence into sections. Each section has a short statement outlining its content and purpose. The items for each objective are grouped together for the participants to make sense without spending too much time (Mugenda & Mugenda, 2003).

3.8.2 Focus Group Discussions (FGD)

A focus group was composed of between six to ten study participants who are brought together to discuss and clearly define the research topic using themes or semi-structured questions (Grove, 2008). Focus groups were composed of homogeneous people representing a particular segment of the population; these included participants of same age, education and employment status. Four FGDs were conducted for this study, each comprising eight participants. The researcher facilitated the discussions for the whole session.

The participants who participated in the focus group discussion were selected using purposive sampling (Kombo & Tromp, 2006). Four focus groups were selected, one from level two, three, four and private and faith based. The researcher identified a quiet place where the discussions took place without any disruptions after informed consent was given by 32 participants who were not involved in quantitative data collection. To guide the flow of discussion across the specific topics selected, the researcher kept the discussion on track by a series of open-ended questions to help stimulate the discussion. The information was obtained by taking notes in the course of the discussions and audio recording by research assistant.

Standard FGD procedures were followed; the researcher conducted the session, accompanied by a note-taker. Each session was audio-recorded and lasted approximately 60–90 minutes. The FGDs explored broad themes around i) perceptions towards cervical cancer screening ii) knowledge of cervical cancer iii) suggestions for improvement on cervical cancer screening using the health belief model.

3.9 Validity of the Instruments

According to Mugenda and Mugenda (2003), validity is the accuracy and meaningfulness of inferences, which are based on the research results. It is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. Content and face validity was reviewed by supervisors and reproductive health experts (Mugenda & Mugenda, 2003).

3.10 Reliability of the Instrument

According to Mugenda and Mugenda (2003), reliability is a measure of the degree to which a research instrument yields consistent results. In this research, reliability was assessed for internal consistency by use of test - retest technique. Test-retest reliability is the degree to which scores are consistent over time. It indicates score variation that occurs from pre testing session to another post testing session to check for errors, which occur as a result of errors of measurement. The completed tools were entered into the SPSS data base correlation to test their reliability. The value of r was higher than 0.5 thus the questionnaire was assumed to yield data that had high reliability and therefore adopted for the study (Lukoye 2014).

3.11 Pilot Testing

Pilot testing involved actual data collection on a small scale to get feedback on whether validity and reliability of the study tools had been attained. According to Gall & Borg (1996), the total number of study participants for the pilot study should be between 9–10% of the sample population. pilot test was carried out at Bomachoge Borabu, neighboring sub county; a month before the actual study with a pretest sample size of 36 for questionnaires and 3 for interview guide (Gall, Borg, & Gall, 1996). The pretest population had similar characteristics with the research study population as they shared the same geographical region and resources only with different periods of study. The results of the pilot test helped to modify the content and wording of the data collection questionnaire and structured interview guide ensuring that it yielded the information required. Cronbach’s alpha was run using SPSS on the 36-pretest population and got alpha coefficient of 0.711 thus the questionnaire was considered to be sufficient for validity.

3.12 Training of Research Assistants

Two research assistants; volunteer registered nurses working at Ogembo sub county referral Hospital were trained on the data collecting tools for one day. The assistants were taken through all the questions in the questionnaires for understanding while the interview guide was administered by the researcher himself.

3.13 Data Management

Data collection was carried out for approximately 30 days with the help of trained research assistants. Questionnaires, field notes and audio records were kept under lock and key in metal cabinet in order to ensure non -access to unauthorized entities, throughout the data collection period. On a daily basis, data tools were checked for errors. The only error realized on questionnaires was observation of the skip pattern and this was corrected by ignoring the questions that were not supposed to be responded to. This was done to avoid recall bias by ensuring all information given by participants was adequately captured and well-framed before data entry.

3.14 Data analysis and presentation

Data was coded before being entered into the computer for analysis using Statistical Package for the Social Sciences (SPSS) version 27. The association between the predictors of cervical cancer screening and the independent variables (awareness levels, perceptions, access to cervical cancer screening services were determined using Chi-square test. In addition, the association between potential predictors of cervical cancer screening was determined by bivariate regression analyses.

Likert scales were analysed as the mean of scale as coded by the researcher.

The qualitative data for this study consisted of text obtained from transcripts of audio tapes, memos and field notes of interviews, observations, pictures and stories of personal lived experiences of women of reproductive age. This involved coding and

categorization into predetermined and emerging themes through focusing onto questions, time periods, events, cases and groups. This analysis, therefore, was thematic. Data connection for cause-effect relationships, data corroboration and interpretation was done to create meanings and a final report made. Data connections and relationships were established through the process of constant comparative analysis of incidents, concepts according to focus. Data corroboration was achieved through further data collection on events and activities that deviate widely from normal.

Meanings were analyzed through conceptualization, articulation of concepts through description and classification, and analysis of relationships through the connections established between them. Audio recordings were transcribed verbatim.

3.15 Ethical Considerations

Ethical approval was sought from the Institutional Research and Ethics Committee at Moi University College of Health Sciences (MUCHS-IREC). Research Permit was obtained from national commission for science, technology and innovation (NACOSTI). Further, permission to carry out the study was sought from the Sub-County Hospital research and ethics committee. Participants who gave informed consent by filling in the informed consent form are the only ones who participated in the study. Anonymity was maintained by ensuring that no names were written on the questionnaires and participants assured that information given was only used for research purposes. Questionnaires, field notes and audio records were kept under lock and key in order to ensure non -access to unauthorized entities.

3.16 Dissemination of Findings

The report of this study was shared with the sub county and county to plan and prioritize activities geared at improving cervical cancer screening in the county. Further, the findings will be published in reputable journals and presented in

Conferences.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents results of the study starting with socio-demographic characteristics of the participants, descriptive findings and inferential findings based on the objectives of the study.

4.1 Socio-Demographic Data of the Participants

The study analyzed age, marital status, level of education, source of income, average monthly income and number of children of the participants. A total of 358 out of 362 questionnaires were completed and returned which represents a response rate of 98.9%. The 4 participants voluntarily dropped out before end of the study.

It was established that 206(57.5%) of the participants at the sub county health facilities were aged between 16 and 29 years while a few 3(0.81%) were above 50 years of age. An analysis on the marital status established that more than half of the participants 190(53%) were married in a monogamous set up while 22(5.6%) were widowed. The study found that the level of education among the participants was distributed as follows; 152(42.5%) secondary, 103(28.8%) primary and 89(24.9%) tertiary with only 14(3.9%) lacking formal education.

The study further assessed employment status among the study participants. It was established that 139(38.8%) were self-employed while 110(30.6%) were unemployed. Few participants 64(18%) had a formal employment while 45(12.6%) were casual workers. In addition, assessment was done on the average monthly income among the study participants. The study found that more than half 190(53.2%) of the study participants had an average monthly income of less than 4000KShs, 83(23.2%) had an income of between 4001 and 10999KShs, 34(9.5%) had an income bracket of between 11000 and 20999 KShs while 50(14%) had a monthly income of more than 21000KShs.

On the number of children that the study participants had at the time of the study, it was established that 151(42.2%) had between 2 to 3 children, 121(33.8%) had only one child or none while 86(24.1%) had more than 4 children. Table 4.1 illustrates the findings.

Table 3: Social Demographic Characteristics of the Study Participants (n=358

Characteristic	**Frequency**	**Percentage**
Age		
16 – 29	206	57.5
30 – 39	111	31.00
40 – 49	38	10.60
≥50	3	0.81
Total	358	100
Marital status		
Married	57	16.00
(polygamous)	190	53.00
Married	89	25.00
(Monogamous)	20	06.00
Single	358	100
Widowed		
Total		
Education Level		
None	14	03.90
Primary	103	28.80
Secondary	152	42.50
Tertiary	89	24.90
Total	358	100
Monthly Income		
<4000	191	53.20
4001-10999	83	23.20
11000-20999	34	09.50
>21000	50	14.00
Total	358	100
Employment		
Status	64	18.00
Employed (formal)	139	38.80
Self employed	45	02.60
Casual	110	30.60
Unemployed	358	100
Total		
No. of Children		
0-1	121	33.80
2-3	151	42.20
>4	86	24.10
Total	358	100

4.2 Awareness about Cervical Cancer and Screening

The study sought to assess the level of awareness about cervical cancer and screening in which study participants' knowledge on cervical cancer was assessed, source of the information and ways of prevention determined. In regard to cervical cancer and screening, more than half 248(69.2%) of the participants were aware of cervical cancer; various sources of the information were depicted such as, health care workers 126(35.2%), multiple sources (information got from more than one source) 110(30.8%), media 57(16%), friends 32(8.9%), women group meetings (WGM) 13(3.6%), and family members 20(5.5%). A summary of the findings is presented on Table 4.2.

Table 4: Awareness about Cervical Cancer (n=358)

Characteristic	**Frequency**	**Percentage**
Knowledge about cervical cancer		
Aware	248	69.20
Not aware	110	30.80
Total	**358**	**100**
Source of information		
	126	35.20
HWs	110	30.80
Multiple sources	57	16.00
Media	32	08.90
Friends	13	03.60
WGMs	20	05.50
Family members	**358**	**100**
Religious Groups		
Total		
Preventable or not		
	199	55.70
Preventable	159	44.30
Not preventable	**358**	**100**
Total		

4.3 Cervical Cancer Prevention

The study further found that 199(55.7%) of the study participants indicated that cervical cancer is preventable while 159(44.3%) indicated that it is not preventable. The findings are presented in figure 4.1.

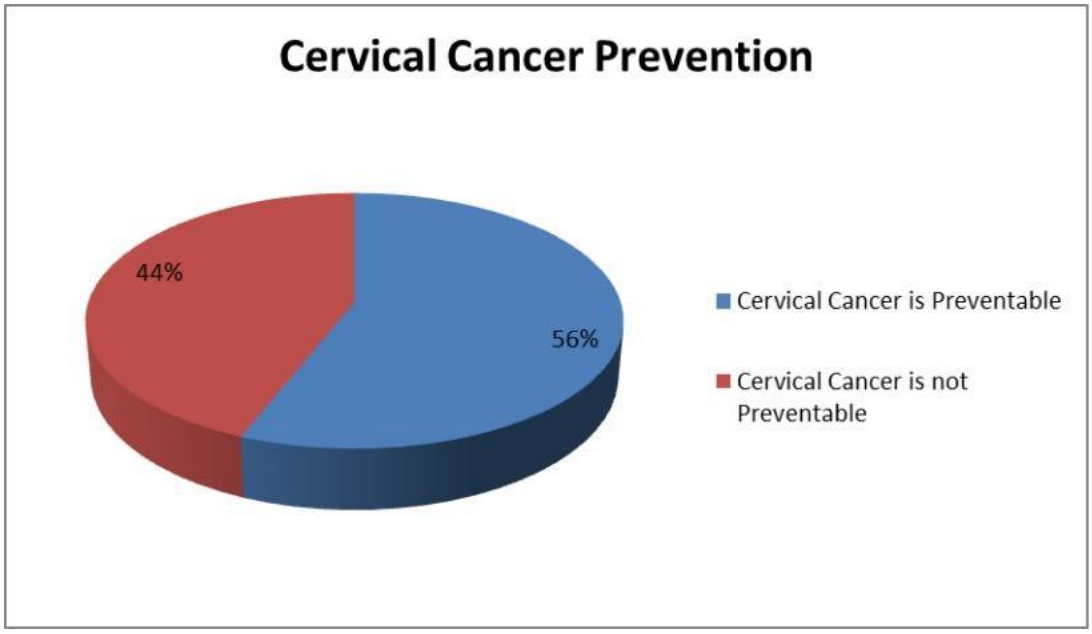


Figure 2: Cervical Cancer Prevention (n=358)

This indicates that most of the participants alluded that cervical cancer is preventable and were confident that by screening and observing health worker advice, the disease can be prevented.

4.4 Cervical Cancer Screening

The study established that 248(68.9%) of the participants indicated that they had ever heard of cervical cancer screening while 110(30.73%) said they had never. Out of those who indicated they had heard of screening, 57(54.8%) had been screened within the previous 18 months, 23(22.1%) had screened between 19 and 36 months, 13(12.5%) had screened between 37 and 48 months while 11(10.6%) had been screened for cervical cancer in the last more than 49 months.

The study found varied sources of information about cervical cancer such as; health care workers 87(35.2%), friends 22(8.9%), family 4(1.6%), women group meeting 9(3.6%), religious groups 9(3.6%), media 40(16.2%) and multiple sources 76(30.8%).

4.5 Factors Associated with Cervical Cancer Screening

The study found that cervical cancer screening was not associated with age (OR 1.56; 95% CI 0.14-17.69), employment (OR 0.13; 95% CI 0.06-0.30), number of children that a mother had (OR 2.42; 95% CI 1.30-4.51) and also the source of cervical cancer information (OR 0.18; 95% CI 0.06-0.57). (Table 4.3)

Notably, the findings showed a significant association between cervical cancer screening and the level of education (OR 8.83; 95% CI 1.03-75.76), average monthly income (OR 3.25; 95% CI 1.66-6.37), awareness on cervical cancer (OR 24.24; 95% CI 6.78-86.76) and knowledge on whether cervical cancer is preventable or not (OR 7.11; 95% CI 3.97-12.70) (Table 4.3).

Table 5: Bivariate analysis of factors influencing cervical cancer screening

	Have you ever been screened for cervical cancer before				
Variables	**Yes**	**No**	**Total**	**OR (95%CI)**	**Chi square P value**
Age in years	**n=102**	**n=256**	**n=358**		
16-29	50(49.0%)	156(60.9%)	206(57.5%)	1	
30-39	38(37.3%)	73(28.5%)	111(31.0%)	1.62(0.98-2.70)	0.068
40-49	13(12.7%)	25(9.8%)	38(10.6%)	1.62(0.77-3.42)	
≥50	1(1.0%)	2(0.8%)	3(0.8%)	1.56(0.14-17.69)	
Level of education	**n=102**	**n=256**	**n=358**		
None	1(1.0%)	13(5.1%)	14(3.9%)	1	
Primary	21(20.6%)	82(32.0%)	103(28.8%)	3.33(0.40-27.50)	<0.001
Secondary	44(43.1%)	108(42.2%)	152(42.5%)	5.30(0.66-42.81)	
Tertiary	36(35.3%)	53(20.7%)	89(24.9%)	8.83(1.03-75.76)	
Source of Income	**n=101**	**n=255**	**n=356**		
Employed	34(33.7%)	30(11.8%)	64(18.0%)	1	
Short term employment (casual)	40(39.6%)	98(38.4%)	138(38.8%)	0.36(0.19-0.68)	<0.001
Self –Employment	13(12.9%)	32(12.5%)	45(12.6%)	0.36(0.15-0.83)	
Unemployed	14(13.9%)	95(37.3%)	109(30.6%)	0.13(0.06-0.30)	
Average monthly income in KES	**n=102**	**n=255**	**n=357**		
<4000	42(41.2%)	148(58.0%)	190(53.2%)	1	<0.001
4001-10999	25(24.5%)	58(22.7%)	83(23.2%)	1.52(0.85-2.72)	
11000-20999	11(10.8%)	23(9.0%)	34(9.5%)	1.69(0.76-3.75)	
>21000	24(23.5%)	26(10.2%)	50(14.0%)	3.25(1.66-6.37)	
How many children do you have?	**n=91**	**n=229**	**n=320**		
0-1	19(20.9%)	89(38.9%)	108(33.8%)	1	
2—3	46(50.5%)	89(38.9%)	135(42.2%)	2.42(1.30-4.51)	0.01
>4	26(28.6%)	51(22.3%)	77(24.1%)	2.39(1.19-4.80)	
Ever heard of cervical cancer?	**n=102**	**n=255**	**n=357**		
No	3(2.9%)	108(42.4%)	111(31.1%)	1	
Yes	99(97.1%)	147(57.6%)	246(68.9%)	24.24(6.78-86.76)	<0.001
Source of cervical cancer information	**n=100**	**n=147**	**n=247**		
Healthcare workers	54(54.0%)	33(22.4%)	87(35.2%)	1	
Friends	5(5.0%)	17(11.6%)	22(8.9%)	0.18(0.06-0.57)	0.397
Family	0(0.0%)	4(2.7%)	4(1.6%)	.	
Women group meetings	2(2.0%)	7(4.8%)	9(3.6%)	0.17(0.03-0.94)	
Religious groups	3(3.0%)	6(4.1%)	9(3.6%)	0.31(0.07-1.34)	
Media	8(8.0%)	32(21.8%)	40(16.2%)	0.15(0.06-0.40)	
Multiple sources	28(28.0%)	48(32.7%)	76(30.8%)	.	
Is cervical cancer preventable?	**n=102**	**n=255**	**n=357**		
No	24(23.5%)	175(68.6%)	199(55.7%)	1	
Yes	78(76.5%)	80(31.4%)	158(44.3%)	7.11(3.97-12.70)	<0.001

4.6 Cancer Risk Awareness

The study assessed cancer risk awareness. The risk factors considered were infection with HPV, cigarette smoking, weak immune system, chlamydia infection, early sexual debut, having many sexual partners, sexual partner with many previous sexual partners, not going for regular cervical cancer screening, having uncircumcised sexual partners, long term use of contraceptives and having many children. Apart from the risk factors, participants were required to indicate where they got screening information from, whether they were screened in that day and if screening results were confirmed, and finally reasons for none prior screening.

Participants were asked whether HPV was a risk for cervical cancer and the findings were that 184(51.7%) of participants disagreed that infection with Human Papillomavirus (HPV) was a risk factor, 72(20.2%) agreed while 100(28.1%) did not know. The study established that 244(68.3%) agreed that cigarette smoking increases chances of cervical cancer, 85(23.8%) disagreed while 28(7.8%) did not know. The participants were further asked whether weak immune system contributed to developing cervical cancer and the findings were that 162(45.3%) agreed, 157(43.9%) disagreed while 39(10.9%) did not know. In addition, 149 (42.5%) agreed that chlamydia infection was a risk, 134 (38.2%) disagreed while 68(19.4%) did not know. The study also found out that 210(59.8%) of the participants agreed that long term use of contraceptive pills was a risk for cervical cancer, 108(30.8%) disagreed while 33(9.41%) did not know. On having many children as risk for cervical cancer, 87(24.4%) agreed, 219(61.3%) disagreed while 51(14.3%) did not know.

In regard to early sexual debut as a risk factor, 145(40.6%) agreed, 155(43.4%) disagreed while 57(16.0%) did not know. Having many sexual partners, 221(61.7%)

agreed, 101(28.2%) disagreed while 36(10.1%) did not know. Having sexual partner with many previous sexual partners as a risk factor, 218 (60.9%) agreed, 99 (27.7%) disagreed while 41 (11.5%) did not know. Further not going for regular cervical cancer screening, 251 (71.1%) of them agreed that it was a risk factor, 79 (27.4%) disagreed while 23 (6.5%) didn't know. Having uncircumcised sexual partner as a risk factor, 169 (48.0%) disagreed, 109 (31%) agreed while 74 (21.0%) did not know. The study found that 202 (56.4%) of the participants had ever heard of cervical cancer screening while 156 (43.6%) had not. Regarding cervical cancer treatment, 183 (51.1%) agreed that cervical cancer can be treated while175 (48.9%) disagreed.

It was further reported that 127(66.5%) of the participants got screening information from health care workers, 14(7.3%) from friends, 1(0.5%) from women group meetings, 2(1.0%) from religious groups, 26(13.6%) from the media while 18(9.4%) indicated that they got the information from other sources. The study found that 32(8.9%) of the participants were screened during the study period while 326(91.1%) were not screened on those days. Out of those who were screened through visual inspection with ascetic acid and lugols during study period, 26(81.3%) had their results confirmed while 6(18.7%) of them were not confirmed. The test results for 2(6.3%) turned positive while 30(93.7%) were negative. Further the participants were asked on the reasons for none prior screening with 3(1.3%) of them saying they did not feel at risk, 2(0.8%) feared the examination process, 2(0.8%) thought the test was unpleasant, 1(0.4%) did not know what to do while 229(96.2%) had other reasons.

Participants who reported to have been screened for cervical cancer were more likely to agree that cervical cancer is associated with HPV infection (OR 0.22; 95% CI 0.12-0.41), cigarette smoking (OR 0.41; 95% CI 0.22-0.76), a weak immune system (OR

0.45; 95% CI 0.27-0.74), having many sexual partners (OR 0.32; 95% CI 0.17-0.59), having a sexual partner with many previous partners (OR 0.24; 95% CI 0.13-0.48),not going for regular cervical cancer screening (OR 0.62; 95% CI 0.34-1.12) and having uncircumcised sexual partners (OR 0.50; 95% CI 0.30-0.84). While chlamydia infection (OR 0.57; 95% CI 0.34-0.97), long term use of contraceptives (OR 0.80; 95% CI 0.47-1.34), having an early sexual debut in one's life (OR 0.48; 95% CI 0.29-0.80) and having many children (OR 0.70; 95% CI 0.41-1.19),were not associated to cervical cancer.

Table 6: Risk Awareness Questions

	Ever been screened for cervical cancer before				
Variables	**Yes**	**No**	**Total**	**OR (95%CI)**	**Chi square P value**
RISK AWARENESS QUESTIONS					
Infection with HPV	**n=102**	**n=254**	**n=356**		
Agree	41(40.2%)	31(12.2%)	72(20.2%)	1	
Disagree	42(41.2%)	142(55.9%)	184(51.7%)	0.22(0.12-0.41)	<0.001
I don't know	19(18.6%)	81(31.9%)	100(28.1%)	0.18(0.08-0.37)	
Cigarette smoking	**n=102**	**n=255**	**n=357**		
Agree	84(82.4%)	160(62.7%)	244(68.3%)	1	
Disagree	15(14.7%)	70(27.5%)	85(23.8%)	0.41(0.22-0.76)	<0.001
I don't know	3(2.9%)	25(9.8%)	28(7.8%)	0.23(0.07-0.79)	
Weakened immune system	**n=102**	**n=256**	**n=358**		
Agree	62(60.8%)	100(39.1%)	162(45.3%)	1	
Disagree	34(33.3%)	123(48.0%)	157(43.9%)	0.45(0.27-0.74)	<0.001
I don't know	6(5.9%)	33(12.9%)	39(10.9%)	0.29(0.11-0.75)	
Long term use of contraceptive pill	n=100	n=251	n=351		
Agree	**66(66.0%)**	**144(57.4%)**	**210(59.8%)**	**1**	
Disagree	**29(29.0%)**	**79(31.5%)**	**108(30.8%)**	**0.80(0.47-1.34)**	**0.1421**
I don't know	**5(5.0%)**	**28(11.2%)**	**33(9.4%)**	**0.39(0.14-1.06)**	
Chlamydia infection	**n=99**	**n=252**	**n=351**		
Agree	54(54.5%)	95(37.7%)	149(42.5%)	1	
Disagree	33(33.3%)	101(40.1%)	134(38.2%)	0.57(0.34-0.97)	0.003
I don't know	12(12.1%)	56(22.2%)	68(19.4%)	0.38(0.18-0.78)	
Early sexual debut	**n=102**	**n=255**	**n=357**		
Agree	56(54.9%)	89(34.9%)	145(40.6%)	1	
Disagree	36(35.3%)	119(46.7%)	155(43.4%)	0.48(0.29-0.80)	<0.001
I don't know	10(9.8%)	47(18.4%)	57(16.0%)	0.34(0.16-0.74)	
Having many sexual partners	**n=102**	**n=256**	**n=358**		
Agree	82(80.4%)	139(54.3%)	221(61.7%)	1	
Disagree	16(15.7%)	85(33.2%)	101(28.2%)	0.32(0.17-0.59)	<0.001
I don't know	4(3.9%)	32(12.5%)	36(10.1%)	0.21(0.07-0.63)	
Having many children	n=102	n=255	n=357		
Agree	**31(30.4%)**	**56(22.0%)**	**87(24.4%)**	**1**	
Disagree	**61(59.8%)**	**158(62.0%)**	**219(61.3%)**	**0.70(0.41-1.19)**	**0.124**
I don't know	**10(9.8%)**	**41(16.1%)**	**51(14.3%)**	**0.44(0.19-1.01)**	
Sexual partner with many previous sexual partners	**n=102**	**n=256**	**n=358**		
Agree	83(81.4%)	135(52.7%)	218(60.9%)	1	
Disagree	13(12.7%)	86(33.6%)	99(27.7%)	0.24(0.13-0.48)	<0.001
I don't know	6(5.9%)	35(13.7%)	41(11.5%)	0.28(0.11-0.70)	
Not going for regular cervical cancer screening	**n=102**	**n=251**	**n=353**		
Agree	81(79.4%)	170(67.7%)	251(71.1%)	1	
Disagree	18(17.6%)	61(24.3%)	79(22.4%)	0.62(0.34-1.12)	0.018
I don't know	3(2.9%)	20(8.0%)	23(6.5%)	0.31(0.09-1.10)	
Having uncircumcised sexual partner	**n=98**	**n=254**	**n=352**		
Agree	45(45.9%)	64(25.2%)	109(31.0%)	1	
Disagree	44(44.9%)	125(49.2%)	169(48.0%)	0.50(0.30-0.84)	<0.001
I don't know	9(9.2%)	65(25.6%)	74(21.0%)	0.20(0.09-0.46)	
Ever heard of cervical cancer screening	**n=102**	**n=256**	**n=358**		

No	4(3.9%)	152(59.4%)	156(43.6%)	1	
Yes	98(96.1%)	104(40.6%)	202(56.4%)	35.81(10.84-118.33)	<0.001
Ever heard of HPV	**n= 102**	**n= 254**	**n=356**		
No	60(58.8%)	233(91.7%)	293(82.3%)	1	
Yes	42(41.2%)	21(8.3%)	63(17.7%)	7.77(4.06-14.85)	<0.001
Where did you get screening information from	n=101	n=90	n=191		
Health care workers	79(78.2%)	48(53.3%)	127(66.5%)	1	
Friends	4(4.0%)	10(11.1%)	14(7.3%)	0.24(0.07-0.84)	0.006
Women group meetings	0(0.0%)	1(1.1%)	1(0.5%)	NE	
Religious groups	2(2.0%)	0(0.0%)	2(1.0%)	NE	
Media	6(5.9%)	20(22.2%)	26(13.6%)	0.18(0.07-0.51)	
Others	9(7.9%)	9(10.0%)	18(9.4%)	NE	
Can cervical cancer be treated?	**n=102**	**n=256**	**n=358**		
No	22(21.6%)	153(59.8%)	175(48.9%)	1	
Yes	80(78.4%)	103(40.2%)	183(51.1%)	5.40(3.06-9.55)	<0.001
Were you screened of Cervical Cancer today	**n=100**	**n=249**	**n=349**		
Yes	1(1.0%)	25(10.0%)	26(7.4%)	1	
No	99(99.0%)	224(90.0%)	323(92%)	11.05(1.43-85.0)	0.004
Screening confirmed	**n=6**	**n=26**	**n=32**		
Yes	1(16.7%)	25(96.2%)	26(81.3%)	1	
No	(83.3%)	1(3.8%)	6(18.7%)	125(0.91->1000)	<0.001
Screening test results	**n=1**	**n=25**	**n=26**		
Positive result	1(100.0%)	1(4.0%)	2(7.7%)	1	
Negative result	0(0.0%)	24(96.0%)	24(92.3%)	NE	<0.001
Reasons for no prior screening	**n=9**	**n=229**	**n=238**		
Don't feel at risk	0(0.0%)	3(1.3%)	3(1.3%)	1	
Fear of examination	1(11.1%)	1(0.4%)	2(0.8%)	NE	0.005
Test is unpleasant	1(11.1%)	1(0.4%)	2(0.8%)	NE	
Don't know what to do	0(0.0%)	1(0.4%)	1(0.4%)	NE	
I am always busy	0(0.0%)	1(0.4%)	1(0.4%)	NE	
Others	7(77.8%)	222(96.9%)	229(96.2%)	NE	

Source: Field data, 2021

4.7 Knowledge on Cervical Cancer Warning Signs

The study further assessed knowledge on cervical cancer warning signs. Participants were asked whether vaginal bleeding, lower back pain, smelly discharge, painful intercourse, heavy monthly periods, vaginal bleeding after menopause, blood in stool/urine, unexplained weight loss and vaginal bleeding during or after sex were warning signs for cervical cancer.

Regarding warning signs for cervical cancer, the study found that among the participants 223 (62.5%) agreed to the sign vaginal bleeding, 183 (51.3%) disagreed to the sign lower back pain was a sign of cervical cancer, 284 (79.2%) agreed to the sign smelly discharge, 218 (61.1%) agreed to the sign painful intercourse, and 169 (47.7%) agreed to the sign heavy monthly periods. 274 (76.8%) agreed to the sign vaginal bleeding after menopause, 183 (51.3%) disagreed to the sign blood in stool/urine, 174 (48.7%) disagreed to the sign unexplained weight loss, 275 (77.0%) agr'eed to the sign vaginal bleeding during and after sex, 181 (50.7%) agreed to the sign persistent pelvic pain while 189 (52.9%) disagreed to the sign persistent diarrhea (Table 4.5).

Participants who reported to have been screened for cervical cancer were more likely to agree that the following were warning signs for cervical cancer; vaginal bleeding (OR 0.57; 95% CI 0.32-0.96), smelly discharge (OR 0.45; 95% CI 0.20-1.00), painful intercourse (OR 0.41; 95% CI 0.22-0.74), blood in stool/urine (OR 0.56; 95% CI 0.33-0.94), heavy monthly periods (OR 0.37; 95% CI 0.22-0.63), unexplained weight loss (OR 0.50; 95% CI 0.30-0.83), vaginal bleeding after menopause (OR 0.87; 95% CI 0.43-1.75), and vaginal bleeding during or after sex (OR 0.46; 95% CI 0.21-0.98).

On the other hand, participants agreed that the following warning signs were not associated with cervical cancer; lower back pain (OR 0.74; 95% CI 0.46-1.19);

persistent diarrhea (OR 0.91; 95% CI 0.49-1.68) and persistent pelvic pain (OR 0.66; 95% CI 0.40-1.09) as indicated in Table 4.5.

Table 7: Knowledge on Cervical Cancer Warning Signs

	Ever been screened for cervical cancer before				
Variables	**Yes**	**No**	**Total**	**OR (95%CI)**	**Chi square P value**
KNOWLEDGE OF CERVICAL CANCER WARNING SIGNS					
Vaginal bleeding is a sign	**n=102**	**n=255**	**n=357**		
Agree	76(74.5%)	147(57.6%)	223(62.5%)	1	
Disagree	23(22.5%)	80(31.4%)	103(28.9%)	0.57(0.32-0.96)	0.001
I don't know	3(2.9%)	28(11.0%)	31(8.7%)	0.21(0.06-0.72)	
Lower back pain is a sign	**n=102**	**n=255**	**n=357**		
Agree	48(47.1%)	94(36.9%)	142(39.8%)	1	
Disagre'e	50(49.0%)	133(52.2%)	183(51.3%)	0.74(0.46-1.19)	0.019
I don't know	4(3.9%)	28(11.0%)	32(9.0%)	0.28(0.09-0.86)	
Smelly discharge is a sign	**n=102**	**n=255**	**n=357**		
Agree	91(89.2%)	193(75.7%)	284(79.6%)	1	
Disagree	8(7.8%)	38(14.9%)	46(12.9%)	0.45(0.20-1.00)	0.004
I don't know	3(2.9%)	24(9.4%)	27(7.6%)	0.27(0.08-0.91)	
Painful intercourse	**n=102**	**n=255**	**n=357**		
Agreek	78(76.5%)	140(54.9%)	218(61.1%)	1	
Disagree	17(16.7%)	75(29.4%)	92(25.8%)	0.41(0.22-0.74)	<0.001
I don't know	7(6.9%)	40(15.7%)	47(13.2%)	0.31(0.13-0.75)	
Heavy monthly periods	**n=101**	**n=253**	**n=354**		
Agree	68(67.3%)	101(39.9%)	169(47.7%)	1	
Disagree	29(28.7%)	116(45.8%)	145(41.0%)	0.37(0.22-0.63)	<0.001
I don't know	4(4.0%)	36(14.2%)	40(11.3%)	0.17(0.05-0.50)	
Vaginal bleeding after menopause	**n=102**	**n=255**	**n=357**		
Agree	87(85.3%)	187(73.3%)	274(76.8%)	1	
Disagree	13(12.7%)	32(12.5%)	45(12.6%)	0.87(0.43-1.75)	0.002
I don't know	2(2.0%)	36(14.1%)	38(10.6%)	0.12(0.03-0.52)	
Blood in stool/urine	**n=102**	**n=255**	**n=357**		
Agree	41(40.2%)	58(22.7%)	99(27.7%)	1	
Disagree	52(51.0%)	131(51.4%)	183(51.3%)	0.56(0.33-0.94)	<0.001
I don't know	9(8.8%)	66(25.9%)	75(21.0%)	0.19(0.08-0.45)	
Unexplained weight loss	**n=102**	**n=255**	**n=357**		
Agree	50(49.0%)	72(28.2%)	122(34.2%)	1	
Disagree	45(44.1%)	129(50.6%)	174(48.7%)	0.50(0.30-0.83)	<0.001
I don't know	7(6.9%)	54(21.2%)	61(17.1%)	0.19(0.08-0.46)	

Vaginal bleeding during/after sex	**n=102**	**n=255**	**n=357**			
Agree	88(86.3%)	187(73.3%)	275(77.0%)	1		
Disagree	9(8.8%)	42(16.5%)	51(14.3%)	0.46(0.21-0.98)		0.013
I don't know	5(4.9%)	26(10.2%)	31(8.7%)	0.41(0.15-1.11)		
Persistent pelvic pain is a sign	**n=102**	**n=255**	**n=357**			
Agree	60(58.8%)	121(47.5%)	181(50.7%)	1		
Disagree	32(31.4%)	98(38.4%)	130(36.4%)	0.66(0.40-1.09)	0.143	
I don't know	10(9.8%)	36(14.1%)	46(12.9%)	0.56(0.26-1.21)		
Persistent diarrhea is a sign	**n=102**	**n=255**	**n=357**			
Agree	20(19.6%)	48(18.8%)	68(19.0%)	1		
Disagree	52(51.0%)	137(53.7%)	189(52.9%)	0.91(0.49-1.68)	0.893	
I don't know	30(29.4%)	70(25.7%)	100(28.0%)	1.02(0.52-2.02)		

4.8 Women's Perception about Cervical Cancer Screening

The second objective of the study was to establish the perception around cervical cancer and screening practices among the participants. The study focused on the level to which the participants agreed or disagreed on whether they were at risk of developing cervical cancer, had fears about screening procedures, were afraid of vaginal examination, their preference for male or female health workers, whether they would refer women for cervical cancer screening, if they ever discussed cervical cancer with their spouses, peers or relatives.

The study analyzed data on the perceptions ranging from risks, fears, preferences, free discussions, sharing information and confidentiality levels. It was found that over half 194(54.5%) of the study participants disagreed that they were at risk of cervical cancer indicating fears. It was also found that 223(62.3%) of the study participants indicated they had no fears about screening procedures for cervical cancer. It was

Further found that 181 (50.8%) of the participants were not afraid of vaginal examinations while 175 (49.2%) were afraid. The study participants were further assessed on their preference for female, male or either gender of health workers. A total of 195(54.6%) preferred female health workers, 35(9.8%) preferred male while 127(35.6%) preferred either gender.

The study participants were asked whether they were free to discuss cervical cancer with their spouses, peers or close relatives. A total of 245(68.8%) of them indicated that they had never discussed with their spouses, 207(58.1%) had never discussed with peers while 231(65.4%) had never discussed with close relatives on cervical cancer. On the fear of cervical cancer diagnosis, 174 (50.6%) of the participants disagreed that they had fears with 170 (49.0%) agreeing that they had the fears; 15 (4.2%) agreed that cultural beliefs hindered them from screening with 340 (95.8%) disagreeing); 349 (98.0%) disagreed that religious beliefs affected their screening behavior with 7 (2.0%) agreeing. Further 311 (87.9%) agreed that they were satisfied with how they were handled at the health facilities while 43 (12.1%) indicated that they were not satisfied.

On association between admitting risk and screening, participants who reported to have been screened for cervical cancer were more likely to admit that they were at risk (OR 4.99; 95% CI 2.90-8.55), have fears about screening procedures (OR 0.21; 95% CI 0.21-0.40), would refer women for cervical cancer screening (OR 0.80; 95% CI 0.31-2.07), had fears of vaginal examinations (OR 0.17; 95% CI 0.09-0.30) had discussed with their spouses (OR 10.53; 95% CI 5.72-19.49), peers (OR 9.95; 95% CI 5.34-18.54) and close relatives (OR 4.51; 95% CI 2.46-6.98).

Participants who reported not to have been screened for cervical cancer were those who did not have fear of cervical cancer diagnosis (OR 1.31; 95% CI 0.71-1.80), cultural

beliefs did not hinder them from screening (OR 1.11; 95% CI 0.35-3.59), religious beliefs did not affect their screening behavior (OR 02.41; 95% CI 0.28-20.37), and those who were satisfied with how they were handled at the facility during screening (OR 0.84; 95% CI 0.41-1.75).

Table 8: Perceptions about Cervical Cancer and its Screening

	Ever been screened for cervical cancer before				
Variables	**Yes**	**No**	**Total**	**OR (95%CI)**	**Chi square P value**
PERCEPTIONS ATTITUDES AND BELIEFS ABOUT CERVICAL CANCER AND ITS SCREENING			F		
Are you at risk of cervical cancer?	**n=102**	**n=254**	**n=356**		
No	28(27.5%)	166(65.4%)	194(54.5%)		1
Yes	74(72.5%)	88(34.6%)	162(45.5%)	4.99(2.90-8.55)	<0.001
Any fears about screening procedures?	**n=102**	**n=256**	**n=358**		
No	86(84.3%)	137(53.5%)	223(62.3%)		1
Yes	16(15.7%)	119(46.5%)	135(37.7%)	0.21(0.12-0.40)	<0.001
Are you afraid of vaginal examinations?	**n=102**	**n=254**	**n=356**		
No	81(79.4%)	100(39.4%)	181(50.8%)		1
Yes	21(20.6%)	154(60.6%)	175(49.2%)	0.17(0.09-0.30)	<0.001
Preference for male or female health workers	**n=102**	**n=255**	**n=357**		
Female	40(39.2%)	155(60.8%)	195(54.6%)		1
Male	6(5.9%)	29(11.4%)	35(9.8%)	0.80(0.31-2.07)	<0.001
Either	56(54.9%)	71(27.8%)	127(35.6%)	3.06(1.83-5.09)	
Would you refer women for cervical cancer screening?	**n=102**	**n=255**	**n=357**		
No	14(13.7%)	183(71.8%)	197(55.2%)		1
Yes	88(86.3%)	72(28.2%)	160(44.8%)	15.98(7.64-33.43)	<0.001
Ever discussed cervical cancer with your spouse?	**n=102**	**n=254**	**n=356**		
No	33(32.4%)	212(83.5%)	245(68.8%)		1
Yes	69(67.6%)	42(16.5%)	111(31.2%)	10.55(5.72-19.49)	<0.001
Ever discussed cervical cancer with your peers?	**n=102**	**n=254**	**n=356**		
No	22(21.6%)	185(72.8%)	207(58.1%)		1
Yes	80(78.4%)	68(26.8%)	148(41.6%)	9.95(5.34-18.54)	<0.001
Ever discussed cervical cancer with your close relatives?	**n=101**	**n=252**	**n=353**		
No	44(43.6%)	187(74.2%)	231(65.4%)		1
Yes	53(52.5%)	53(21.0%)	106(30.0%)	4.15(2.46-6.98)	<0.001
I have fear of a cervical Cancer diagnosis	**n=99**	**n=245**	**n=344**		
No	48(48.5%)	126(51.4%)	174(50.6%)	1	
Yes	51(51.5%)	119(48.6%)	170(49.4%)	1.13(0.71-1.80)	0.622
Cultural beliefs hinder me from screening	n=102	n=253	n=355		
Yes	4(3.9%)	11(4.3%)	15(4.2%)	1	
No	98(96.1%)	242(95.7%)	340(95.8%)	1.11(0.35-3.59)	0.857
Religious beliefs affect screening behavior	n=101	n=255	n=356		
Yes	1(1.0%)	6(2.4%)	7(2.0%)	1	
No	100(99.0%)	249(97.6%)	349(98.0%)	2.41(0.28-20.37)	0.404
Satisfied with how you were handled today	n=101	n=253	n=354		
Yes	90(89.1%)	221(87.4%)	311(87.9%)	1	
No	11(10.9%)	32(12.6%)	43(12.1%)	0.84(0.41-1.75)	0.648

Source: *Field data, 2021*

4.9 Factors Associated with Access to Cervical Cancer Screening Services

The third objective of the study was to establish some of the factors that affect access of study participants to cervical cancer screening services. The study sought to establish the distance to the nearest cancer screening center for each participant, transport cost to the screening center, cost of cervical cancer screening today and their thoughts on the affordability of the cost of cervical cancer screening.

In regard to the distance to nearest screening facility, (180(50.6%) travelled for less than a kilometer, 96 (27.0%) of them travelled for between 1 and 5 kilometers, 64 (18.0%) of them travelled for between 6 and 10 km while 16 (4.5%) travelled for more than 10km to the nearest screening center. The study further established that 190 (53.2%) of the participants did not spend any coin to get to the nearest screening center, 114 (31.9%) of them spent between 10 and 50 Kshs, 31 (8.7%) of them spent between 51 and 100 Kshs while 22 (6.2%) of them spent more than Kshs.100 to travel to the nearest screening center.

Regarding cost of cervical cancer screening, 317 (88.8%) of the participants indicated the cost of screening as nil, 18 (5.0%) indicated the cost of screening as Kshs.50, 17 (4.8%) of them had spent between 101 and Kshs. 200 while 5 (1.4%) of them indicated the cost as more than Kshs.200. The participants were further asked to indicate whether the cost of cervical cancer screening was affordable with 22 (6.2%) indicated that it was not affordable while 335 (93.8%) of them agreed that it was affordable.

The study established that there is a close association between the distance to the nearest cancer screening center and cervical cancer screening (OR 0.800; 95% CI 0.47-1.38).However, cost of transport to the screening center (OR 0.74; 95% CI 0.44-1.25), cost of cervical cancer screening (OR 0.29; 95% CI 0.07-1.31) and affordable cervical

cancer screening (OR 2.66; 95% CI 0.76-9.23) were not associated with cervical cancer screening.

Table 9: Access factors to Cervical Cancer Screening Services

	Ever been screened for cervical cancer before				
Variables	**Yes**	**No**	**Total**	**OR (95%CI)**	**Chi square P value**
ACCESS FACTORS					
Distance to the nearest cancer screening center	**n=102**	**n=254**	**n=356**		
<1km	61(59.8%)	119(46.9%)	180(50.6%)	1	
1-5km	28(27.5%)	68(26.8%)	96(27.0%)	0.80(0.47-1.38)	0.007
6-10km	10(9.8%)	54(21.3%)	64(18.0%)	0.36(0.17-0.77)	
>10km	3(2.9%)	13(5.1%)	16(4.5%)	0.45(0.12-1.65)	
Transport cost to screening center	**n=102**	**n=255**	**n=357**		
Nil	60(58.8%)	130(51.0%)	190(53.2%)	1	
10-50 KES	29(28.4%)	85(33.3%)	114(31.9%)	0.74(0.44-1.25)	0.174
51-100 KES	9(8.8%)	22(8.6%)	31(8.7%)	0.89(0.38-2.04)	
>100 KES	4(3.9%)	18(7.1%)	22(6.2%)	0.48(0.16-1.49)	
Cost of cervical cancer screening today	**n=102**	**n=255**	**n=357**		
Nil	95(93.1%)	222(87.1%)	317(88.8%)	1	
50-100 KES	2(2.0%)	16(6.3%)	18(5.0%)	0.29(0.07-1.31)	0.212
101-200 KES	4(3.9%)	13(5.1%)	17(4.8%)	0.72(0.23-2.27)	
>200 KES	1(1.0%)	4(1.6%)	5(1.4%)	0.58(0.06-5.32)	
Do you think cost of cervical cancer screening is affordable here?	**n=102**	**n=255**	**n=357**		
No	3(2.9%)	19(7.5%)	22(6.2%)	1	
Yes	99(97.1%)	236(92.5%)	335(93.8%)	2.66(0.76-9.23)	0.11

***Source**: Field data, 2021*

4.10 Logistic Regression Model

The study conducted analysis of the findings through regression and correlation as illustrated in Table 4.13. This was meant to establish the association levels among the independent and dependent variables of the study. The study focused on predictors of cervical cancer screening among the participants which included age, average monthly income, awareness level, smoking cigarettes, early sexual debut, knowledge about cervical cancer screening, smelly discharge, vaginal bleeding after menopause, vaginal bleeding during or after sex, fears about screening procedures and distance to the nearest cancer screening center.

Most variables with a p value of less than 0.05 were subjected to the logistic regression process where most variables were dropped retaining only those that produced the best fit for the model. In the logistic regression, age was a weak predictor for cervical cancer screening. Those aged between 40-49 years were more likely to undergo cervical cancer screening than those aged between 16-29 years. (aOR 17.04; 95% CI 3.20-90.79)

On the awareness of cervical cancer, the strongest predictors for cervical cancer screening were, having ever heard of cervical cancer (aOR27.84; 95% CI: 3.92-197.90) and cervical cancer screening (aOR 75.59; 95% CI: 15.05-379.74), awareness of risk factors such as smoking and early sexual debut. This also includes warning signs such as vaginal bleeding after menopause and vaginal bleeding during or after sex.

On the perception about cervical cancer screening, the strongest predictors of cervical cancer screening, include fears about screening procedures (aOR0.22; 95% CI: 0.07-0.66), and being able to refer other women for cervical cancer screening (aOR56.10; 95% CI: 15.53-202.65).

Access factors associated with of cervical cancer screening only had one predictor which was distance to the nearest cervical cancer screening center. Those staying between 6-10 km from the nearest screening center were less likely to undergo cervical cancer screening than those who stay less than 1 kilometer away from the nearest screening facility (aOR0.12; 95% CI: 0.03-0.44).

Table 10: Logistic regression of predictors of cervical cancer screening

	Ever been screened for cervical cancer before					
Variables	**Yes**	**No**	**Total**	**OR (95%CI)**	**aOR (95%CI)**	**P Value***
Age in years	**n=102**	**n=256**	**n=358**			
16-29	50(49.0)	156(60.9)	206(57.5)	1	1	
30-39	38(37.3)	73(28.5%)	111(31.0)	1.62(0.98-2.70)	1.32(0.53-3.30)	0.553
40-49	13(12.7)	25(9.8%)	38(10.6%)	1.62(0.77-3.42)	17.04(3.20-90.79)	0.001
≥50	1(1.0%)	2(0.8%)	3(0.8%)	1.56(0.14-17.69)	133.99 (NE)	0.578
Average monthly income in KES	**n=102**	**n=255**	**n=357**			
<4000	42(41.2)	148(58.0)	190(53.2)	1	1	
4001-10999	25(24.5)	58(22.7%)	83(23.2%)	1.52(0.85-2.72)	1.18(0.39-3.54)	0.768
11000-20999	11(10.8)	23(9.0%)	34(9.5%)	1.69(0.76-3.75)	8.27(1.76-38.96)	0.008
>21000	24(23.5)	26(10.2%)	50(14.0%)	3.25(1.66-6.37)	1.55(0.48-5.02)	0.464
Ever heard of cervical cancer?	**n=102**	**n=255**	**n=357**			
No	3(2.9%)	108(42.4)	111(31.1)	1	1	
Yes	99(97.1)	147(57.6)	246(68.9)	24.24(6.78-86.76)	27.84(3.92-197.90)	0.001
Smoking cigarettes	**n=102**	**n=255**	**n=357**			
Agree	84(82.4)	160(62.7)	244(68.3)	1	1	
Disagree	15(14.7)	70(27.5%)	85(23.8%)	0.41(0.22-0.76)	0.26(0.09-0.81)	0.021
I don't know	3(2.9%)	25(9.8%)	28(7.8%)	0.23(0.07-0.79)	0.08(0.01-0.61)	0.015
Early sexual debut	**n=102**	**n=255**	**n=357**			
Agree	56(54.9)	89(34.9%)	145(40.6)	1	1	
Disagree	36(35.3)	119(46.7)	155(43.4)	0.48(0.29-0.80)	0.54(0.21-1.39)	0.203
I don't know	10(9.8%)	47(18.4%)	57(16.0%)	0.34(0.16-0.74)	8.46(1.47-48.56)	0.017
Ever heard of cervical cancer screening	**n=102**	**n=256**	**n=358**			
No	4(3.9%)	152(59.4)	156(43.6)	1	1	
Yes	98(96.1)	104(40.6)	202(56.4)	35.81(10.84-118.33)	75.59(15.05-379.74)	<0.001
Smelly discharge	**n=102**	**n=255**	**n=357**			
Agree	91(89.2)	193(75.7)	284(79.6)	1	1	
Disagree	8(7.8%)	38(14.9%)	46(12.9%)	0.45(0.20-1.00)	0.23(0.04-1.38)	0.108
I don't know	3(2.9%)	24(9.4%)	27(7.6%)	0.27(0.08-0.91)	9.05(1.16-70.51)	0.036
Vaginal bleeding after menopause	**n=102**	**n=255**	**n=357**			

Agree	87(85.3)	187(73.3)	274(76.8)		1	1	
Disagree	13(12.7)	32(12.5%)	45(12.6%)	0.87(0.44-1.75)		28.67(4.68-175.69)	<0.001
I don't know	2(2.0%)	36(14.1%)	38(10.6%)	0.12(0.03-0.52)		0.02(0.00-0.26)	0.003
Vagina bleeding during/after sex	**n=102**	**n=255**	**n=357**				
Agree	88(86.3)	187(73.3)	275(77.0)		1	1	
Disagree	9(8.8%)	42(16.5%)	51(14.3%)	0.46(0.21-0.98)		13.61(2.50-74.24)	0.003
I don't know	5(4.9%)	26(10.2%)	31(8.7%)	0.41(0.15-1.11)		1.95(0.24-15.71)	0.529
Any fears about screening procedures?	**n=102**	**n=256**	**n=358**				
No	86(84.3)	137(53.5)	223(62.3)		1	1	
Yes	16(15.7)	119(46.5)	135(37.7)	0.21(0.12-0.40)		0.22(0.07-0.66)	0.007
Would you refer women for cervical cancer screening	**n=102**	**n=255**	**n=357**				
No	14(13.7)	183(71.8)	197(55.2)		1	1	
Yes	88(86.3)	72(28.2%)	160(44.8)	15.98(7.64-33.43)		56.10(15.53-202.65)	<0.001
Distance to the nearest cancer screening center							
<1km	**n=102**	**n=254**	**n=356**		1	1	
1-5km	61(59.8)	119(46.9)	180(50.6)		1	1.31(0.48-3.56)	0.595
6-10km	28(27.5)	68(26.8%)	96(27.0%)	0.80(0.47-1.38)		0.12(0.03-0.44)	0.002
>10km	10(9.8%)	54(21.3%)	64(18.0%)	0.36(0.17-0.77)		5.12(0.52-49.69)	0.16

Source: Field data, 2021

4.11 Analysis of Qualitative Data

Three themes emerged from the data, which included awareness on cervical cancer and screening, perceptions on cervical cancer and screening and service delivery. In addition, six sub-themes emerged, level of awareness, source of information, Cultural beliefs, religious beliefs, inadequate space for service delivery and facility personnel.

Table 11: Summary themes and sub themes

Themes	Sub themes
Awareness on cervical cancer and screening	Source of information Awareness
Perception on cervical cancer and screening.	Cultural beliefs Religious beliefs.
Service Delivery	Facility Personnel Distance to screening facility Inadequate space for service delivery

4.11.1 Awareness on cervical cancer and screening

Participants said that they had heard of cervical cancer through radio, newspapers, women groups, church meetings, television and health care workers. Some indicated having been screened. One of the participants from Nyansara Health Center (Level 3 facility) narrated that:

> *".... Yes, I have heard of cervical cancer through a nurse and been screened once in this health center..." (33-year-old mother of 2)*

At the health facility, a few participants indicated to have ever heard of cervical cancer nor been screened. Most of the participants from the health facilities indicated that they had never heard of cervical cancer and have never been screened. Some of the analytical processes of the findings in this theme were as illustrated in the table 4.10;

Table 12: Awareness on Cervical Cancer Screening Analytics

Meaning unit (participants quotes)	Condensed meaning unit	Code	Sub-theme	Theme
I heard about cervical cancer through radio, health care workers and church members	Medium of communication.	Concept of cervical cancer	Source of information	Awareness on cervical cancer
I have never heard of cervical cancer never been screened	Lack of knowledge on cervical cancer	Knowledge gap	Level of awareness.	Awareness on cervical cancer

4.11.2 Perceptions about Cervical Cancer and screening

This theme focused on the cultural orientation and religious beliefs on how they influence cervical cancer screening among women of reproductive age at health facilities in Bomachoge Chache Sub-County.

On religion, the FGD focused on whether there are religious beliefs, which influence decision in seeking care for cervical cancer screening among the participants. Most of the participants indicated there were no religious beliefs that influenced their uptake of cervical cancer screening. One of the participants narrated that;

> *".... there are no religious beliefs which tell me not to go for screening for cervical cancer..." (45-year-old mother of 4)* while another indicated that;
>
> *".... No religious beliefs which discourage cervical cancer screening. 'My church encourages people to visit hospitals...."(36 year old mother of 3)*

On the other hand, a participant indicated that;

> *"...God created heaven and earth and therefore has power to heal anybody with strong faith. No need to screen and even treat in the hospital....." (48-year-old mother of 5).*

A summary of the narrations was as illustrated in the table;

Table 13: Religious beliefs on cervical cancer screening

Meaning unit (participants quotes)	**Condensed meaning unit**	**Code**	**Sub-theme**	**Theme**
There are no religious beliefs that influence their decisions on cervical cancer screening.	Belief system	Religion	Religious beliefs	Perceptions

On perception about cervical cancer, the participants were asked whether they thought they were at risk of suffering from cervical cancer and why. They expressed being at risk since cervical cancer is like any other disease. For example, 45-year-old mother of 3 narrated that;

> *".....Yes, I think I am at risk because cancer is like any other disease...."*

While another 31-year-old mother of 6 indicated that: ".... *Yes, because it can be transferred from one infected person to another when taking care of the affected person in the hospital*....." This further shows limited awareness on how cervical cancer is transmitted.

A number of participants also thought they were not at risk since the disease is not transmitted from one person to another, have not been screened, they observe hygiene and nutrition and the disease is not hereditary. Some of the narrations were;

> *"...I am not at risk because I don't feel ill in my body...." (44-year-old mother of 2)*

> *"I am not at risk because cervical cancer is a curse and I have never been cursed...." (42-year mother of 3).*

A summary of the narrations was as illustrated in the table;

Table 14: Perceptions about cervical cancer and screening

Meaning unit (participants quotes)	Condensed meaning unit	Code	Sub-theme	Theme
Yes, I think am at risk because cancer is like other diseases	Fear	Risk perception.	Risk awareness	Perception
No, I take balanced diet	Preventive measure.	Risk prevention	Risk awareness	Perception
Because it cannot be transmitted through blood or contact with an infected person	Mode of transmission	Risk awareness	Awareness	Perception

On cultural orientation, the participants expressed that there were no cultural beliefs that barred them from screening for cervical cancer. Some of the narrations from the participants include;

> *"...No cultural barrier, in case of any infection there is unity in our culture to take one to hospital....." (25-year-old mother of 3 children)*

Some of the participants however agreed that there were cultural beliefs which barred some of their members from being screened on cervical cancer. Some of them believed that cervical cancer can be transmitted from the patient to a caregiver, it is out of being bewitched and that it is a curse. Some of the narrations were;

".... It is shameful for a woman to expose her nakedness to somebody else who is not the husband. It is considered to be promiscuous...." (35-year-old mother of 5).

"*.... Cervical cancer is caused by witchcraft because cure cannot be found in hospitals but in the witchdoctors....." (45-year-old mother of 4)*

A summary of the narrations was as illustrated in the table;

Table 15: Cultural beliefs on cervical cancer

Meaning unit (participants quotes)	Condensed meaning unit	Code	Sub-theme	Theme
Cervical cancer is brought by one being bewitched and treatment is through traditional diviners	Negative effects of cultural beliefs	Misconceptions	Cultural beliefs	Perception
No cultural belief which prevents me from seeking cervical cancer screening	Positive effects of Culture.	Empowerment	Cultural beliefs	Perception

4.11.3. Service Delivery

The third theme focused on availability of cervical cancer screening services, health care professions, effectiveness and what can be improved. The study focused on the state of service delivery among the four health facilities where the participants sought for health care services especially on cancer screening.

The participants expressed that there were delays in service delivery due to fewer health care professionals, hospital infrastructure being small which led to congestion and long waiting hours. The few staff who were there did not have enough time to give personalized attention to each patient. Some of the participants indicated: -

".... services start late, not only cervical cancer screening but also other services." (29-year-old mother of 3)

"....staff do not have enough time to give information because of many people they are serving. More nurses need to be employed to care for the big numbers....." (41-year-old mother of 4)

> *"....the hospital is small with a lot of congestion which cannot allow one to ask a question which needs privacy...." (28-year-old mother of 2)*

The participants raised a number of recommendations on areas that need improvement to ensure effective and efficient service delivery to the clients at the facilities some of which include;

"... health care professionals to create time to educate the community and clients on cervical cancer, enough drugs to be availed in the hospitals…''(21- year old- mother of 1)

"*… more buildings to be built to reduce congestion, nurses not to be rude to patients, staff to come on duty in good time, hospitals to provide counseling services to patients and services to be brought near to the wananchi…..''(23 years old-mother of 1).*

A summary of the narrations was as illustrated in the table;

Table 16: Service Delivery

Meaning unit (participants quotes)	**Condensed meaning unit**	**Code**	**Sub-theme**	**Theme**
The hospital s small with a lot of congestion which cannot allow one to ask a question which needs privacy	Congestion at the facility	Privacy	Physical Infrastructure	Service delivery
Hospital to improve on waiting time	Time management	Punctuality	Facility Personnel	Service delivery

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter discusses the research findings. The findings of the research according to the objectives ranging from awareness levels about cervical cancer and screening practices, women's perception, attitudes and beliefs about cervical cancer screening and factors associated with access to cervical cancer screening services among women of reproductive age seeking health services in Bomachoge Chache Sub-County are discussed;

5.1 Awareness levels about Cervical Cancer and Screening Practices

It was established that more than half of the participants were aware of cervical cancer and screening (69.2%) with majority of them getting the information from health care workers and other multiple sources. More than half of them were confident that the disease is preventable with over 77 % of them having been screened in the last 36 months.

The strongest predictors for cervical cancer screening were, having ever heard of cervical cancer and cervical cancer screening, awareness of risk factors and warning signs. The findings are consistent with those by Ndizeye, Broeck, Varmandere & Bogers (2018) in Burundi where 76.3% of the participants had appropriate knowledge about cervical cancer disease, but risk factors were not well known such as smoking and the two most important oncogenic HPV 16&18.

Across sectional study by Nagari et., al (2022), conducted at Ethiopia to assess Knowledge and practice of cervical cancer screening and its associated factors among women attending maternal health services at public health institutions in Assosa Zone, Benishangul-Gumuz, Northwest Ethiopia. Result showed that Knowledge of cervical

cancer screening was 53.5%, and 36% of participants had practiced cervical cancer screening.

In Kenya, across sectional study done at Kiambu County to assess cervical cancer knowledge, awareness and related health behaviors amongst women of reproductive age. Results indicated that more than 80% of participants were aware of cervical cancer. Knowledge of human papilloma virus (HPV) was particularly low, likely because 55% of the study sample stated they had never heard of HPV. Though 89% of study participants deemed cervical cancer was preventable, more than 60% had an unfavorable attitude towards cervical cancer screening, deeming the process expensive, painful, and embarrassing. In line with the latter observation, only 20% of our sample had ever been screened for cervical cancer and less than half of this group had undergone regular screening (Gitonga et al., 2022).

Similarly, a descriptive study done in Kisii town, Kisii County to establish challenges of cervical cancer screening among women of reproductive age demonstrated that, majority of the participants 63% did not know the risk factors for cervical cancer, 17.9% believed that there was no, 64.2% demonstrated knowledge on cervical cancer screening and 63.6% did not know the screening methods available (Kei et al., 2016).

5.2 Women's Perception, about Cervical Cancer Screening

On the perception about cervical cancer screening, the strongest predictors of cervical cancer screening were fears about screening procedures, and being able to refer other women for cervical cancer screening with over half (54.5%) of the participants disagreeing that they were at risk of cervical cancer indicating fears. There was also a close association with between admitting risk and screening.

These findings concur with those by Dönmez, Öztürk, Kısa, & Weller, (2018) in Turkey among first year female nursing students to establish knowledge and perceptions about human papilloma virus (HPV), cervical cancer and HPV vaccine where it was established that 59.4% did not believe to be at risk of developing cervical cancer.54.6% preferred female health workers to handle their cases while those who indicate either were more likely to be screened. Majority of the study participants never discussed cervical cancer with spouse, friends or relatives. 75% of them indicated that there was no religious belief which barred them from screening.

A qualitative study conducted at Ecuador to assess knowledge and Perceptions about Cervical Cancer and Human papilloma virus (HPV) Screening in Women in Rural Areas. Results showed that the perception of cervical cancer was focused on its severity, secondary to its infectious process and screening periodicity. However, despite the diverse knowledge, indigenous people do not relate it to the human papilloma virus; in addition, there is also certain resistance to undergo the Pap smear test, for reasons such as inaccessibility and sample collection process which make women feel uncomfortable (Bautista-Valarezo,2022). Williams, Kenu, Dzubey, & Dennis-antwi, (2018) in their study in Ghana also showed that social cultural issues, such as stigmatization leads to low uptake of cervical cancer screening by women regardless of their educational levels.

In Kenya, a qualitative exploration study done at Busia and Trans Nzoia indicated that , patients, community health volunteers (CHVs), and health care providers (HCPs) perceived cervical cancer to be a chronic disease that could be treated but inevitably led to death. All 174 participants alluded to sexual behavior etiologies, including multiple sexual partners, contracting sexually transmitted infections, and early engagement in sexual activities. Patients and CHVs cited unhealthy diet and use of selected family

planning methods, while HCPs and CHVs added complications during delivery as causative. Only patients cited commercial sex, lack of vitamin B17, bacterial infections, smoking as factors. Additionally, CHVs added female circumcision, genetics, abortion, and intercourse with men with long penises as causes (Mujumdar, 2022).

5.3 Factors Associated with Access to Cervical Cancer Screening Services

Access factors associated with cervical cancer screening only had one predominant predictor which was distance to the nearest cervical cancer screening center. Those staying between 6-10 km from the nearest screening center were less likely to undergo cervical cancer screening than those who stay less than 1 kilometer away from the nearest screening facility.

A scoping review study was conducted in thirteen European countries; United Kingdom (UK), Romania, Denmark, the Netherlands, Norway, Sweden, Bulgaria, Switzerland, Estonia, Finland, France, Poland, and Portugal, to assess Factors associated with cervical cancer screening participation among migrant women. Findings indicated that Efforts to increase migrant women's participation in cervical cancer screening must target barriers to access to healthcare services in general but also specific barriers, including cultural differences about sexuality and gender, past traumatic personal experiences, and the gender and competences of healthcare professionals performing cervical cancer screening. Healthcare services should strengthen resources to meet migrants' needs, including having cervical cancer screening information translated and culturally adapted, as well as healthcare providers with skills to deal with cultural background. These findings can contribute to improve cervical cancer screening programs among migrant women, reducing health disparities and enhancing their overall health and well-being (Marques et al., 2020)

In Africa, systematic literature review was done to assess cervical cancer screening decentralized policy adaptation: an African rural-context. Results indicated that, the economic burden on women and their families greatly limit screening uptake. Examples of this burden include but are not limited to: the perceived cost of screening or treatment, travel expenses, lost wages because of missing work and fear of hidden costs (Rahman et al., 2023).

A similar study by Pinder (2018) in Ngodhe community in Migori County, Kenya aimed at educating eligible women for cervical cancer prevention and offering self-administered HPV sample collection for screening associated the high screening uptake with accessibility of the services to their homes. Another study done in Kenya by Bitok et al (2013) stated that many Kenyan women without medical insurance cover do not readily access services because of poverty.

5.4 Cervical Cancer Screening

The dependent variable of the study was cervical cancer screening among the study participants. The study established that some socio-demographic factors which included age, income level and employment status greatly influenced screening services. The level of awareness and knowledge on the causes, transmission, risk factors and warning signs was also a key predictor for cervical cancer screening. On perception, attitudes and beliefs about cervical cancer screening, fears of screening procedures, beliefs and myths have a low but close influence on screening. Regarding access, the cost of transport, proximity to a health facility and availability of personnel was a key predictor of cervical cancer screening.

According to a study which was conducted in Nigeria, 450 women who attended HIV clinics at Nnamdi Azikiwe Hospital university teaching Hospital were randomly selected to participate in a study to assess knowledge and awareness on cervical cancer.

Of all the participants, the average knowledge level was 9.95 %, which was inconsistent with this study (Adibe, & Aluh, 2018). 43% of those who were screened for cervical cancer didn't have knowledge on the causes or ways of preventing cancer. Fear of getting the disease drove them to take the screening.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusions

It was concluded that the level of awareness about cervical cancer and screening practices among the study participants was above average. Qualitative findings showed that participants had knowledge about cervical cancer although there were misconceptions such as prayers being a cure to cervical cancer. Witchcraft, curses and sexual immorality were cited as causes of cervical cancer. Further, delay in service delivery was attributed to shortage of health care professionals and inadequate hospital infrastructure.

6.2 Recommendations

6.2.1 Practice Recommendations

The study recommends that Kisii County Government, Department of Health to:-

Health care workers to enhance awareness to demystify negative perceptions about the causes of cervical cancer such as witch craft, sexual immorality and curses, through forums such as during outreaches, health facility talks and mass media.

6.2.2 Policy Recommendations

The sub county health management team to scale up outreach services for cervical cancer screening to increase access.

6.2.3 Future Research

a) Need for further study to investigate on the effect of culture in cervical cancer screening in the sub county.

REFERENCES

Adibe, M. O., & Aluh, D. O. (2018). Awareness, knowledge and attitudes towards cervical cancer amongst hiv-positive women receiving care in a Tertiary Hospital in Nigeria. *Journal of Cancer Education, 33*(6), 1189-1194.

Bautista-Valarezo, E., Vega Crespo, B., Maldonado-Rengel, R., Espinosa, M. E., Neira, V. A., & Verhoeven, V. (2022). Knowledge and perceptions about cervical cancer and HPV screening in women in rural areas of Ecuador: a qualitative research study. *International Journal of Environmental Research and Public Health, 19*(17), 11053.

Burrowes, S., Holcombe, S. J., Leshargie, C. T., Hernandez, A., Ho, A., Galivan, M., . . . Mahmoud, E. (2022). Perceptions of cervical cancer care among Ethiopian women and their providers: a qualitative study. *Reproductive Health, 19*(1), 2.

Carpenter, C. J. (2010). A meta-analysis of the effectiveness of health belief model variables in predicting behavior. *Health communication, 25*(8), 661-669.

Cecilia, N. C., Rosliza, A., & Suriani, I. (2017). Global burden of cervical cancer: a literature review. *International Journal of Public Health and Clinical Sciences, 4*(2), 10-18.

Choi, S., Ismail, A., Pappas-Gogos, G., & Boussios, S. (2023). HPV and cervical cancer: A review of epidemiology and screening uptake in the UK. *Pathogens, 12*(2), 298.

Dickson, K. S., Boateng, E. N., Acquah, E., Ayebeng, C., & Addo, I. Y. (2023). Screening for cervical cancer among women in five countries in sub-saharan Africa: analysis of the role played by distance to health facility and socio-demographic factors. *BMC health services research, 23*(1), 61.

Dönmez, S., Öztürk, R., Kısa, S., Karaoz Weller, B., & Zeyneloğlu, S. (2019). Knowledge and perception of female nursing students about human papillomavirus (HPV), cervical cancer, and attitudes toward HPV vaccination. *Journal of American College Health, 67*(5), 410-417.

Dozie, U. W., Ezeala, O. V., David, C. I., Dozie, K. C. N., Chukwuocha, U. M., Iwuala, C. C., . . . Eneh, S. C. (2023). Factors associated with health seeking delay in the screening of cervical cancer among women in Imo state, south Eastern Nigeria. *Cancer Treatment and Research Communications, 37*, 100765.

Ferlay, J., Ervik, M., Lam, F., Colombet, M., Mery, L., Piñeros, M., . . . Bray, F. (2018). Global cancer observatory. *Cancer today, 23*(7), 323-326.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction*: Longman Publishing.

Gatumo, M., Gacheri, S., Sayed, A.-R., & Scheibe, A. (2018). Women's knowledge and attitudes related to cervical cancer and cervical cancer screening in Isiolo and Tharaka Nithi counties, Kenya: a cross-sectional study. *BMC cancer, 18*, 1-9.

Gelassa, F. R., Nagari, S. L., Jebena, D. E., Belgafo, D., Teso, D., & Teshome, D. (2023). Knowledge and practice of cervical cancer screening and its associated factors among women attending maternal health services at public health institutions in Assosa Zone, Benishangul-Gumuz, Northwest Ethiopia, 2022: A cross-sectional study. *BMJ open, 13*(5), e068860.

Gibson, E. G., Gage, J. C., Castle, P. E., & Scarinci, I. C. (2019). Perceived susceptibility to cervical cancer among African American women in the Mississippi Delta: does adherence to screening matter? *Women's Health Issues, 29*(1), 38-47.

Gitonga, E., Iseme, R., Mutisya, R., & Kodhiambo, M. (2022). Cervical cancer knowledge, awareness and related health behaviours amongst women of reproductive age in Kiambu County, Kenya: a cross-sectional study. *Health Psychology and Behavioral Medicine, 10*(1), 1056-1070.

Glanz, K., Burke, L. E., & Rimer, B. K. (2011). Health behavior theories. *Philosophies and theories for advanced nursing practice*, 247-270.

Gristwood, J. (2011). Applying the health belief model to physical activity engagement among older adults. *Illuminare, 9*.

Grove, S. K. (2008). *The practice of nursing research*.

Huchko, M. J., Ibrahim, S., Blat, C., Cohen, C. R., Smith, J. S., Hiatt, R. A., & Bukusi, E. (2018). Cervical cancer screening through human papillomavirus testing in community health campaigns versus health facilities in rural western Kenya. *International Journal of Gynecology & Obstetrics, 141*(1), 63-69.

Hull, R., Mbele, M., Makhafola, T., Hicks, C., Wang, S. M., Reis, R. M., . . . Bates, D. O. (2020). Cervical cancer in low and middle-income countries. *Oncology letters, 20*(3), 2058-2074.

IARC. (2019). International agency for research on cancer.

Jeddo, Z. (2022). Knowledge, perception, and sources of information towards cervical cancer and utilization of papanicolaou (pap) smear as screening among female in medina, Saudi Arabia. *Obstet Gynecol Int J, 13*(6), 378-383.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research, 1*(2), 112-133.

Kamwesigye, A., Amanya, D., Nambozo, B., Epuitai, J., Nahurira, D., Wani, S., . . . Nantale, R. (2024). Barriers and enablers to utilisation of postpartum long-acting reversible contraception in Eastern Uganda: a qualitative study.

Kei, R. M., M'Ndegwa, J. K., Ndwiga, T., & Masika, F. (2016). Challenges of cervical cancer screening among women of reproductive age in Kisii Town, Kisii County, Kenya.

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of accounting and economics, 39*(1), 163-197.

Mabachi, N. M., Wexler, C., Acharya, H., Maloba, M., Oyowe, K., Goggin, K., & Finocchario-Kessler, S. (2022). Piloting a systems level intervention to improve cervical cancer screening, treatment and follow up in Kenya. *Frontiers in Medicine, 9*, 930462.

Markovic-Denic, L., Djuric, O., Maksimovic, N., Popovac, S., & Kesic, V. (2018). Effects of human papillomavirus awareness and knowledge on psychological state of women referred to cervical cancer screening. *Journal of Lower Genital Tract Disease, 22*(3), 178-183.

Marques, P., Nunes, M., Antunes, M. d. L., Heleno, B., & Dias, S. (2020). Factors associated with cervical cancer screening participation among migrant women in Europe: a scoping review. *International journal for equity in health, 19*, 1-15.

MOH. (2018). Guidelines for Conducting Adolescents Sexual and Reproductive Health Research in Kenya. National AIDS and STI Control Programme (NASCOP) & Kenya Medical Research Institute (KEMRI).

Morema, E. N., Atieli, H. E., Onyango, R. O., Omondi, J. H., & Ouma, C. (2014). Determinants of cervical screening services uptake among 18–49 year old women seeking services at the Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya. *BMC health services research, 14*, 1-7.

Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative & qualitative apporaches* (Vol. 2): Acts press Nairobi.

Mujumdar, V., Naanyu, V., Kamano, J., Cherono, P., Koros, H., Etyang, L., . . . Waqo, E. (2022). A qualitative exploration of perceived causes of cervical cancer in Busia and Trans Nzoia, Western Kenya (416). *Gynecologic Oncology, 166*, S210.

Mwenda, V., Odeny, L., Mohamed, S., Gathecha, G., Kendagor, A., Kiptui, D., . . . Okinda, K. (2023). Prevalence, patterns, and factors associated with tobacco use among patients with priority tobacco related illnesses at four Kenyan national referral hospitals, 2022. *PLOS Global Public Health, 3*(11), e0002002.

Ndizeye, Z., Vanden Broeck, D., Vermandere, H., Bogers, J. P., & Van Geertruyden, J.-P. (2018). Knowledge and practices of general practitioners at district hospitals towards cervical cancer prevention in Burundi, 2015: a cross-sectional study. *Globalization and health, 14*, 1-8.

Nthiga, A. M. (2014). *Determinants of cervical cancer screening uptake among women in Embu County, Kenya.*

Pinder, L. F., Nzayisenga, J.-B., Shibemba, A., Kusweje, V., Chiboola, H., Amuyunzu-Nyamongo, M., . . . Mumba, C. (2018). Demonstration of an algorithm to overcome health system-related barriers to timely diagnosis of breast diseases in rural Zambia. *PLoS One, 13*(5), e0196985.

Rahman, R., Clark, M., Collins, Z., Traore, F., Dioukhane, E., Thiam, H., . . . Peters, K. (2019). Cervical cancer screening decentralized policy adaptation: an African rural-context-specific systematic literature review. *Global health action, 12*(1), 1587894.

Rosenstock, I. M. (2005). Why people use health services. *The Milbank Quarterly, 83*(4).

Singh, D., Vignat, J., Lorenzoni, V., Eslahi, M., Ginsburg, O., Lauby-Secretan, B., . . . Vaccarella, S. (2023). Global estimates of incidence and mortality of cervical cancer in 2020: a baseline analysis of the WHO Global Cervical Cancer Elimination Initiative. *The lancet global health, 11*(2), e197-e206.

Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians, 71*(3), 209-249.

Williams, M. S., Kenu, E., Dzubey, I., Dennis-Antwi, J. A., & Fontaine, K. (2018). A qualitative study of cervical cancer and cervical cancer screening awareness among nurses in Ghana. *Health care for women international, 39*(5), 584-594.

APPENDICES

Appendix I: Consent Form for Questionnaire

Title: Determinants for Cervical cancer screening uptake among women of reproductive age in Bomachoge Chache sub county, Kisii County.

Introduction

Hallo. My name is Benson Osoro. I am a student from Moi University. I am inviting you to participate in this research study titled "Determinants of Cervical Cancer Screening Uptake among Women of Reproductive Age in Bomachoge Chache Sub County, Kisii County. We hope that from this study we will get information necessary to provide guidance to key stakeholders on improving access to cervical cancer screening services.

The purpose of this consent form is to give you the information you will need to help you decide whether to be in the study or not. Please read this form carefully or listen as it is read to you and ask any questions you may have before agreeing to be in the study.

Study Objective

The aim of this study is to determine the factors that influence uptake of Cervical Cancer Screening among Women of Reproductive age in Bomachoge Chache Sub County, Kisii County. You are one of the 362 participants chosen to be involved in this study. You can take part in this study if you are between 15 and 49 years of age and have just been attended to in the Maternal and child clinic (MCH).

Participation in the Study

We are asking for your participation in this study so that we are able to address the objectives. You are free to refuse to participate and to withdraw from the study at any time without penalty or loss of benefits to which you are otherwise entitled.

Voluntarism

Participation in this study is voluntary. You do not have to talk about anything you do not want to and can end the interview at any time.

Procedures

This is what will happen if you decide to participate in this study. You will be asked several questions whose answers will be noted down on the questionnaire paper. The expected time to be taken for the questionnaire will be around 20 minutes.

Risk and Benefits in Participation

You may become embarrassed, worried or anxious because of some of the questions asked. Participation in the study will require you commit your time; however you will be served as quickly as possible. This study will be of benefit by identifying challenges faced by women in accessing cervical cancer screening services so that they can be addressed to improve health care.

Confidentiality

Your identity as a subject will be kept confidential; the information about you will be identified only by the study number and will not be linked to your name in any records. Data collected will be kept under lock.

Costs and Reimbursement

You will not be charged to be involved in this study. There are no financial benefits for participating in this study.

Contact Information

If you have any questions or concerns about this study or if any problems arise, please contact the principal investigator, Benson Osoro; 0715001719. If you have any questions or concerns about your rights as a research participant, please contact the Moi University Board of Ethics, IREC at 0787723677.

Consent

I have read this consent form and have been given the opportunity to ask questions. I give my consent to participate in this study.

Participant's signature……Date: ……/……/…….

If illiterate;

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print name of witness……..

Signature of witness…… Date……

Participant left hand thumb print……..

NB: A copy of this consent form should be given to you.

A literate witness must sign (if possible, this person should be selected by the participant and should have no connection to the research team). Participants who are illiterate should include their thumb print as well.

Statement by Researcher/Person Taking Consent

I have accurately read out the information sheet to the potential participant and to the best of my ability made sure that the participant understands the purpose of the study. I confirm that the participant was given the opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent and the consent has been given freely and voluntarily. Copy of this informed consent form has been provided to the participant.

Name of Researcher/person taking consent……..

Signature:……Date:…../…../…….

Appendix II: Questionnaire - English

Title: Determinants of cervical cancer screening uptake among women of reproductive age in Bomachoge Chache Sub –County.

Kindly fill in the questionnaire below. The information given will be treated with utmost confidence and will only be used for the purposes of this academic study. Thank you for agreeing to participate.

Participant Serial Number: ……

Date of Interview: ……/…../…… (Dd/mm/yyyy)

SECTION A: DEMOGRAPHIC DATA

Introduction

This section deals with personal information about the participant.

Mark the appropriate response by indicating (x) in the spaces provided

Socio-Demographic characteristics of the study participants.

1. How old are you? ----------

2. What is your current marital status?

i. Single. [ ]

ii. Married (monogamous). [ ]

iii. Married (polygamous). [ ]

iv. Widowed [ ]

3. What is the highest level of formal education you have attained?

i. None. [ ]

ii. Primary. [ ]

iii. Secondary. [ ]

iv. Tertiary (post-secondary). [ ]

4. What is your source of income?
i. Employed

ii. Self employed

Iii. Short term employment/casual

iv. Unemployed

Others specify----------

5. What is your average monthly income?

i. Less than 4000 shillings.

ii. 4001-10,999 shillings.

iii. 11000-20999 shillings.

iv. Over 21,000 shillings.

6. How many children do you have?

i. 0-1 [ ]

ii. 2-3 [ ]

iii. More than 4 children [ ]

SECTION B: AWARENESS ABOUT CERVICAL CANCER AND SCREENING

Introduction

This section deals with assessing the participant on the awareness levels about cervical cancer and screening.

Mark the appropriate responses by indicating (x) in the spaces provided

7. a) Have you ever heard about cervical cancer? (If 'No' proceed to question 8)

Yes '[ ] No [ ]

b) If yes, from which source did you get that information from: (Check appropriate boxes?)

i. Health workers. [ ] (specify type e.g. doctor, nurse etc.)……..

ii. Friends. [ ]

iii. Family. [ ]

iv. Women group meetings. [ ]

v. Religious groups. [ ]

vi. Media. [ ] (specify-radio, TV, Newspapers, Posters)……..

vii. Others (specify)……

c) In your opinion, do you think cervical cancer is preventable? (If No move to no.8)

Yes [ ] No [ ]

If yes how? (Record all answers)

……

8. The following factors may or may not increase a woman's chance of developing cervical cancer. How much do you agree?

Risk Factors	**Yes**	**No**	**Do not know**
Infection with Human Papillomavirus (HPV)			
Smoking cigarettes			
Having a weakened immune system (e.g. because of HIV/AIDS, immunosuppressant drugs or having Transplant)			
Infection with Chlamydia (asexually transmitted infection)			
Starting to have sex at a young age (before age 17years)			
Having many sexual partners			
Having a sexual partner with many previous partners			
Not going for regular cervical cancer screening			

Having sexual partner who is not circumcised

9. Have you heard of cervical cancer screening?

Yes [ ] No [ ]. (If no go to question 8)

a) If yes, have you been screened for cervical cancer before?

Yes [ ] No [ ]

b) If yes, when:

Year: …../……/…….(dd/mm/yyyy) do not recall [ ]

c) If yes, where did you get information about cervical cancer screening?

i. Health workers. [ ] (specify e.g. CHW, nurse, doctor). ……

ii. Friends. [ ]

iii. Family. [ ]

iv. Women group meetings. [ ]

v. Religious groups. [ ]

vi. Media. [ ] (specify radio, TV, Newspapers, Posters, and Internet etc.)…….

vii. Barazas. [ ]

viii. Others specify----------

10 a) were you screened for cervical cancer today? (If 'No' go to question 11)

Yes [ ] No [ ]

• Confirmed from clients file by interviewer.

Yes [ ] No [ ]

b) What were the results of a screen test?

Positive screen test [ ] Negative screen test [ ]

• Interviewer to record results from the patient file

11. If not screened, what are the Reasons for non-participation in screening, tick all that applies?

i. I don't feel at risk

ii. Fear of the examination

iii. Test being unpleasant

iv. I don't know what to do.

v. I don't know where to go

vi. Lack of transport

vii. I am always busy.

viii. It is useless because if something abnormal is found nothing can be done about it

12. a) Have you ever heard of HPV (Human Papilloma virus)? (If 'No' go to question 13)

Yes [ ] No [ ]

b) If yes, in which ways is it transmitted (Record answers): ……..……

c) How can it be prevented (Record answers) ……....……..……

13. Can cervical cancer be treated?

Yes [ ] No [ ]

Explain your answer above ……...

14. The following may be warning signs for cervical cancer. I am interested in your opinion

Warning Signs	**Yes**	**No**	**Do not know**
Do you think vaginal bleeding between periods could be a sign of cervical cancer?			
Do you think persistent lower back pain could be a sign of cervical cancer?			
Do you think a persistent vaginal discharge that smells unpleasant could be a sign of cervical cancer?			
Do you think discomfort or pain during sex could be a sign of cervical cancer?			
Do you think menstrual periods that are heavier or longer than usual could be a sign of cervical cancer?			

Do you think vaginal bleeding after the menopause could be a sign of cervical cancer?

Do you think blood in your stool or urine could be a sign of cervical cancer?

Do you think unexplained weight loss could be a sign of cervical cancer?

Do you think vaginal bleeding during or after sex could be a sign of cervical cancer?

Do you think persistent pelvic pain could be a sign of cervical cancer?

Do you think persistent diarrhea could be a sign of cervical cancer?

SECTION C: PERCEPTIONS ABOUT CERVICAL CANCER SCREENING
Introduction

In this section, the study will explore how perceptions affect cervical cancer screening.

Mark appropriately for responses given by indicating(x) in the spaces provided.

15. Do you think you are at risk of developing cervical cancer?

    Yes [ ]

    No [ ]

16. Do you have any fear about screening procedure?

    Yes [ ]

    No [ ]

If yes, why? ----------

17. Are you afraid of vaginal examinations?

    Yes [ ]

    No [ ]

18. Do you have any fear of being diagnosed with cervical cancer?

    Yes [ ]

    No [ ]'

19. Do you prefer to receive services from male or female service providers?

    Male [ ]

    Female [ ]

    Any of the above [ ]

20. Would you refer other women for screening services?

    Yes [ ]

    No [ ]

21. Have you ever discussed cervical cancer with your spouse?

    Yes [ ]

    No [ ]

22. Have you ever discussed cervical cancer with peers?

    Yes [ ]

    No [ ]

23. Have you ever discussed cervical cancer with close relatives?

    Yes [ ]

    No [ ]

24. Do cultural beliefs hinder you from having cervical cancer screening?

    Yes [ ]

    No [ ]

If yes, list the beliefs----------

---

25. Do your religious beliefs likely to affect your cervical cancer screening behavior?

Yes [ ]

No [ ]

If yes, how?(record all the responses)----------

Were you satisfied on how you were handled by health care workers?

Yes [ ]

No [ ]

If no, which area do you recommend improvement? ----------

SECTION D: FACTORS ASSOCIATED WITH ACCESS OF CERVICAL CANCER SCREENING SERVICES.

Introduction

In this section, the study will assess how accessible are the cervical cancer screening services to clients. Mark the appropriate response by indicating(x) in the space provided

27. What is the distance from your home to the nearest cervical cancer screening center?

i. Below 1 km [ ]
ii. 1 – 5 kms [ ]
iii. 5 – 10 kms [ ]
iv. Over 10 kms [ ]

28. How much was your transport cost to the cervical cancer screening center?

i. Nil [ ]
ii. Kshs 10 – 50 [ ]
iii. Kshs 50 – 100[ ]
iv. Above Kshs. 100[ ]

29. How much is cervical cancer screening in this hospital?

i. Ksh nil [ ]
ii. Ksh50- 100. [ ]

iii. Ksh 200. [ ]

iv. Ksh over 200. [ ]

30. In your opinion do you think cost of cervical cancer screening is affordable in this hospital?

Yes [ ] No [ ]

THANK YOU FOR YOUR TIME

Appendix III: Focused Group Discussion Consent Form - English

Title: Determinants of Cervical cancer screening uptake among women of reproductive age in Bomachoge Chache Sub County, Kisii County.

Introduction

Hallo. My name is Benson Osoro. I am a student from Moi University. I am inviting you to participate in this research study titled "Determinants of Cervical cancer screening uptake among women of reproductive age in Bomachoge chache sub county, Kisii County". We hope that from this study we will get information necessary to provide guidance to key stakeholders on improving access to cervical cancer screening services.

The purpose of this consent form is to give you the information you will need to help you decide whether to be in the study or not. Please read this form carefully or listen as it is read to you and ask any questions you may have before agreeing to be in the study.

Study objective

The aim of this study is to determine the factors that influence uptake of cervical cancer screening among women of reproductive age, in Bomachoge Chache Sub County.

Participation in the study

We are asking for your participation in this study so that we are able to address the objectives. You are free to refuse to participate and to withdraw from the study at any time without penalty or loss of benefits to which you are otherwise entitled.

Voluntarism

Participation in this study is voluntary. You do not have to talk about anything you do not want to and can end the interview at any time.

Procedures

This is what will happen if you decide to participate in this study. You will be asked several questions. Every participants input is valuable. The discussion will take approximately 45 minutes. It will be tape recorded and notes will be taken. This will be done to ensure that everything said is remembered. You will not be required to identify yourself by name. There is no right or wrong answers.

Risks and benefits in participation

You may become embarrassed, worried or anxious because of some of the questions asked. Participation in the study will require you commit your time. This study will be of benefit by identifying challenges faced by women in accessing cervical cancer screening services so that they can be addressed to improve health care.

Confidentiality

Your identity as a subject will be kept confidential; the information about you will be identified only by the study number and will not be linked to your name in any records. Some confidentiality may be lost if some of those participating do not keep confidentiality. Therefore participants are requested to keep the discussion of the focus group discussion confidential. The recordings and notes will be kept under lock and key.

Costs and reimbursement

You will not be charged to be involved in this study. There are no financial benefits for participating in this study.

Contact information

If you have any questions or concerns about this study, or if any problems arise, please contact the principal investigator, Benson Osoro; 0715001719. If you have any questions or concerns about your rights as a research participant, please contact the Moi University Board of Ethics, IREC at 0787723677.

Consent

I have read this consent form and have been given the opportunity to ask questions. I give my consent to participate in this study.

Participant's signature_____ Date: -----/----/----------

Statement by researcher/person taking consent

I have accurately read out the information sheet to the potential participant and to the best of my ability made sure that the participant understands the purpose of the study. I confirm that the participant was given the opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent and the consent has been given freely and voluntarily. Copy of this informed consent form has been provided to the participant.

Name of Researcher/person taking consent……

Signature:……Date: ...../…../……..

Appendix IV: Focused Group Discussion guide.

Title of Study: Cervical cancer screening uptake among women of reproductive age in Bomachoge Chache sub county, Kisii County.

Participant Number: …….

Name of interviewer: ……

Guide

1. What is cervical cancer?

2. Are there any religious beliefs, which influence your decision in seeking care for cervical cancer screening?

3. Do you think you are at risk of suffering from cervical cancer? Why?

4. Do you have cultural beliefs? Which are they? Among them which ones prevents you from seeking care for cervical cancer screening?

5. What's your opinion on how cervical cancer services are given in the hospital? Which improvement do you recommend?

Thank you for participating

Appendix V: Assent Form for Participants Aged Less Than Eighteen Years

Study Title: Determinants of cervical cancer screening uptake among women of reproductive age in Bomachoge Chache Sub County, Kisii County.

Introduction:

My name is Mr. Benson Osoro Sibota. I am a post-graduate student in the department of Nursing at Moi University. As part of my post-graduate studies, I am required to carry out a research project. My research study is aimed at assessing the determinants of cervical cancer screening among women of reproductive age in Bomachoge Chache Sub County.

Study Procedure:

If you agree to participate in this study you will be asked questions surrounding your reproductive health issues using an interviewer-administered questionnaire after being served.

Benefits of the study:

There is no direct benefit to the participants but the study will contribute to evidence-based practice, and to inform policy makers on how to strengthen cervical cancer screening services in the sub county. No payments will be made for participating in the study.

Harm of the study:

There may be some discomfort associated with some questions pertaining to your private sexual behavior. Some questions may be “very private”. You are allowed to skip these questions or withdraw from the study with no consequences.

Confidentiality:

All information obtained from you will be kept strictly confidential and used only for research purposes. Your name will not appear on the data collection tools. All papers

and computer records will be kept under lock and key and security codes respectively. The questionnaires will be filled in a room/place deemed private by the researchers. Your responses will not be shared to your guardian/parent.

Rights to refuse or withdraw from study:

Participation is entirely voluntary. You are free to withdraw from the study at any point without any penalty or harm.

In case of any question regarding the study, you can contact Mr. Benson Osoro Sibota on mobile phone 0715001719

Contact persons:

NAME:	TITLE:	CONTACT
Mr. Benson Osoro Sibota	Principal Investigator	Tel: 0715001719
Email: bensonsibota@gmail.com		
Dr. Priscah Mosol	Supervisor	Tel: 0721558607
Dr. Emily Nyaga	Supervisor	Tel 0720917977

Having read and been explained to the above:

I ……

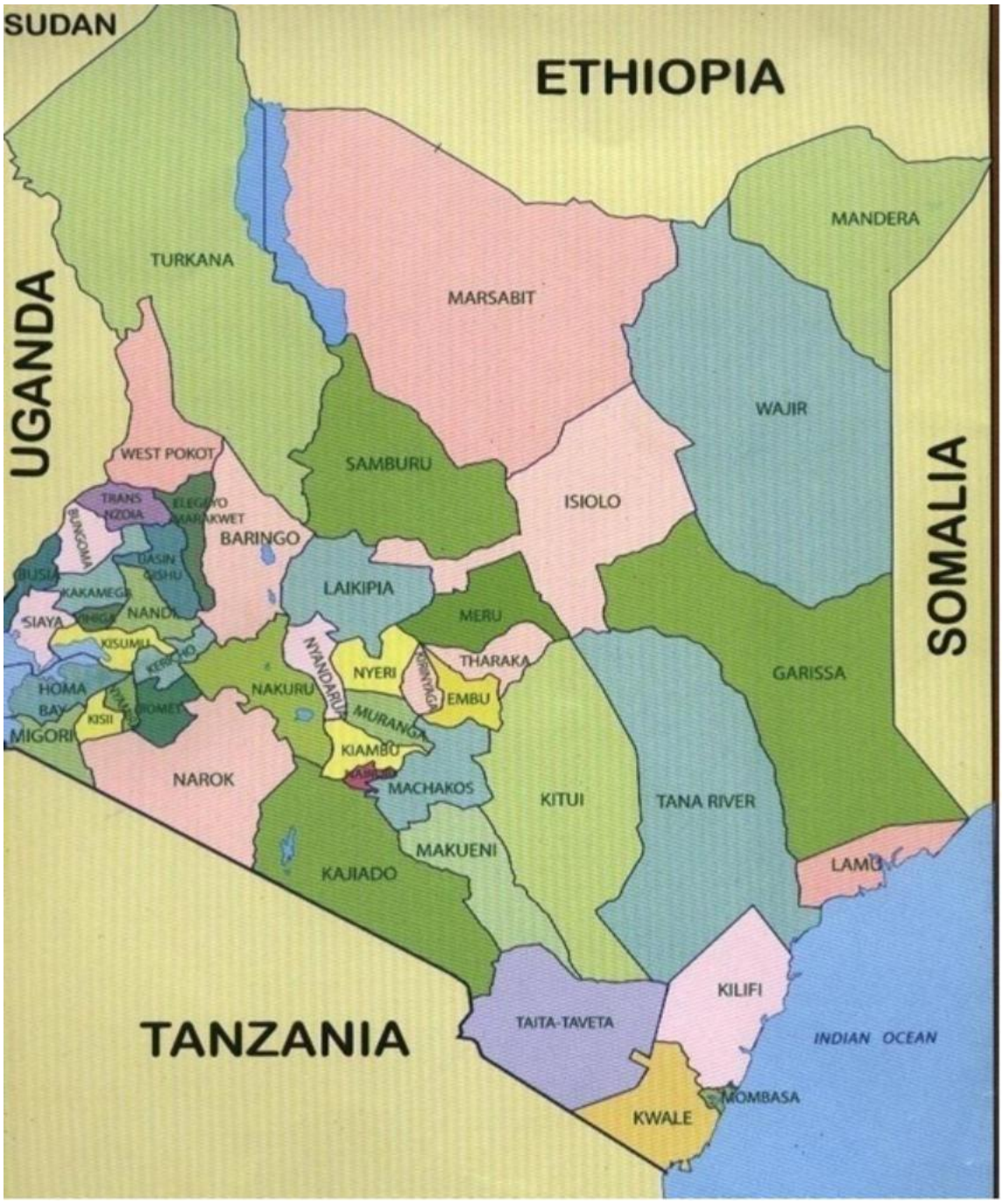
With knowledge that this study is voluntary, do hereby give my assent to participate in the study.

I understand that I can withdraw from the study at any time without any penalty or harm.

Participant's signature…….. Date …….

Principal investigator's signature …… Date …….

Appendix VI: Map of Kenya Showing Counties



Appendix VII: Map of Bomachoge Chache Sub County

Appendix VIII: MUCHS-IREC APPROVAL LETTER

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471/2/3

MOI UNIVERSITY
COLLEGE OF HEALTH SCIENCES
P.O. BOX 4606
ELDORET
Tel: 33471/2/3

Reference: IREC/2019/259
Approval Number: 0003425

18th December, 2019

INSTITUTIONAL RESEARCH & ETHICS COMMITTEE
18 DEC 2019
APPROVED
P. O. Box 4606-30100 ELDORET

Sibota Osoro Benson,
Moi University,
School of Nursing,
P.O Box 4606-30100,
ELDORET-KENYA

Dear Mr. Sibota,

DETERMINANTS OF CERVICAL CANCER SCREENING UPTAKE AMONG WOMEN OF REPRODUCTIVE AGE IN BOMACHOGE CHACHE SUB-COUNTY, KISII COUNTY

This is to inform you that ***MU/MTRH-IREC*** has reviewed and approved your above research proposal. Your application approval number is ***FAN: 0003425.*** The approval period is **18th December, *2019* – *17th* December, 2020.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***MU/MTRH-IREC***.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***MU/MTRH-IREC*** within 72 hours of notification.
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***MU/MTRH-IREC*** within 72 hours.
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to ***MU/MTRH-IREC.***

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Sincerely,

for

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc CEO - MTRH Dean - SOP Dean - SOM
Principal - CHS Dean - SON Dean - SOD

Appendix IX: Nacosti Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 327533

Date of Issue: 26/June/2020

RESEARCH LICENSE

This is to Certify that Mr.. Benson Osoro Sibeita of Moi University, has been licensed to conduct research in Kisii on the topic: DETERMINANTS OF CERVICAL CANCER SCREENING UPTAKE AMONG WOMEN OF REPRODUCTIVE AGE IN BOMACHOGE CHACHE SUB COUNTY, KISII COUNTY for the period ending : 26/June/2021.

License No: NACOSTI/P/20/5429

327533

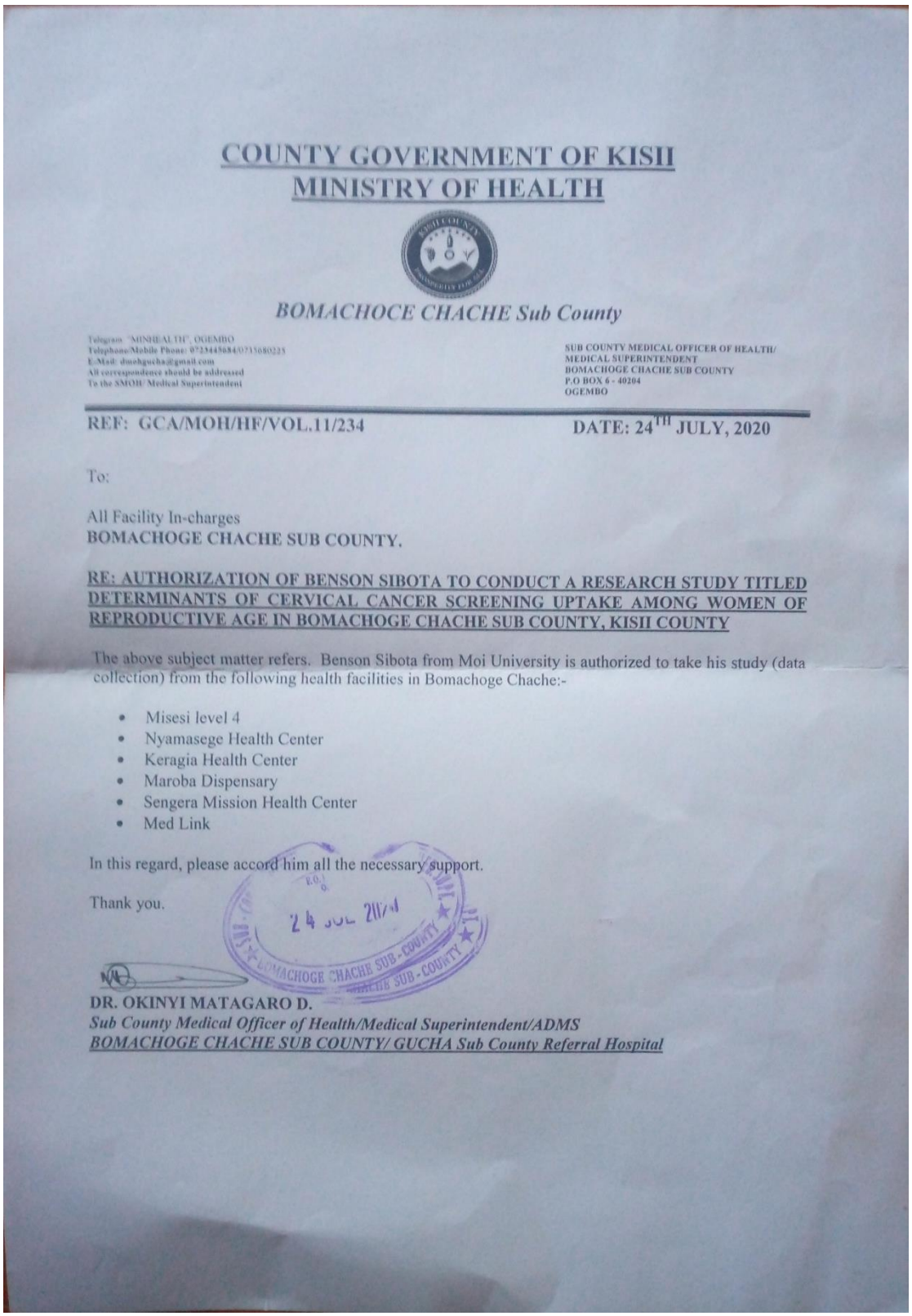
Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix X: Authorization letter from County Government of Kisi Ministry of Health



COUNTY GOVERNMENT OF KISII
MINISTRY OF HEALTH

BOMACHOCE CHACHE Sub County

Telegram "MINHEALTH", OGEMBO
Telephone/Mobile Phone: 0723445684/0735680225
E-Mail: dmohgucha@gmail.com
All correspondence should be addressed
To the SMOH/ Medical Superintendent

SUB COUNTY MEDICAL OFFICER OF HEALTH/
MEDICAL SUPERINTENDENT
BOMACHOGE CHACHE SUB COUNTY
P.O BOX 6 - 40204
OGEMBO

REF: GCA/MOH/HF/VOL.11/234 DATE: 24TH JULY, 2020

To:

All Facility In-charges
BOMACHOGE CHACHE SUB COUNTY.

RE: AUTHORIZATION OF BENSON SIBOTA TO CONDUCT A RESEARCH STUDY TITLED DETERMINANTS OF CERVICAL CANCER SCREENING UPTAKE AMONG WOMEN OF REPRODUCTIVE AGE IN BOMACHOGE CHACHE SUB COUNTY, KISII COUNTY

The above subject matter refers. Benson Sibota from Moi University is authorized to take his study (data collection) from the following health facilities in Bomachoge Chache:-

- Misesi level 4
- Nyamasege Health Center
- Keragia Health Center
- Maroba Dispensary
- Sengera Mission Health Center
- Med Link

In this regard, please accord him all the necessary support.

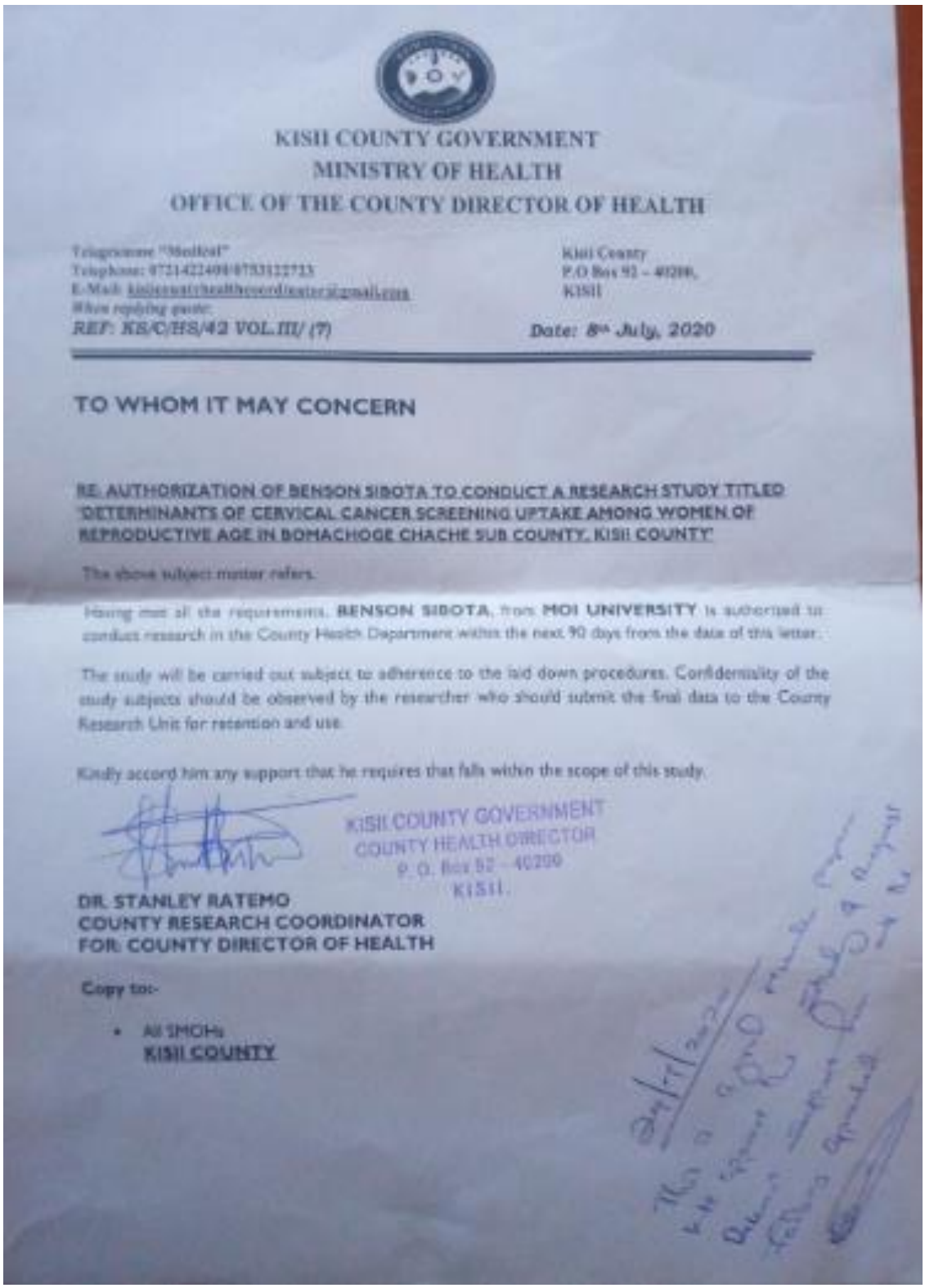
Thank you.

24 JUL 2020

BOMACHOGE CHACHE SUB-COUNTY

DR. OKINYI MATAGARO D.
Sub County Medical Officer of Health/Medical Superintendent/ADMS
BOMACHOGE CHACHE SUB COUNTY/ GUCHA Sub County Referral Hospital

Appendix XI: Authorization letter from Kisii County Government Office of the County Director of Health



KISII COUNTY GOVERNMENT
MINISTRY OF HEALTH
OFFICE OF THE COUNTY DIRECTOR OF HEALTH

Telegramme "Medical"
Telephone: 0721422498/0733122733
E-Mail: kisiicountyhealthrecord@gmail.com
When replying quote:
REF: KS/C/HS/42 VOL.III/ (7)

Kisii County
P.O Box 92 – 40200,
KISII

Date: 8th July, 2020

TO WHOM IT MAY CONCERN

RE: AUTHORIZATION OF BENSON SIBOTA TO CONDUCT A RESEARCH STUDY TITLED 'DETERMINANTS OF CERVICAL CANCER SCREENING UPTAKE AMONG WOMEN OF REPRODUCTIVE AGE IN BOMACHOGE CHACHE SUB COUNTY, KISII COUNTY'

The above subject matter refers.

Having met all the requirements, **BENSON SIBOTA**, from **MOI UNIVERSITY** is authorized to conduct research in the County Health Department within the next 90 days from the date of this letter.

The study will be carried out subject to adherence to the laid down procedures. Confidentiality of the study subjects should be observed by the researcher who should submit the final data to the County Research Unit for retention and use.

Kindly accord him any support that he requires that falls within the scope of this study.

KISII COUNTY GOVERNMENT
COUNTY HEALTH DIRECTOR
P. O. Box 92 - 40200
KISII.

DR. STANLEY RATEMO
COUNTY RESEARCH COORDINATOR
FOR: COUNTY DIRECTOR OF HEALTH

Copy to:-

- All SMOHs
  KISII COUNTY