

**UTILIZATION OF CERVICAL CANCER SCREENING  
AND ITS ASSOCIATED FACTORS AMONG WOMEN  
AGED 25-49 YEARS IN KALOLENI SUB-COUNTY,  
KILIFI COUNTY**

**EMMANUEL MOFFAT ONDUKO**

**MASTER OF SCIENCE IN  
PUBLIC HEALTH**

**JOMO KENYATTA UNIVERSITY  
OF  
AGRICULTURE AND TECHNOLOGY**

**2026**

**Utilization of Cervical Cancer Screening and Its Associated Factors  
among Women aged 25-49 Years in Kaloleni Sub-County, Kilifi  
County**

**Emmanuel Moffat Onduko**

**A Thesis Submitted in Partial Fulfillment of the Requirements for  
the Degree of Master of Science in Public Health of the Jomo  
Kenyatta University of Agriculture and Technology**

**2026**

**DECLARATION**

This thesis is my original work and has not been presented for a degree in any other University

Signature.....Date .....

**Emmanuel Moffat Onduko**

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

Signature.....Date .....

**Dr. George Makalliwa, PhD**  
**JKUAT, Kenya**

Signature.....Date .....

**Ms. Caroline Patricia Musita**  
**JKUAT, Kenya**

## **DEDICATION**

I dedicate this work to all those who have been affected by cervical cancer. May our efforts contribute to increased awareness, access to cervical cancer screening, and, ultimately, improved health outcomes for women, especially in underserved areas.

## **ACKNOWLEDGEMENT**

I would like to thank the participants, the research assistants for collection of the data and my supervisors for the unequivocal support.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>ii</b>
<b>DEDICATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENT .....</b>	<b>iv</b>
<b>TABLE OF CONTENTS.....</b>	<b>v</b>
<b>LIST OF TABLES .....</b>	<b>ix</b>
<b>LIST OF FIGURES .....</b>	<b>xi</b>
<b>LIST OF APPENDICES .....</b>	<b>xii</b>
<b>ACRONYMS AND ABBREVIATIONS .....</b>	<b>xiii</b>
<b>ABSTRACT .....</b>	<b>xiv</b>
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.1 Background Information .....	1
1.2 Statement of the Problem .....	3
1.3 Justification .....	4
1.4 Objectives.....	5
1.4.1 Broad Objective .....	5
1.4.2 Specific Objectives .....	5
1.5 Research Questions .....	5
1.6 Conceptual Framework .....	6

<b>CHAPTER TWO .....</b>	<b>8</b>
<b>LITERATURE REVIEW.....</b>	<b>8</b>
2.1 Introduction .....	8
2.2 Theoretical Framework .....	8
2.3 Proportion of Women Utilizing Cervical Cancer Screening.....	10
2.4 Individual-Level Characteristics .....	11
2.4.1 Predisposing Factors.....	11
2.4.2 Enabling Factors .....	13
2.4.3 Perceived Need Factors .....	15
2.5 Health Facility-Level Factors .....	18
<b>CHAPTER THREE .....</b>	<b>20</b>
<b>MATERIALS AND METHODS .....</b>	<b>20</b>
3.1 Study Site .....	20
3.2 Study Design .....	20
3.3 Study Population .....	20
3.3.1 Inclusion criteria .....	21
3.3.2 Exclusion criteria .....	21
3.4 Study Variables .....	21
3.5 Sample Size Calculations .....	22
3.6 Sampling Techniques .....	23
3.7 Methods of Data Collection.....	25

3.8 Data Collection.....	26
3.9 Data Management and Analysis.....	27
3.10 Ethical Considerations.....	28
<b>CHAPTER FOUR.....</b>	<b>30</b>
<b>RESULTS .....</b>	<b>30</b>
4.1 Proportion of Women Aged 25-49 Years Utilizing Cervical Cancer Screening .....	30
4.2 Characteristics of the Study Participants.....	31
4.2.1 Socio-Demographic Characteristics (Predisposing Factors – Part 1).....	31
4.2.2 Knowledge and Awareness of Cervical Cancer and Screening (Predisposing Factors – Part 2).....	33
4.2.3 Enabling Factors .....	34
4.2.4 Need Factors .....	35
4.2.5 Health Facility Characteristics.....	36
4.3 Individual-level Characteristics Associated with the Utilization of Cervical Cancer Screening.....	38
4.3.1 Predisposing Factors.....	38
4.3.2 Enabling Factors .....	43
4.3.3 Need Factors .....	44
4.4 Health Facility-Level Factors that Affect the Utilization of Cervical Cancer Screening .....	47
4.5 Content Analysis of Key Informant Interviews with Health Care Workers ....	50
4.6 Health Facility Assessment .....	52

<b>CHAPTER FIVE.....</b>	<b>56</b>
<b>DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>56</b>
5.1 Discussion .....	56
5.1.1 Proportion of Women Utilizing Cervical Cancer Screening .....	56
5.1.2 Individual-level Characteristics Associated with the Utilization of Cervical Cancer Screening .....	57
5.1.3 Health Facility-Level Factors that Affect the Utilization of Cervical Cancer Screening .....	63
5.2 Conclusions .....	65
5.2.1 Proportion of Women Utilizing Cervical Cancer Screening .....	65
5.2.2 Individual-Level Characteristics Associated with Utilization of Cervical Cancer Screening .....	65
5.2.3 Health Facility-Level Factors Affecting Utilization of Cervical Cancer Screening .....	66
5.3 Recommendations .....	66
<b>REFERENCES.....</b>	<b>68</b>
<b>APPENDICES .....</b>	<b>84</b>

## LIST OF TABLES

<b>Table 4.1:</b> Proportion Screened for Cervical Cancer .....	30
<b>Table 4.2:</b> Socio-Demographic Characteristics.....	33
<b>Table 4.3:</b> Knowledge and Awareness of Cervical Cancer Screening.....	34
<b>Table 4.4:</b> Enabling Factors .....	35
<b>Table 4.5:</b> Need Factors.....	36
<b>Table 4.6:</b> Health Facility Characteristics .....	37
<b>Table 4.7:</b> Association between Individual-Level Residence and Utilization of Cervical Cancer Screening in Kaloleni Sub-County.....	39
<b>Table 4.8:</b> Distribution of Utilization of Cervical Cancer Screening in Terms of Marital Status, Religion, Level of Education, and Age Group in Kaloleni Sub-County.....	40
<b>Table 4.9:</b> Association between Knowledge and Related Factors and Utilization of Cervical Cancer Screening in Kaloleni Sub-County.....	42
<b>Table 4.10:</b> Association between Enabling Factors and Utilization of Cervical Cancer Screening Services in Kaloleni Sub-County .....	44
<b>Table 4.11:</b> Association between Individual Need Factors and Utilization of Cervical Cancer Screening Services in Kaloleni Sub-County.....	46
<b>Table 4.12:</b> Association between Health Facility Level Factors and Utilization of Cervical Cancer Screening Services in Kaloleni Sub-County .....	48
<b>Table 4.13:</b> Association between Perception of Health Facility Level Factors and Utilization of Cervical Cancer Screening Services in Kaloleni Sub-County .....	50

<b>Table 4.14:</b> Content Analysis of the HCWs Key Informant Interviews in Kaloleni Sub-County .....	51
<b>Table 4.15:</b> List of Resources Available by Health Facility in Kaloleni Sub-County .....	53

## LIST OF FIGURES

<b>Figure 1.1:</b> Conceptual Framework .....	7
<b>Figure 3.1:</b> Sampling Techniques Flowchart .....	25
<b>Figure 3.2:</b> Data Collection and Procedures Flowchart .....	27
<b>Figure 4.1:</b> Cervical Cancer Screening Uptake at the Selected Health Facilities .....	31
<b>Figure 4.2:</b> Marital Status .....	32
<b>Figure 4.3:</b> Residential Areas .....	32
<b>Figure 4.4:</b> Reasons for Not Screening for Cervical Cancer.....	47
<b>Figure 4.5:</b> Detailed Cervical Cancer Screening Services Availability per Health Facility .....	55

## LIST OF APPENDICES

<b>Appendix I:</b> Informed Consent Form – Key Informant Interview.....	84
<b>Appendix II:</b> Informed Consent Form – Questionnaire .....	89
<b>Appendix III:</b> Informed Consent Form Kiswahili Version – Questionnaire.....	94
<b>Appendix IV:</b> Informed Consent Form – Health Facility Assessment.....	99
<b>Appendix V:</b> Questionnaire .....	104
<b>Appendix VI:</b> Questionnaire Kiswahili Version.....	115
<b>Appendix VII:</b> Health Facility Assessment for Cervical Cancer Screening .....	127
<b>Appendix VIII:</b> Healthcare Workers Key Informant Interview Guide .....	130
<b>Appendix IX:</b> Results for Other Questions in the Questionnaire .....	132
<b>Appendix X:</b> Letter of Ethical Approval .....	133
<b>Appendix XI:</b> JKUAT Approval Letter for Research.....	134
<b>Appendix XII:</b> NACOSTI Research License .....	135
<b>Appendix XIII:</b> Kilifi County Research Approval Letter .....	136
<b>Appendix XIV:</b> Publication .....	137

## **ACRONYMS AND ABBREVIATIONS**

<b>AIDS</b>	Acquired Immunodeficiency Syndrome
<b>DHIS</b>	District Health Information System
<b>DNA</b>	Deoxyribonucleic Acid
<b>GLOBOCAN</b>	Global Cancer Observatory
<b>HCW</b>	Healthcare Workers
<b>HHFA</b>	Harmonized Health Facility Assessment
<b>HIV</b>	Human Immunodeficiency Virus
<b>HPV</b>	Human Papilloma Virus
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>MOH</b>	Ministry of Health
<b>NACOSTI</b>	National Commission for Science, Technology and Innovation
<b>NCCS</b>	National Cancer Control Plan
<b>NIH</b>	National Institute of Health
<b>PAP</b>	Papanicolaou
<b>SHIF</b>	Social Health Insurance Fund
<b>SPSS</b>	Statistical Package for Social Sciences
<b>VIA</b>	Visual Inspection by Acetic Acid
<b>VILI</b>	Visual inspection by lugol's iodine
<b>WHO</b>	World Health Organization

## ABSTRACT

Cervical cancer continues to pose a significant public health challenge worldwide. In Kenya, cervical cancer is the second most common cancer among women, with an incidence rate of 32.8 per 100,000 and mortality of 21.4 per 100,000 in 2022, yet national screening coverage remains 17% despite free services in public facilities (KDHS, 2022). This facility-based, mixed-methods cross-sectional study assessed cervical cancer screening utilization and associated factors among 217 women aged 25–49 years attending five health facilities in Kaloleni Sub-County, Kilifi County, between June and August 2025. Guided by Andersen’s Behavioral Model of Health Services Utilization, data collection involved interviewer-administered questionnaires, key informant interviews with 20 healthcare workers, and health facility assessments. Only 23.0% of women reported ever being screened. The analysis identified several significant associations: women unaware of cervical cancer (OR = 0.078, 95% CI [0.023, 0.262],  $p < 0.001$ ), and unawareness of screening existence yielded an OR of 0.069 (95% CI [0.024, 0.201],  $p < 0.001$ ). Knowledge gaps further influenced uptake, with those who didn’t know the cervical cancer symptoms associated with an OR of 0.083 (95% CI [0.038, 0.18],  $p < 0.001$ ). Employed women (OR = 2.121, 95% CI [1.007, 4.218],  $p = 0.030$ ) and those with health insurance (OR = 2.123, 95% CI [1.067, 4.220],  $p = 0.030$ ) showed higher uptake. Husbands’ approval an OR of 0.238 (95% CI [0.117, 0.487],  $p < 0.001$ ). Health facility factors, such as service promotion, an OR of 0.105 (95% CI [0.048, 0.228],  $p < 0.001$ ), and staff training adequacy, an OR of 0.094 (95% CI [0.045, 0.198],  $p < 0.001$ ). Qualitative findings identified fear, low perceived susceptibility, spousal opposition, and facility-level barriers such as supply shortages as key deterrents. These findings highlight the importance of targeted awareness campaigns, staff training, and facility improvements to increase screening utilization.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background Information

Cervical cancer is the fourth leading cancer in women worldwide, indicating a serious public health concern, particularly in low- and middle-income countries (WHO, 2024). The 2022 GLOBOCAN report showed there were 348,874 deaths and 662,301 new cases of cervical cancer in the year 2022 (Bray et al., 2024). Cervical cancer screening rates in high-income European countries are high, varying between 80% and 98.4%, and in the United States, the rate is 72.4% (NCI, 2021; Williams et al., 2021). In contrast, countries in Africa exhibit alarming statistics, with 125,699 new cases and 80,614 deaths reported in 2022, alongside low screening rates across sub-Saharan Africa, from 0.7% in Benin to 45.9% in Namibia (Ba et al., 2021).

In Kenya, cervical cancer poses a significant challenge, with 5,845 new cases and 3,591 deaths reported in 2022. Thus, it results in substantial incidence and mortality rates of 32.8 and 21.4 per 100,000 women, respectively, making it the second most prevalent cancer among women (Bray et al., 2024). About 5.71 million women in Kenya between the ages of 25 and 49 are deemed at risk, yet only 17% of women of childbearing age have been reported to undergo cervical cancer screening (KDHS, 2022). Kenya's national cancer guidelines recommend screening 70% of eligible women in medical facilities for routine care (MOH, 2018).

Kenya has progressively enhanced its policy framework for cervical cancer control. The 2009 National Cervical Cancer Prevention (NCCP) Guidelines introduced visual inspection with acetic acid (VIA) and integrated screening into maternal and child health (MCH) and HIV services. Building on this, the 2017–2022 National Cancer Control Strategy established a 70% screening target and linked screening with human papillomavirus (HPV) vaccination, although uptake remained limited. In 2018, the Kenya National Guidelines for Cervical Cancer Screening formalized VIA/visual inspection with Lugol's iodine (VILI) screening every three to five years and emphasized routine integration into health services. Subsequently, the national rollout

of HPV vaccination for girls aged 9–14 years began in 2019. Addressing evolving global targets, the current National Cancer Control Strategy (2023–2027) fully adopts the World Health Organization’s 90-70-90 elimination targets: 90% HPV vaccination coverage, 70% screening coverage, and 90% treatment of precancerous lesions. Despite these advancements, national screening coverage remains low, indicating persistent implementation challenges.

In Kilifi County, cervical cancer is the leading gynecological cancer and among the top three cancers in women, and over 80% of cases are diagnosed at advanced stages (III–IV) due to low screening uptake, leading to high fatality. Kaloleni Sub-County lacks reliable data on the utilization of cervical cancer screening. The gap contributes to an increase in the risk of late cancer diagnosis, high treatment costs, morbidity, and mortality. Low cervical cancer screening is attributed to inadequate healthcare infrastructure, socioeconomic and sociocultural barriers, and individual perceptions of screening (Petersen et al., 2022).

Cervical cancer arises from the uncontrolled growth of abnormal cells in the cervix caused by persistent Human Papillomavirus (HPV) infections. These high-risk HPV persistent infections can eventually lead to cervical intraepithelial neoplasia and cervical cancer (WHO, 2018). HPV is mainly transmitted through sexual contact, and risk factors include multiple sexual partners, high parity, the use of long-term hormonal contraceptives, HIV/AIDS immunosuppression, and tobacco use (Bruni et al., 2022).

Cervical cancer is a malignancy for which effective screening is available (World Health Organization, 2014). Visual inspection by acetic acid (VIA) and lugol’s iodine (VILI) are two techniques for early detection of cervical cancer. These methods make cell changes visible to the naked eye after applying 3-5 % acetic acid. HPV tests employ molecular technologies to identify DNA from high-risk HPV strains in cervical samples. The Papanicolaou (Pap) staining method is used in cervical smears to identify abnormal cells in the cervix. Pap smear screening has been linked to a 96% reduction in the chance of acquiring cervical cancer. Regular screening effectively

controls cervical cancer (Singla & Komesaroff, 2018). Regular screening is considered an effective method for early detection and treatment.

The 2022 harmonized health facility assessment noted incomplete data entry at primary healthcare facilities in Kaloleni, thus no recent reliable data. Therefore, the study aimed to determine the utilization of cervical cancer screening and explore individual-level characteristics and health facility factors that hinder effective utilization of cervical cancer screening, and inform on necessary interventions.

## **1.2 Statement of the Problem**

Cervical cancer is a significant global issue, and it causes cancer-related deaths among women (Bray et al., 2024). Cervical cancer is the fourth most common cancer in women, claiming a life every two minutes worldwide (WHO, 2020). Not having a cervical cancer screening has significant negative impacts on individuals and communities, i.e., delayed diagnosis, increased mortality, reduced treatment options, higher healthcare costs, emotional and psychological effects, and the progression of the disease. The disease is projected to grow, particularly in Eastern Africa (Singh et al., 2023).

Kenya, which includes Kaloleni Sub-County in Kilifi County, has a mortality rate of 20.6 per 100,000 women for cervical cancer (Siegel et al., 2020). Cervical cancer is the leading cause of cancer-related deaths in Kenya (Bray et al., 2024). Only 17 % of women between the ages of 15 and 49 have had cervical cancer screening (KDHS, 2022); the uptake is much lower than the national target of 70 % set in the Kenya National Screening Guidelines for 2018. According to DHIS2 (District Health Information System 2), for 2022, the uptake of cervical cancer screening among women aged 15-49 years in Kilifi County was 1.8%. The utilization of cervical cancer screening services is not well established in Kaloleni Sub County.

In Kilifi County, which includes Kaloleni, cervical cancer is the leading gynecological cancer and is also among the top three cancers affecting women according to DHIS2 data. Over 80% of cases are diagnosed at advanced stages (III–IV) due to low screening uptake, leading to premature deaths. Kaloleni Sub-County lacks reliable

data, no studies done on cervical cancer screening and poor evaluation on the utilization of cervical cancer screening. The gap contributes to an increase in the risk of late cancer diagnosis, high treatment costs, morbidity, and mortality. Individual-level factors, such as lack of knowledge or awareness, religious barriers, perception, attitude, socio-cultural beliefs, unsupportive partners, financial constraints, and health facility-level factors, such as infrastructure and service quality, have been linked to low cervical cancer screening uptake (Petersen et al., 2022). According to Article 12 of the International Covenant on Economic, Social, and Cultural Rights and General Comment No. 22, such disparities deny women the opportunity to exercise their right to sexual and reproductive health fully.

### **1.3 Justification**

Cervical cancer poses a significant public health problem in Kaloleni Sub-County. Cervical cancer screening utilization is attributable to individual-level features such as predisposing, enabling, and need factors, as well as factors at the health facility (Devarapalli et al., 2018). Despite Kenya's efforts to scale up screening, no published study has examined these determinants in Kaloleni Sub-County, Kilifi County, leaving county health planners without localized evidence to guide resource allocation, service delivery improvements, or targeted awareness campaigns. Nationally reported coverage of approximately 17% masks substantial sub-county variation, and coastal rural areas like Kaloleni consistently record among the lowest rates from the DHIS2 data.

This study, therefore, fills a critical evidence gap by providing the first comprehensive assessment of individual and health facility factors specific to Kaloleni Sub-County. The findings will directly inform the Kilifi County health department by identifying priority interventions that are most likely to increase screening uptake in similar low-resource settings. By highlighting modifiable facility-level factors, the results will support evidence-based planning and integration of screening into routine reproductive health services across Level II–IV facilities in the county. The findings of this study are anticipated to provide context-specific evidence regarding individual and health facility-level barriers to cervical cancer screening in Kaloleni Sub-County. By

identifying modifiable determinants of low screening uptake, these results can guide targeted interventions by county health planners and partners to enhance screening participation and decrease late-stage diagnoses and mortality. Such efforts will contribute to Kilifi County and Kenya's obligations under the National Cancer Control Strategy (2023–2027), Sustainable Development Goal 3.4, which seeks to reduce premature mortality from non-communicable diseases by one-third by 2030

(United Nations, 2015) and progress towards achieving WHO global targets 90-70-90.

## **1.4 Objectives**

### **1.4.1 Broad Objective**

To determine the utilization of cervical cancer screening and its associated factors among women aged 25- 49 in Kaloleni Sub-County, Kilifi County.

### **1.4.2 Specific Objectives**

- i. To determine the proportion of women aged 25-49 who utilize cervical cancer screening services in Kaloleni Sub-County, Kilifi County.
- ii. To establish the individual-level characteristics associated with the utilization of cervical cancer screening among women aged 25-49 years in Kaloleni Sub-County, Kilifi County.
- iii. To determine health facility-level factors that affect the utilization of cervical cancer screening among women aged 25-49 years in Kaloleni Sub-County, Kilifi County.

## **1.5 Research Questions**

- i. What is the proportion of women aged 25-49 years utilizing cervical cancer screening services in Kaloleni Sub-County, Kilifi County?
- ii. What are the individual-level characteristics associated with the utilization of cervical cancer screening among women aged 25-49 years in Kaloleni Sub-County, Kilifi County?

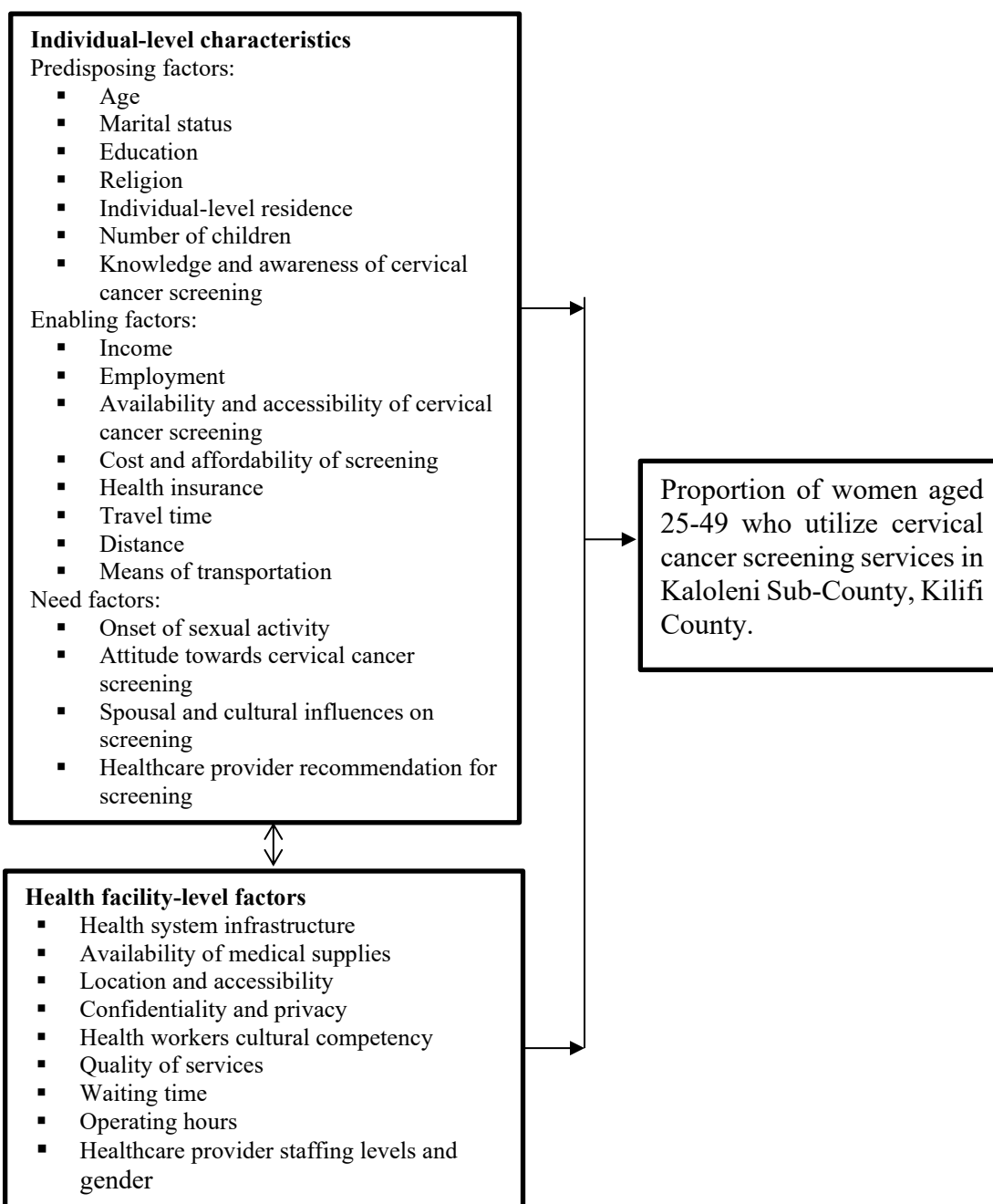
- iii. What health facility-level factors affect the utilization of cervical cancer screening among women aged 25-49 years in Kaloleni Sub-County, Kilifi County?

### **1.6 Conceptual Framework**

The study adopted Anderson's Behavioral Model of Health Services utilization (Andersen & Newman, 2005). By applying this model, the study examined how predisposing, enabling, and need factors, as well as facility-level influences, help determine whether women access screening.

## Independent Variables

## Dependent Variable



**Figure 1.1: Conceptual Framework**

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

Cervical cancer is a significant public health challenge worldwide, especially in low- and middle-income countries where screening uptake is low (IARC, 2023). Kenya has strived to strengthen its policy framework for cervical cancer control. The 2009 National Cervical Cancer Prevention (NCCP) Guidelines introduced visual inspection with acetic acid (VIA) and integrated screening into maternal and child health (MCH) and HIV services. The 2017–2022 National Cancer Control Strategy subsequently established a 70% screening target and linked screening with human papillomavirus (HPV) vaccination, although uptake remained very low. In 2018, the Kenya National Guidelines for Cervical Cancer Screening formalized VIA and visual inspection with Lugol’s iodine (VILI) screening every three to five years, emphasizing routine integration into health services. The national rollout of HPV vaccination for girls aged 9–14 years commenced in 2019. In response to global targets, the current National Cancer Control Strategy (2023–2027) fully adopts the World Health Organization’s 90-70-90 elimination targets: 90% HPV vaccination coverage, 70% screening coverage, and 90% treatment of precancerous lesions.

Despite the availability of effective screening methods that can facilitate early detection and reduce mortality, numerous factors such as socio-demographic characteristics, socioeconomic status, cultural beliefs, stigma, fear, lack of awareness, distance, lack of trained personnel and poor health infrastructure prevent women's participation in screening programs. This literature review explains the global, regional, and local situation regarding the utilization of cervical cancer screening.

#### 2.2 Theoretical Framework

Anderson’s behavioral model for health services utilization provides a theoretical framework for understanding access to and utilization of health services and for recognizing the factors that influence a person's decision to use or not use existing

health services (Andersen & Newman, 1973). This behavioral model predicts that a sequence of predisposing, enabling, and need factors influences a person's utilization of health services. As the model states, predisposing factors are social and demographic structures. Enabling factors help people use services (e.g., resource availability). For instance, income, access to free services, and the availability of those services. Factors such as need motivate people to use the service. For example, disease conditions, illness, or physical conditions.

This model is built to determine conditions that facilitate or impede health care service utilization by people, and it is flexible, offers a strong analytical structure for discussion, and has testable, generalizable variables that apply across diverse of the healthcare system and different illnesses(Alkhawaldeh et al., 2023). It is the most commonly used tool for identifying factors associated with health service utilization and for investigating the health system.

The Anderson's model adopted for this study recognizes that health service utilization is a function of four sequential domains:

- i. Predisposing factors – individual characteristics that increase the tendency to use services (Age, Marital status, Education, Religion, Individual-level residence, Number of children, Attitude towards cervical cancer screening and Knowledge and awareness of cervical cancer screening).
- ii. Enabling factors – personal, family, and community resources that permit or impede service use (Income, Employment, Availability and accessibility of cervical cancer screening, Cost and affordability of screening, Health insurance, Travel time, Distance and Means of transportation).
- iii. Need factors – perceived or evaluated health needs that drive the decision to seek care (Onset of sexual activity, Attitude towards cervical cancer screening, Spousal and cultural influences on screening and Healthcare provider recommendation for screening).
- iv. Health system/contextual factors – characteristics of the health-care delivery system that directly influence access and quality (Health system infrastructure, Availability of medical supplies, Location and accessibility, Confidentiality

and privacy, Health workers cultural competency, Quality of services, Waiting time, Operating hours and Healthcare provider staffing levels and gender).

### **2.3 Proportion of Women Utilizing Cervical Cancer Screening**

Getting screened for cervical cancer is a key way to diagnose it early and stop it before it starts, but the uptake differs a lot across different countries. In high-income countries in North America and Europe, cervical cancer screening is at 88%, and in Australia and New Zealand, at 95% (Bruni et al., 2022). Sub-Saharan Africa has the lowest prevalence, with a country-level median of 16.9%, ranging from 0.9% to 50.8%(Lemp et al., 2020). East Africa leads globally with an incidence rate of 58,145 new cases and 39,476 deaths caused by cervical cancer (Bray et al., 2024). Countries with low and middle incomes account for 90% of cases worldwide, mainly due to a lack of proper screening programs and early detection (WHO, 2024).

There is a lack of available screening programs in developing countries, and therefore, cervical cancer screening is mainly performed on an opportunistic basis, resulting in delayed disease diagnosis. Research conducted in sub-Saharan Africa regarding cervical cancer screening has indicated low uptake of 14% (Yang et al., 2023). In Nigeria, a study found that only 18.4% had utilized cervical cancer screening tests(Mafiana et al., 2022). In Ghana, cervical cancer screening participation rates were low; a study indicated that 24.6% had utilized the services(Tawiah et al., 2022). In Uganda, a study found that 20.6% had undergone cervical cancer screening(Isabirye et al., 2020). A study in Ethiopia found that 24% had utilized cervical cancer screening(Belay et al., 2020). A research study conducted in South Africa determined that only 35.5% of the population had undergone cervical cancer screening (Akokuwebe et al., 2021). A study in five sub-Saharan countries (Benin, Ivory Coast, Kenya, Namibia, and Zambia) indicated a weighted prevalence of 19%(Ba et al., 2021).

According to the Kenya Demographic and Health Survey 2022 report, only 17% of women of reproductive age had been screened for cervical cancer (KDHS, 2022). The Kenyan National Cancer Screening Guidelines recommend that 70% of eligible women presenting at healthcare facilities for routine care should undergo screening

utilizing recommended methods (MOH, 2018). A study in central Kenya indicated that 25.6% of women had received cervical cancer screening (Gatumo et al., 2018).

In developing countries, there are significant research gaps and a paucity of data on barriers hindering women's access to cervical cancer screening services. Determining the impact of existing interventions on women, especially in Kaloleni, is crucial to understanding their challenges and barriers to accessing screening services. Addressing these gaps is crucial to developing targeted and effective interventions aimed at enhancing cervical cancer screening rates in developing countries.

## **2.4 Individual-Level Characteristics**

### **2.4.1 Predisposing Factors**

Socio-demographic characteristics influence cervical cancer screening participation, including age, educational attainment, marital status, geographic locality, ethnicity, and religious affiliations. A systematic review conducted across the United States of America (USA), United Kingdom, Spain, Germany, and Norway revealed that women's uptake of cervical cancer screening is directly modulated by educational level and income (Murfin et al., 2020). The geographic proximity and availability of health facilities influence the uptake of cervical cancer screening; women who resided in urban areas had more accessibility compared to those in rural areas (Dickson et al., 2023).

Individuals' marital status is a critical indicator of health-seeking behavior. A study involving 393 women in Kenya revealed that 61% of those who underwent cervical cancer screening were married and benefited from family and spousal support (Kiboche et al., 2020).

In England, women between the ages of 25 and 64 are required to participate in routine cervical cancer screening programs. However, the younger women do not identify themselves as at risk and do not take up the services (Lau et al., 2022a). Research conducted in Ethiopia revealed that women aged 40-49 years showed higher utilization of cervical cancer screening services, with a rate of 36.1%, in contrast to younger

women aged 18-29 years, who demonstrated a utilization rate of 8% (Woldetsadik et al., 2020). Another Ethiopian study found that 80.2% of women who had not undergone cervical cancer screening attributed their non-participation to a lack of awareness. In comparison, 49.7% perceived themselves as not at risk (Belay et al., 2020). In Kenya, KDHS 2022 analysis showed the odds of cervical cancer screening among older women was higher than among younger women (Gebreegziabher et al., 2024)

Education level are indicators of the acceptance of cervical cancer screening in sub-Saharan Africa (Yimer et al., 2021). Research spanning Egypt and Nigeria demonstrated that women with tertiary education possessed superior knowledge of cervical cancer screening compared to their counterparts with lower educational levels. However, this did not impact the low utilization of 11 % for cervical cancer screening (Omotoso et al., 2020). In Kenya, a nested case-control study from the 2015 STEPS survey found educated women 8 times more likely to screen (25.2% uptake) than those with no formal education (3.2%) (Ng'ang'a et al., 2018)

A research study found that 61% of women in Embu, Kenya, had inadequate information and knowledge about measures to prevent cervical cancer (Njuita et al., 2021). Research conducted in Ghana determined that the utilization of cervical cancer screening services is hindered by insufficient knowledge regarding the availability of these services and the locations where they can be accessed (Binka et al., 2019).

Research conducted in Kenya demonstrated that parity serves as a critical determinant, revealing that women who had given birth were more likely to have undergone cervical cancer screening, with those having a history of childbirth being three times more likely to participate compared to nulliparous women (Linus et al., 2021). An Ethiopian study established a significant correlation between the utilization of cervical cancer screening services and positive attitudes and knowledge regarding cervical cancer and its screening methods (Teame et al., 2019).

An Ethiopian study found that individuals with a positive attitude toward cervical cancer screening were six times more likely to express intent to participate than those with a negative attitude (Getahun et al., 2020). However, a research study in Ghana

indicated that, despite participants demonstrating a positive perception of cervical cancer screening, they did not utilize the services due to fear of the procedure being painful and expensive (Kokuro, 2017). A study in coastal Kenya found out that gender stereotypes influenced utilization of maternal and health services (Mochache et al., 2020)

Research conducted in Zimbabwe identified religion as one of the most substantial barriers preventing women in rural areas from accessing cervical cancer screening services (Gutusa & Roets, 2023). Similarly, a study in Nigeria determined that women exhibiting high levels of spirituality were less inclined to consent to cervical cancer screening (Dareng et al., 2015). A study in Zimbabwe found that association with Roman catholic church, Protestant, Pentecostal, and Apostolic sect religions hindered cervical cancer screening utilization (Tapera, Kadzatsa, et al., 2019). In Kenya, KDHS 2022 showed that Islamic and evangelical religious women had lower odds cervical cancer screening compared to the catholic (Gebreegziabher et al., 2024)

A study among Taraba women in Nigeria determined that many women, despite awareness of cervical cancer, did not utilize screening since they believed to be too young to contract the disease and they risked discrimination if they went to seek the services; they also alleged that screening is painful and indicates lack of faith in God (Rimande-Joel & Ekenedo, 2019). There is a need for more research on how cultural and religious beliefs influence cervical cancer screening behavior at Kaloleni Sub-County. Understanding the unique challenges and needs of these population in accessing cervical cancer screening services and to guide in the development of culturally tailored strategies will increase participation rates.

#### **2.4.2 Enabling Factors**

Research indicates that women of elevated socio-economic status exhibit a greater likelihood of undergoing cervical cancer screening within opportunistic systems compared to their counterparts of lower socio-economic status (De Prez et al., 2022). Conversely, women with lower socio-economic status are more frequently diagnosed with cervical cancer at advanced stages, primarily due to delayed or absent participation in timely screening programs (Vaccarella, Lortet-Tieulent, et al., 2019).

In the United States, a primary barrier preventing women from accessing cervical cancer screening at appropriate intervals is insufficient health insurance coverage (Olusola et al., 2019). A study conducted in Europe found that not testing for cervical cancer is associated with low household income and low employment status (Bozhar et al., 2022). In Uganda, those employed have an advantage in facilitating screening (Black et al., 2019). In Kenya, KDHS 2022 found that women with richest wealth index had 1.57 times higher odds of screening compared to women with poorest wealth index (Gebreegziabher et al., 2024).

About 85% of women affected are young and live in the world's poorest countries (Vega et al., 2019). A population-based study on five Sub-Saharan countries (Benin, Ivory Coast, Kenya, Namibia and Zimbabwe) indicates that those who had access to health insurance and from higher socioeconomic status had higher prevalences for screening (Ba et al., 2021). A study in Uganda found that women whose households earned \$40 and above per month had higher intentions to screen (Ndejjo, Mukama, Musinguzi, et al., 2017). A study in Ethiopia found that low monthly income was a strong predictor for low utilization of cervical cancer screening (Woldetsadik et al., 2020). Owing to financial hardships, women often emphasize fulfilling their family's economic and social duties, thus overlooking their health requirements. A Kenyan study determined that women in employment were twice as likely to demonstrate awareness of cervical cancer (Gatumo et al., 2018).

Research conducted in Ghana determined that individuals in employment exhibit a higher likelihood of participating in cervical cancer screening uptake than the unemployed (Ampofo et al., 2020). Research conducted in Cameroon indicated that 34.78% of women who had not undergone screening before advocated for free screening to increase uptake due to the financial difficulties women experience (Donatus et al., 2019). In Uganda, a study determined that 89.7% of women in their survey mentioned that the cost of screening for cervical cancer was the biggest impediment to the utilization of the services (Twinomujuni et al., 2015). A study in Nairobi, Kenya, determined that the expenses associated with different cervical cancer screening techniques present affordability challenges. Specifically, the costs were

reported: visual inspection with acetic acid at \$3.30, careHPV at \$18.28, and Papanicolaou testing at \$24.59 (Vodicka et al., 2017).

The accessibility of cervical cancer screening is substantially impeded by the geographical distance to healthcare facilities offering these services, as most women cannot afford transportation costs (Srinath et al., 2022). In Namibia, 61% of women surveyed did not participate in screening programs for cervical cancer, partly due to the distance they had to travel (Kangmennaang et al., 2015). In Uganda, five qualitative studies state that the way VIA/pap smear procedures are done discourages women from doing screening (Black et al., 2019).

In the United States, where cervical cancer screening utilization rates are high, there has been a notable rise in the adoption of co-testing, as opposed to relying solely on cytology during screening procedures (Qin et al., 2021). The implementation of rapid, cost-effective HPV testing has the potential to facilitate high-volume screening, particularly among women who have not previously been screened (Bedell et al., 2020). Understanding the gaps in the enabling factors will lead to the creation of effective interventions and policies that will provide solutions to barriers that hinder women from utilizing cervical cancer screening services in Kaloleni Sub-County.

### **2.4.3 Perceived Need Factors**

While the association between knowledge and screening behavior has been well known, there is a gap in attitude, cultural beliefs, and notions of preventive health to ascertain how these values and beliefs influence women's decisions to undertake cervical cancer screening. Cervical cancer screening has been seen as a threat to community norms since it is perceived that if the disease is found, then it means embarrassing sexual behaviors has been committed by the husband or wife (Lau et al., 2022a). In Cameroon, a study determined that the increase in the uptake of screening services for cervical cancer is directly proportional to the amount of awareness about the disease (Donatus et al., 2019).

The choice of screening modality for cervical cancer in the United States, collaboratively by individual women and their healthcare providers, yields a

substantial proportion of women undergoing testing (Goding Sauer et al., 2020). Additional research performed within the United States identified that cervical cancer diagnosis is associated with the emergence of social stigma due to the certainty that it was caused by immorality- multiple sexual partners or refusal to get screened (Peterson et al., 2021). A study in England reported that the ease of making appointments, peace of mind, and fear of cancer influenced the decision to undertake cervical cancer screening(Wilding et al., 2020). A study in Peru found out that many participants were kept away from doing cervical cancer screening due to the embarrassment it causes, the discomfort of undress and uncovering their private parts to a stranger, and undertaking a procedure that they had no idea about (Pieters et al., 2021).

A study in Zambia found out that cervical cancer has been stigmatized due to its occurrence in the cervix and that it is caused by socially condemned behaviors and HIV/AIDS; this makes many women shy away from testing since it may cause them marital problems (HI et al., 2012). Wrong information about screening tests for cervical cancer results in stress and fear, especially when they know a positive result means the one has cancer. The experience of suffering witnessed by those who have cancer, especially close family members, scares women from taking the services because of the fear of finding themselves in the same situation (Pieters et al., 2021). Other misinformation is that when doing the screening procedure, they remove body organs. Others feel that it is better not knowing one has cervical cancer since it is fatal, rendering screening efforts fruitless.

The prospective uptake of cervical cancer screening services is determined by the treatment women face (Njuguna et al., 2017). In Tanzania, a community-based study done among 1,013 women found that 50% had negative health views concerning screening for cervical cancer(Mboineki et al., 2020). Research conducted in Uganda indicated that women declined cervical cancer screening due to apprehension about receiving a cancer diagnosis (Li et al., 2017).

A systematic review of published data from low-middle-income countries indicated that embarrassment, fear of screening, and cultural factors such as lack of family support are impediments to utilizing cervical cancer screening (Srinath et al., 2022). A

study performed in Ethiopia revealed that recommendations from healthcare professionals significantly increased the adoption of cervical cancer screening services. Additionally, the research identified perceived susceptibility to cervical cancer as a determinant affecting the utilization of screening (Nigussie et al., 2019).

Women forgo cervical cancer screening due to embarrassment experienced during the examination and sample collections; it is uncomfortable, and this barrier is not easy to eliminate. In coastal Kenya, the effects of socio-cultural norms, gender prejudice, and partner and family influence also play a role in hindering healthcare choices (Mochache et al., 2020). However, it is possible to improve screening through public health education (Black et al., 2019).

According to the findings of a study in Kenya, the involvement of male healthcare workers in administering cervical cancer screening services constitutes a barrier to women's participation in screening programs (Njuguna et al., 2017). Similarly, a study in Ghana found that 78.5% of respondents expressed discomfort with male health personnel providing screening services, influencing their reluctance to engage in such procedures (Ampofo et al., 2020).

In a study in Kenya, healthcare providers reported discomfort with a male provider at 32%, fear of pain with speculum examination at 26%, and stigma at 19% as patient barriers in utilizing cervical cancer screening (Rosser et al., 2015). A study in Ghana found that perceived pain and anxiety during screening and treatment procedures; they believed insertion of screening instruments into their vagina orifice was painful and unbearable; this constrained women from utilizing cervical cancer screening (Binka et al., 2019)

The gaps in perceived need factors affecting cervical cancer screening uptake encompass an insufficient examination of how attitudes, cultural beliefs, and stigma influence women's decision-making processes regarding screening, insufficient research on the barriers faced during the screening process, such as discomfort and embarrassment, and a need for more information on how healthcare provider guidance and gender influence screening utilization.

## **2.5 Health Facility-Level Factors**

There must be good infrastructure and trained medical personnel to succeed in cervical cancer screening programs in health facilities. In developed countries, cervical cancer screening programs have been successful, leading to a reduction in the incidence of cervical cancer. The United States of America, due to the establishment of comprehensive screening programs, has recorded a significant decrease ranging from 50% to 70% (Tsikouras et al., 2016). In contrast, Africa faces competing healthcare priorities, including tuberculosis, malaria, HIV/AIDS, other infectious diseases, and elevated rates of infant and maternal mortality. With insufficient resources such as funding, supplies, equipment, infrastructure, and a limited number of trained healthcare providers, the cost of screening or treatment services is very high.

A study in Iran revealed that the affordability of Pap smear tests, physical distance to health centers, and the presence of skilled staff at the health centers were associated with higher odds of screening (Dadipoor et al., 2023). Research in Ethiopia indicated that a reduced turnaround time at healthcare facilities was strongly associated with increased utilization of cervical cancer screening services (Muluneh et al., 2019). A study in Peru showed that screened households are generally closer to health facilities than unscreened households (Barrett et al., 2020). In Uganda, research gathered that 32.9% of women never participated in being screened for cervical cancer because they did not have health facilities nearer to their homes (Waiswa et al., 2017).

A study in Ethiopia found that 51.6% of urban health extension workers showed limited knowledge regarding cervical cancer screening (Ararsa et al., 2021). In Kenya, approximately 70–80% of cancer cases are identified at advanced stages, a phenomenon attributable to inadequate awareness among patients and healthcare providers, restricted access to healthcare facilities, insufficient diagnostic resources, and the absence of well-developed health systems with a trained workforce and appropriate funding (Odera et al., 2017). A study in Kenya found that 84% of healthcare facilities reporting the provision of cervical cancer screening services had at least one trained health practitioner capable of performing the screening; In comparison, 28% of such facilities lacked such personnel (Eastment et al., 2022).

Research conducted at Kenyatta National Hospital in Kenya revealed that women exhibited a higher likelihood of engaging with cervical cancer screening services if recommended by healthcare providers. The main barriers to screening included fear of screening due to excessive pain or bleeding, lack of proper communication on screening procedures, and long waiting times(Njuguna et al., 2017).

A study conducted in Ghana indicated that privacy and the attitudes of medical professionals significantly affect the frequency of cervical cancer screening (Binka et al., 2019). Furthermore, according to 86% of participants in another Ghanaian study, prolonged waiting times at healthcare facilities deter women from participating in cervical cancer screening (Ampofo et al., 2020).

The gaps in health facility-level factors influencing cervical cancer screening uptake include a lack of research on the specific challenges faced by women in accessing screening services, inadequate resources impacting screening availability and affordability, and limited understanding of how healthcare facility infrastructure affects screening utilization. Policymakers have a significant role in ensuring that the national epidemiological data is relied on when formulating policies and that all healthcare facilities possess established and updated protocols for cervical cancer screening. The uptake of cervical cancer screening is likely to increase if challenges such as the availability of screening materials, adequate staffing, and training of healthcare providers are addressed

## **CHAPTER THREE**

### **MATERIALS AND METHODS**

#### **3.1 Study Site**

The study was conducted at five health facilities (Mariakani Sub-County Hospital, Gotani Health Centre, Mabati Medical Centre, Tsangatsini and Vishakani dispensaries in Kaloleni Sub-County, Kilifi County, Kenya, from June to August 2024. Kaloleni Sub-County is situated in Kilifi County in southeastern Kenya and bounded easterly by the Indian Ocean. The Sub-County has a population of 193,677 people, with women aged 25–49 years comprising 19% of the population (KNBS, 2019a). The area covers 706.1 km<sup>2</sup> and has a doctor-to-patient ratio of 10:100,000, below the WHO standard of 36:100,000 and Kenya's recommendation of 19:100,000. Income studies have shown that 70% of the residents live below the poverty line (KDHS, 2014). The core economic activities for earning income in the area are subsistence farming and trivial trading, which form 80% of the population (KNBS, 2019b).

The Sub-County has 41 public and private health facilities. Screening interventions for cervical cancer have been implemented in Kaloleni Sub-County. Low literacy levels, high poverty, retrogressive socio-cultural practices, a high prevalence of gender-based violence, and a shortage of qualified health personnel contribute to poor access to health services.

#### **3.2 Study Design**

A facility-based mixed-methods analytical cross-sectional design was utilized, integrating quantitative, qualitative, and health facility assessment approaches to assess cervical cancer screening utilization and associated factors among women aged 25 to 49 years in Kaloleni Sub-County, Kilifi County.

#### **3.3 Study Population**

The study population comprised two groups:

- i. Primary target population: Women aged 25–49 years attending outpatient clinics at the selected public health facilities in Kaloleni Sub-County.
- ii. Key informants: Healthcare workers directly involved in or knowledgeable about cervical cancer screening services at the same facilities.

### **3.3.1 Inclusion criteria**

- i. Women who were willing to participate in the study and provide informed consent
- ii. Women aged 25 to 49 years who had been living in Kaloleni Sub-County for more than six months
- iii. Women who were pregnant in the first trimester
- iv. Healthcare workers (medical officers, clinical officers and nurses).

### **3.3.2 Exclusion criteria**

- i. Women who were unable to provide informed consent
- ii. Women diagnosed with cervical cancer
- iii. Women who had undergone complete hysterectomy
- iv. Healthcare workers who did not have any knowledge on cervical cancer screening

## **3.4 Study Variables**

Variables of interest: Independent variables

- Individual-level characteristics:
  - Predisposing factors: age, marital status, number of children, education, occupation, religion, individual-level residence, attitude and knowledge and awareness
  - Enabling factors: income, employment, availability, accessibility, travel time, cost, affordability, means of transportation and screening algorithm

- Need factors include onset of sexual activity, attitude towards cervical cancer screening, spousal and cultural influences on screening and healthcare provider recommendation for screening
- Health facility-level factors include health system infrastructure, availability of medical supplies, location and accessibility, waiting hours, operating hours, confidentiality and privacy, health workers' cultural competency, healthcare providers' staffing levels, and quality of services.

The following parameter was taken as dependent variable

- Utilization of cervical cancer screening

### 3.5 Sample Size Calculations

Fisher *et al.* formula was used to determine the sample size:

$$N = \frac{z^2 p (1-p)}{d^2} \text{ Fisher et al. (1998)}$$

$$N = \frac{z_{1-\alpha/2}^2 \times p (1-p)}{d^2} \dots\dots\dots (3.5.1)$$

$$N = \frac{(1.96)^2 \times 0.17(1-0.17)}{(0.05)^2} \dots\dots\dots (3.5.2)$$

$$N= 217$$

N=minimum sample size,  $z_{1-\alpha/2}$ =level of confidence at 95% (1.96), p= prevalence of studied variable, The prevalence of cervical cancer screening among women aged 15-49 years in Kenya is 17% (KDHS, 2022), q= 1.0- p, d: degree of accuracy or error margin at 5% (value of 0.05), substituting this into the formula:  $N= (1.96)^2 \times 0.17(1-0.17) / (0.05)^2$  N= 217. The minimum required sample size is 217.

The qualitative component consisted of 20 key informant interviews and 5 facility assessments, utilizing purposive sampling. Sample size was guided by anticipated data saturation, based on comparable facility-based studies in Kenya, which generally reach saturation with 15 to 25 interviews (e.g., Njuguna et al., 2017; Mochache et al., 2020; Eastment et al., 2022). Saturation was systematically monitored during data collection and confirmed in the analysis phase, as no new themes emerged after the 16th interview.

### **3.6 Sampling Techniques**

A multi-stage sampling technique was used:

#### **Stage 1 – Selection of health facilities**

Five high-volume public health facilities providing cervical cancer screening were purposively selected from the 41 facilities in Kaloleni Sub-County. High-volume facilities were defined as those with at least 600 eligible women aged 25 to 49 years attending health facilities per month, according to DHIS2 data from August to September 2023. This selection criterion was used to ensure sufficient participant flow and comprehensive geographical representation within the sub-county. The selected facilities were Level II facilities: Tsangatsini and Vishakani dispensaries; Level III facilities: Mabati Medical Centre and Gotani Health Centre; and Level IV facility: Mariakani Sub-County Hospital.

#### **Stage 2 – Proportionate Allocation**

Total average monthly attendance of eligible women aged 25–49 across the five selected facilities was 3,407 (DHIS2 data, August–September 2023). 217 participants were allocated proportionally based on average monthly attendance (DHIS2 data): Mariakani (48), Mabati (45), Gotani (45), Vishakani (40), Tsangatsini (39)

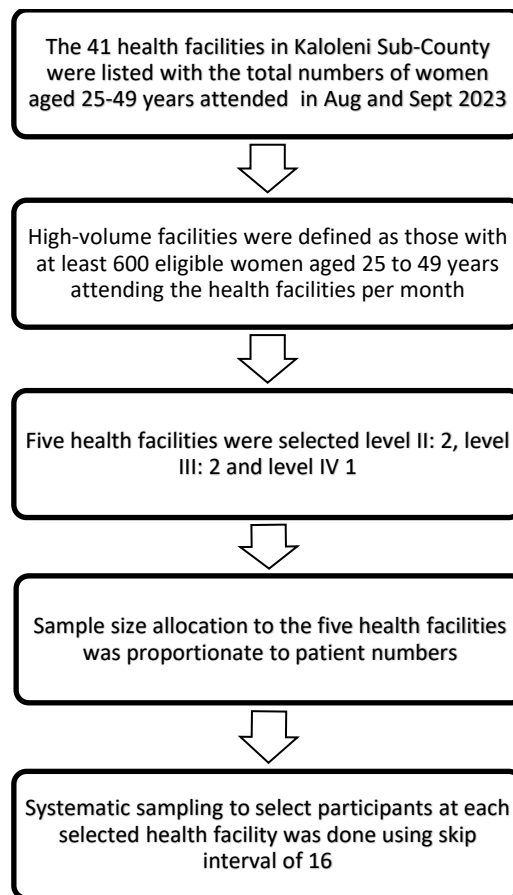
#### **Stage 3 – Selection of Participants**

Systematic random sampling was conducted in each facility, with a sampling interval of 16, calculated by dividing the total monthly attendance by the allocated sample size;

(total monthly attendance  $\approx 3,407 \div$  sample size 217,  $\approx 15.7$ ). Individual facility calculations yielded (Mariakani:  $760 \div 48 \approx 15.8$ ; Mabati:  $700 \div 45 \approx 15.6$ ; Gotani:  $712 \div 45 \approx 15.8$ ; Vishakani:  $620 \div 40 \approx 15.5$ ; Tsangatsini:  $615 \div 39 \approx 15.8$ ). Each day, a random starting point between 1 and 16 was selected in each facility to preserve randomness and ensure exact proportional quotas were met. Participants were invited for an interview to fill out the questionnaire; all gave informed consent and completed the questionnaire. Each interview with the participants lasted approximately half an hour. The interviews were conducted in English or Kiswahili.

Purposive sampling was utilized for the qualitative component. A key informant interview guide with open-ended questions was used to collect data from 20 healthcare workers, with four participants selected from each of the five health facilities. These healthcare workers were interviewed regarding their knowledge of cervical cancer screening practices at their respective facilities. Each interview lasted approximately thirty minutes. The key informant interviews addressed topics such as the utilization rate of cervical cancer screening, individual-level characteristics influencing screening uptake, and health facility-level factors affecting the utilization of cervical cancer screening. All interviews were conducted in English.

The health facility assessment was conducted at the screening points with a healthcare worker in charge of the health facility or department. The participants gave informed consent, and the assessment lasted half an hour. The health facility assessments were conducted in English.



**Figure 3.1: Sampling Techniques Flowchart**

### 3.7 Methods of Data Collection

Primary data were collected using a semi-structured questionnaire, a key informant interview guide, and a health facility assessment tool. The interviewer-administered semi-structured questionnaire was adapted from previous studies (Ali-Risasi et al., 2014; Fitzpatrick et al., 2020; Gatumo et al., 2018; Mekuria et al., 2021; Morema et al., 2014; Ndejjo, Mukama, Kiguli, et al., 2017; Tekle et al., 2020; Woldetsadik et al., 2020). To ensure validation, the questionnaire was pretested with 10% of the sample, comprising 22 women attending outpatient services and 2 healthcare workers at Jakaba medical clinic with characteristics similar to those of the selected health facilities.

The questionnaire was initially developed in English and subsequently translated into Kiswahili by two language experts fluent in both languages. A separate pair of translators, unfamiliar with the original questionnaire, conducted a back-translation

into English. The original and back-translated English versions were compared to ensure conceptual equivalence and harmonization. Both the final English and Kiswahili versions were reviewed for accuracy and preservation of meaning. The key informant interview guide and health facility assessment tool were also prepared in English. The questionnaire included 50 items addressing individual-level characteristics, such as predisposing, enabling, and need factors, as well as health facility factors.

The key informant interview guide comprised 10 questions focused on healthcare workers' characteristics, individual-level characteristics, and health facility factors.

The health facility assessment was conducted using a structured checklist, adapted from the World Health Organization's Harmonized Health Facility Assessment (HHFA) tool and tailored to the Kenya National Cervical Cancer Screening Guidelines (2018) and the National Cancer Control Strategy (2023–2027). The checklist included closed-ended (yes/no) items across key domains: service availability, support for quality services, and screening, diagnosis, and treatment materials. Assessors were instructed to perform direct observation, verify equipment functionality through demonstration, and cross-check records to ensure data accuracy. Non-functional items were scored as unavailable. The complete tool is provided in Appendix VII.

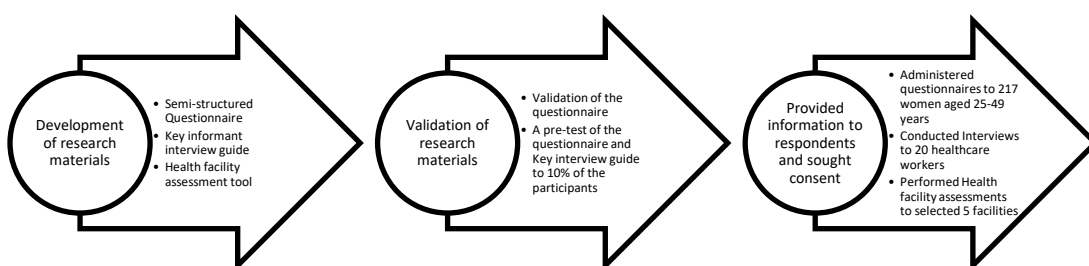
A mixed-methods approach was employed, combining quantitative surveys (n=217 women) to assess prevalence and individual factors, key informant interviews (20 healthcare workers) to obtain supply-side perspectives, and health facility assessments (5 sites) to objectively evaluate service readiness in accordance with WHO Health Facility Assessment (HHFA) guidelines. Triangulation of these data sources strengthened validity by corroborating findings, as recommended for health systems research in low-resource settings (Creswell & Clark, 2017)

### **3.8 Data Collection**

The researcher trained three research assistants (registered nurses) for three days, on the study's purpose and data collection methods, which included questionnaires, key informant interviews, and health facility assessment tools. Research assistants were

assigned to selected health facilities, where they administered questionnaires to eligible women participants first, then conducted key informant interviews with healthcare workers (1 medical officer, 4 clinical officers and 15 nurses) , and finally performed health facility assessments. The data collection process underwent two level verification to ensure completeness whereby; the first stage involved the research assistants by checking and ensuring the questionnaires are filled properly and then secondly the researcher did final checks for completeness before the data was analyzed.

The digital voice recorder was used to collect qualitative data. It was monitored during the interview process to ensure data was collected properly. The systematic labeling of the audio recordings ensured easy identification and organization during data analysis. The information captured in the recordings was then transcribed verbatim. The health facility assessment scores for each section and total were cumulated by health facility level. For quality control, if it was reported that the services were available in Section A but the equipment was not functioning or available in Section C, then this service was deemed unavailable.



**Figure 3.2: Data Collection and Procedures Flowchart**

### 3.9 Data Management and Analysis

The data analysis phase was initiated after thoroughly reviewing all questionnaires to confirm their completeness and accuracy. The refined data was inputted into Microsoft Excel 2021, which served as the study's database, and statistical analyses were

performed using the Statistical Package for the Social Sciences (SPSS) Version 27. Frequency distributions were generated for categorical variables, including the utilization rates of cervical cancer screening, individual-level characteristics, and health facility-level factors, which were calculated using frequencies and percentages.

Measures of central tendency, including the mean, median, and mode, were computed alongside measures of variation, such as standard deviation, range, and variance. The findings were summarized in figures, charts, and tables to facilitate understanding of the data distribution. The Chi-square test was applied to assess the relationship between the utilization rate of cervical cancer screening and various factors, encompassing individual-level characteristics and health facility-level variables. The statistical analysis, which yielded p-values of less than 0.05, signified the presence of multiple statistically significant associations.

For qualitative data, the transcripts were systematically coded and analyzed using content analysis. Patterns, trends, and themes within the coded data were determined by counting the frequency of specific codes and examining the context in which they appear. The results were presented as selected quotes from the respondents and used to support the quantitative analysis.

Simple statistics using Microsoft Excel 2021 were applied for health facility assessment to quantify the availability of cervical cancer screening services across the selected health facilities. The results were compiled and presented in tables. A triangulation approach, integrating qualitative and quantitative data alongside health facility assessments, was conducted to corroborate the study findings, thereby offering a rounded insight into the factors affecting the utilization of cervical cancer screening services.

### **3.10 Ethical Considerations**

Ethical approval was obtained from the Institutional Ethics Review Committee at Jomo Kenyatta University of Agriculture and Technology No. **JKU/ISERC/02317/1289**. A research license was also attained from the National Commission for Science, Technology, and Innovation (NACOSTI) No.

**NACOSTI/P/24/35129**. Clearance was sought from the Kilifi County Department of Health and Sanitation Services Ref. **KLF/DOH/RESEARCH/VOL.1/142** and administrators of the health facilities involved in the study. A qualified individual conducted all interviews in the language selected by the participants. Participants were informed about the study's purpose and significance. They were also made aware that participation was voluntary and that they could withdraw from the study at any time. Furthermore, questionnaires and case report forms did not include the participants' names, ensuring confidentiality. Access to study documents was restricted to authorized personnel only.

## CHAPTER FOUR

### RESULTS

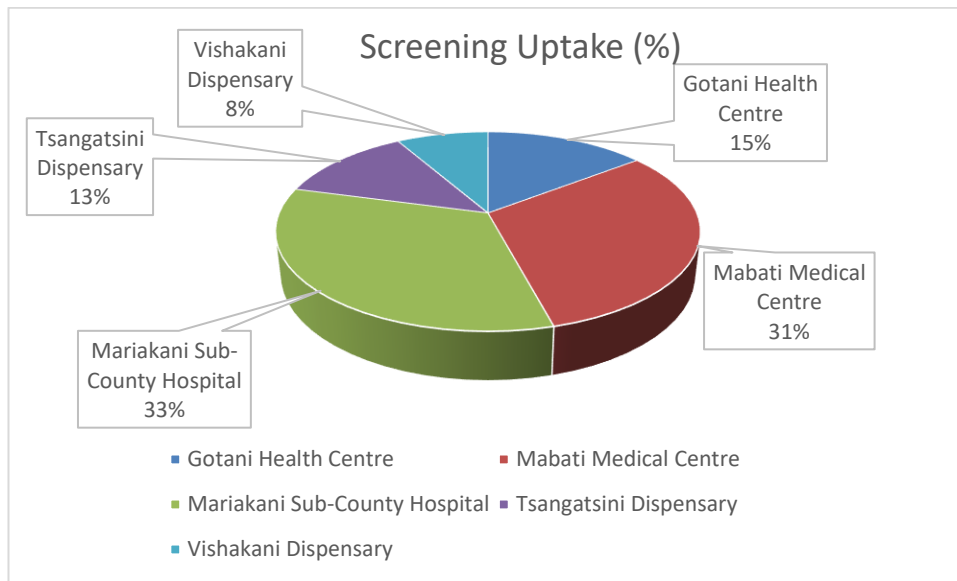
#### 4.1 Proportion of Women Aged 25-49 Years Utilizing Cervical Cancer Screening

The response rate was 100%, covering the sample size of 217, which is above the threshold of 50% proposed by Mugenda and Mugenda, 2003. The uptake of cervical cancer screening, as indicated in Table 4.1, shows that only 23% of the women have utilized the screening services. The health facilities assessment shows that, whereas there is access to VIA screening services in all the selected facilities, HPV testing is currently unavailable. Healthcare professionals have noted an alarming pattern, with a small fraction of women in Kaloleni Sub-County utilizing cervical cancer screening services. One healthcare worker stated, "*Many women do not see the need for screening unless they have symptoms*" (HCW-3).

**Table 4.1: Proportion Screened for Cervical Cancer**

	<b>Frequency</b>	<b>Percent</b>
No	167	77.0
Yes	50	23.0
Total	217	100.0

Cervical cancer screening uptake demonstrated variation across the five facilities, ranging from 8% at Vishakani Dispensary to 33% at Mariakani Sub-County Hospital. The highest uptake occurred at the Level IV facility (Mariakani, 33%) and at one Level III facility (Mabati Medical Centre, 31%). In contrast, lower-level facilities reported substantially lower rates: Gotani Health Centre (15%), Tsangatsini Dispensary (13%), and Vishakani Dispensary (8%).



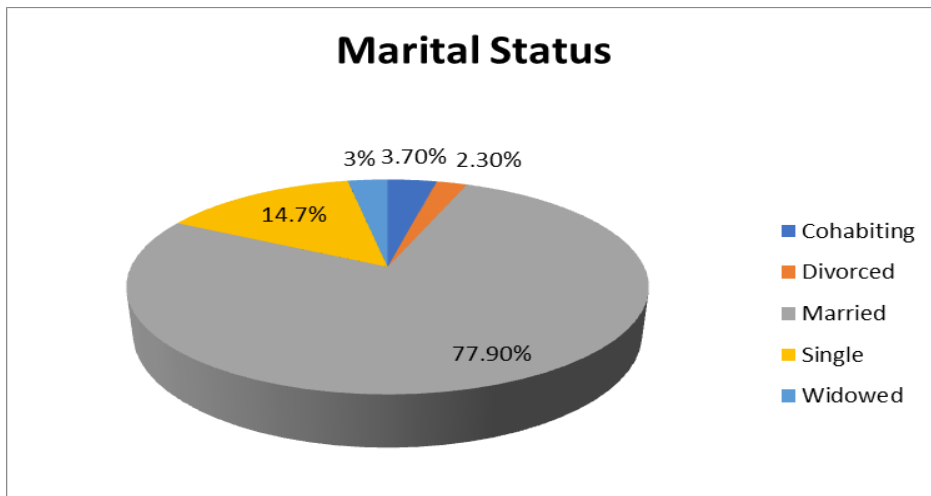
**Figure 4.1: Cervical Cancer Screening Uptake at the Selected Health Facilities**

## **4.2 Characteristics of the Study Participants**

### **4.2.1 Socio-Demographic Characteristics (Predisposing Factors – Part 1)**

#### **4.2.1.1 Age and Marital Status**

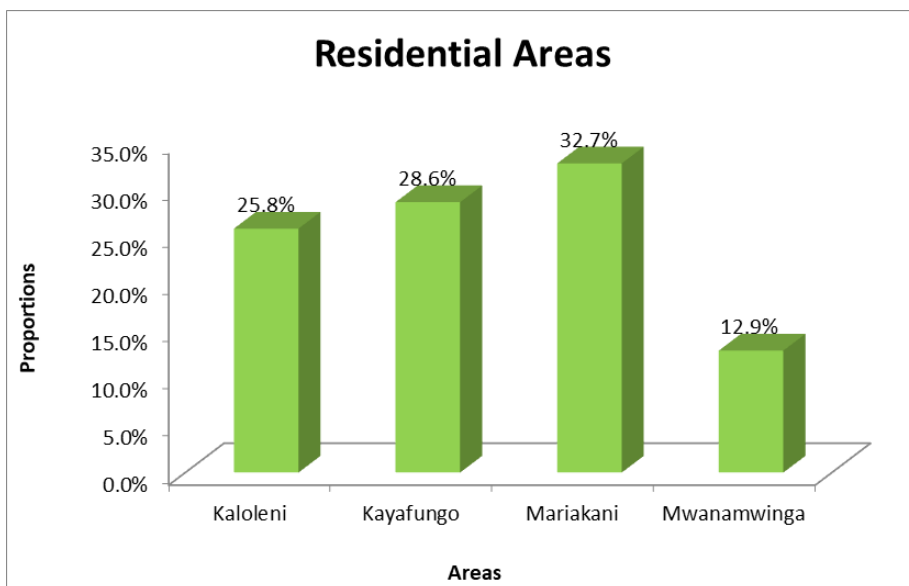
The study sample comprised women of reproductive age (25–49 years), with a mean age of 30.88 years, a median of 29 years, and a mode of 25 years. The similarity among these measures indicates a relatively normal age distribution, with a slight skew toward younger participants. Regarding marital status, most participants were married (77.9%), followed by single (14.7%) and widowed women as shown in Figure 4.2.



**Figure 4.2: Marital Status**

#### 4.2.1.2 Individual-Level Residence in Kaloleni Sub-County

The study picked participants from the Kaloleni, Kayafungo, Mariakani, and Mwanamwinga areas. Figure 4.3 shows that all the regions were equally represented apart from the Mwanamwinga area, which had 12.9%. Mariakani emerged as the locality with the highest utilization rates (32.7%).



**Figure 4.3: Residential Areas**

Table 4.2 presents an overview of the socio-demographic characteristics related to cervical cancer and screening.

**Table 4.2: Socio-Demographic Characteristics**

<b>Variables</b>	<b>Categories</b>	<b>Frequency (%)</b>
Individual-level residence	Kaloleni	56 (25.8%)
	Kayafungo	62 (28.6%)
	Mariakani	71 (32.7%)
	Mwanamwinga	28 (12.9%)
Age group (years)	25-29	119 (54.8%)
	30-34	50 (23%)
	35-39	23 (10.6%)
	40-44	16 (7.4%)
	45-49	9 (4.1%)
Marital status	Cohabiting	8 (3.7%)
	Divorced	5 (2.3%)
	Married	169 (77.9%)
	Single	32 (14.7%)
Level of education	Widowed	3 (1.4%)
	Higher education	35 (16.1%)
	None	38 (17.5%)
	Primary	119 (54.8%)
	Secondary	25 (11.5%)
Religion	Christian	172 (79.3%)
	Muslim	42 (19.4%)
	Others	3 (1.3%)

#### **4.2.2 Knowledge and Awareness of Cervical Cancer and Screening (Predisposing Factors – Part 2)**

Most participants (64.1%) were aware of cervical cancer, and 55.3% knew screening exists, yet 93.1% supported regular screening. Knowledge gaps were substantial: 73.3% could not identify symptoms, 80.6% were unaware of the HPV link (only 12.9%

knew), and 23.5% did not know that screening enables early detection. Despite limited knowledge, 74.7% recognized screening's early-detection benefit, reflecting positive perceptions amid limited factual understanding.

**Table 4.3: Knowledge and Awareness of Cervical Cancer Screening**

<b>Variables</b>	<b>Categories</b>	<b>Frequency (%)</b>
Awareness of cervical cancer?	No	78 (35.9%)
	Yes	139 (64.1%)
Awareness of the existence of cervical cancer screening?	No	97 (44.7%)
	Yes	120 (55.3%)
Support for regular cervical cancer screening?	No	15 (6.9%)
	Yes	202 (93.1%)
	Don't Know	159 (73.3%)
Symptoms of cervical cancer	Foul smelling of vaginal discharge	6 (2.8%)
	Others	5 (2.3%)
	Vaginal bleeding	47(21.7%)
	Don't Know	175 (80.6%)
HPV can cause cervical cancer	No	14 (6.5%)
	Yes	28 (12.9%)
Cervical cancer screening can detect cancer at an early stage	Don't Know	51 (23.5%)
	No	4 (1.8%)
	Yes	162 (74.7%)

#### **4.2.3 Enabling Factors**

A majority of participants were unemployed (75.6%) and lacked personal monthly income (58.1%), while 40.6% depended on their partner's income. Health insurance coverage was limited (24.4%). Additionally, 68.7% were unaware of screening costs, although 23.5% perceived the service as free. Physical access was generally favorable, with 65.9% indicating the facility was nearby and 41.9% walking to reach it. These

findings underscore the persistence of socioeconomic barriers despite moderate physical accessibility.

**Table 4.4: Enabling Factors**

<b>Variables</b>	<b>Categories</b>	<b>Frequency (%)</b>
Source of income	Income from Partner	88 (40.6%)
	No income	58 (26.7%)
	Other source	20 (9.2%)
	Own income	51(23.5%)
Employment status	Employed	53 (24.4%)
	Unemployed	164 (75.6%)
Health facility is far	No	143 (65.9%)
	Yes	74 (34.1%)
Income per month	None	126 (58.1%)
	50-15201	63 (29.0%)
	15202-34302	24 (11.1%)
	>34302	4 (1.8%)
	Walking	91(41.9%)
Mode of transport	Motor vehicle	6(2.8%)
	Motorbike	63(29%)
	Combination	57 (26.3%)
	Affordable	17 (7.8%)
Cost of cervical cancer	Don't know	149 (68.7%)
	Free	51 (23.5%)
Availability of health insurance cover	No	164 (75.6%)
	Yes	53 (24.4%)

#### **4.2.4 Need Factors**

A majority of participants (87.1%) reported being sexually active, with 52.5% initiating sexual activity after the age of 18. Those who expressed readiness to undergo cervical cancer screening were 58.1%. Positive perceptions of screening were prevalent: 80.6% agreed that screening provides peace of mind, and 84.3% endorsed

its importance for women’s health. Spousal approval remained uncertain: 49.8% were unaware of their husband’s stance, 44.2% reported approval, and only 6.0% indicated disapproval.

**Table 4.5: Need Factors**

<b>Variables</b>	<b>Categories</b>	<b>Frequency (%)</b>
Sexually active	No	28 (12.9%)
	Yes	189 (87.1%)
Age at first sexual encounter (years)	<15	11 (5.1%)
	15-18	92 (42.4%)
	>18	114 (52.5%)
Ready to be screened	No	91 (41.9%)
	Yes	126 (58.1%)
Screening provides peace of mind	Don’t know	36 (16.6%)
	No	6 (2.8%)
	Yes	175 (80.6%)
Regular screening is important for a woman’s health	Don’t know	34 (15.7%)
	Yes	183 (84.3%)
Husband approves screening	Don’t know	108 (49.8%)
	No	13(6%)
	Yes	96 (44.2%)

#### **4.2.5 Health Facility Characteristics**

Physical access to facilities was high, with 88.9% of participants residing within 2 km of a facility and 96.8% able to reach one in under 2 hours. However, awareness of screening services remained limited: 49.8% were unaware of service availability, 56.7% were unsure whether staff promoted screening, 65.9% were uncertain about provider training, and 63.1% did not know the operating hours. Provider gender was not a significant barrier, as 65.9% of respondents accepted any provider. Despite this, the proportion of individuals who had ever been screened was low at 23%.

**Table 4.6: Health Facility Characteristics**

<b>Variables</b>	<b>Categories</b>	<b>Frequency (%)</b>
Distance to the nearest health Facility (km)	<1	94(43.3%)
	1-2	99 (45.6%)
	2-5	21 (9.7%)
	>5	3(1.4%)
Average time (in hours)	<1	128 (59%)
	1-2	82(37.8%)
	2-3	7 (3.2%)
Availability of cervical cancer screening services	Don't Know	108 (49.8%)
	No	11 (5.1%)
	Yes	98 (45.2%)
Health facility staff promote Screening	Don't Know	123 (56.7%)
	No	11 (5.1%)
	Yes	83 (38.2%)
Appropriate training for health care workers	Don't Know	143(65.9%)
	No	4 (1.8%)
	Yes	70 (32.3%)
Convenient operating hours	Don't Know	137 (63.1%)
	No	12 (5.5%)
	Yes	68 (31.3%)
Preferred gender	Any	143 (65.9%)
	Female	64 (29.5%)
	Male	10 (4.6%)
Done screening test before	No	167 (77%)
	Yes	50 (23%)

### **4.3 Individual-level Characteristics Associated with the Utilization of Cervical Cancer Screening**

#### **4.3.1 Predisposing Factors**

Cervical cancer screening utilization varied significantly across geographic locations in Kaloleni Sub-County. In Kaloleni, 9 (16.1%) of participants utilized screening services. Similarly, 12 (19.4%) of women in Kayafungo and 3 (10.7%) in Mwanamwinga utilized screening services, while 45 (63.4%) in Mariakani reported the highest utilization (Table 4.7).

Women in Mariakani were significantly more likely to have ever been screened for cervical cancer compared to those in Mwanamwinga, with an odds ratio of 4.815 (95% CI [1.324, 17.513]). Participants from Kayafungo (OR = 2.000, 95% CI [0.517, 7.739]) and Kaloleni (OR = 1.596, 95% CI [0.396, 6.431]) also had higher odds of screening relative to Mwanamwinga, although these associations were not statistically significant. The chi-square test ( $\chi^2(3) = 11.791$ ,  $p = .008$ ) demonstrated a significant association between geographical location and screening utilization, indicating substantial variation across wards. The higher participation rate in Mariakani may be explained by the greater availability of cervical cancer screening services at this site. In contrast, Gotani and Vishakani had the lowest availability, as shown in Figure 4.5.

One HCW explained:

*“In Mariakani sub-county hospital, we have the basic things that we normally use.. We also do treatment using ablation methods” (HCW-19)*

**Table 4.7: Association between Individual-Level Residence and Utilization of Cervical Cancer Screening in Kaloleni Sub-County**

Variable	Categories	Utilization of Cervical cancer screening				$\chi^2$	Df	p-value	Odds ratio (CI)
		No (%)	Yes (%)						
Individual-level residence	Kaloleni	47 (83.9%)	9 (16.1%)		11.791	3	0.008	1.596(0.396,6.431)	
	Kayafungo	50 (80.6%)	12 (19.4%)					2 (0.517,7.739)	
	Mariakani	45 (63.4%)	26 (36.6%)					4.815(1.324,17.513)	
	Mwanamwinga	25 (89.3%)	3 (10.7%)						

Table 4.8 indicates no significant association between marital status and cervical cancer screening utilization ( $\chi^2(4) = 0.247$ ,  $p = 0.993$ ), as uptake rates were similar across categories (20–33.3%). Religion was not significantly associated with screening ( $\chi^2(2) = 1.131$ ,  $p = 0.568$ ). Level of education also showed no significant association ( $\chi^2(3) = 1.403$ ,  $p = 0.705$ ), with the highest uptake observed among individuals with higher education or no formal education (both 28.6%). In contrast, age group was significantly associated with screening utilization ( $\chi^2(4) = 16.414$ ,  $p = 0.003$ ), as older women (35–49 years) demonstrated substantially higher uptake (37.5–47.8%) compared to the youngest group (25–29 years; 15.1%).

**Table 4.8: Distribution of Utilization of Cervical Cancer Screening in Terms of Marital Status, Religion, Level of Education, and Age Group in Kaloleni Sub-County**

Variable	Categories	No (%)	Yes (%)	$\chi^2$	Df	p-value
Marital Status	Cohabiting	6 (75%)	2 (25%)	0.247	4	0.993
	Divorced	4 (80%)	1 (20%)			
	Married	130 (76.9%)	39 (23.1%)			
	Single	25 (78.1%)	7 (21.9%)			
	Widowed	2 (66.7%)	1 (33.3%)			
Religion	Christians	135 (78.5%)	37 (21.5%)	1.131	2	0.568
	Muslims	30 (71.4%)	12 (28.6%)			
	None	2 (66.7%)	1 (33.3%)			
Level of Education	None	30 (78.9%)	10 (28.6%)	1.403	3	0.705
	Primary	91 (76.5%)	28 (23.5%)			
	Secondary	21 (84%)	4 (16%)			
Age group	Higher level	25 (71.4%)	10 (28.6%)	16.414	4	0.003
	25-29	101 (84.9%)	18 (15.1%)			
	30-34	39 (78%)	11 (22%)			
	35-39	12 (52.2%)	11 (47.8%)			
	40-44	10 (62.5%)	6 (37.5%)			
45-49	5 (55.6%)	4 (44.4%)				

Participants' knowledge of cervical cancer significantly impacted the utilization of screening services (Table 4.9). Among 78 individuals lacking awareness of cervical cancer, 75 (96.2%) had been screened in contrast to 92 (66.2%) among those with awareness ( $\chi^2(1) = 25.302$ ,  $p < 0.001$ , OR = 0.078, 95% CI [0.023, 0.262]). Likewise, awareness of cervical cancer screening was linked to a marked increase in utilization; those unaware showed a 93 (95.9%) non-utilization rate, compared to 74 (61.7%) among those who were informed ( $\chi^2(1) = 35.402$ ,  $p < 0.001$ , OR = 0.069, 95% CI [0.024, 0.201]). Some healthcare workers explained that there are limited understanding of cervical cancer and the importance of screening. This could be deduced from the following statement by a healthcare worker:

*“Some women know about cervical cancer and that screening is done here, but many still do not understand it well.” (HCW-01)*

Awareness of cervical cancer symptoms was statistically significantly associated with the uptake of screening services (Table 4.9). Among individuals lacking knowledge of cervical cancer symptoms, only 16 (10.1%) utilized screening. In contrast, participants who recognized symptoms demonstrated higher and variable rates of screening utilization ( $\chi^2(3) = 59.859, p < 0.001, OR = 0.083, CI [0.038, 0.18]$ ). Specifically, 5 (83.3%) participants who identified foul vaginal odor as a symptom underwent screening ( $OR = 3.704, CI [0.401, 34.22]$ ), while 27 (57.4%) participants who reported vaginal bleeding underwent screening. Healthcare workers emphasized the lack of education regarding the risks associated with sexual behavior and its link to cervical cancer. One HCW made the following statement:

*“They say they will only go when they feel pain; they don’t see the need when they are healthy.” (HCW-09)*

There was a significant association between knowing if HPV causes cervical cancer and going for cervical cancer screening. Understanding the relationship between HPV and cervical cancer was also vital; participants unaware of this relationship showed a non-utilization rate of 143 (81.7%) ( $\chi^2(2) = 13.949, p = 0.001, OR = 0.224, CI [0.097, 0.515]$ ) (Table 4.9). Healthcare workers pointed out that women who don’t know that HPV causes cervical cancer and those who don’t believe that HPV causes cervical cancer are less likely to go for cervical cancer screening. One healthcare worker stated:

*“They don’t know that having more sexual partners is a risk factor of getting cervical cancer, whereby they don’t know that men are often the carriers of this HPV virus.” (HCW-19)*

Awareness of the effectiveness of cervical cancer screening in detecting cancer was associated with a reduced likelihood of non-utilization. Specifically, 47 (92.2%) of individuals unaware of screening efficacy did not utilize screening, compared to 116 (71.6%) among those who recognized its effectiveness ( $\chi^2(2) = 40.459, p = 0.005, OR = 0.215, CI [0.073, 0.63]$ ) (Table 4.9). The healthcare workers indicated that most women are ignorant about cervical cancer screening. One healthcare worker remarked:

“Some women know about cervical cancer and that screening is done here, but many still do not understand it well.” (HCW-01)

**Table 4.9: Association between Knowledge and Related Factors and Utilization of Cervical Cancer Screening in Kaloleni Sub-County**

Variable	Categories	Utilization of Cervical cancer screening				$\chi^2$	Df	p-value	Odds ratio (CI)
		No (%)	Yes (%)						
Aware of cervical cancer	No	75	(96.2%)	3	(3.8%)	25.302	1	0.000	0.078(0.023,0.262)
	Yes	92	(66.2%)	47	(33.8%)				
Aware of cervical cancer screening	No	93	(95.9%)	4	(4.1%)	35.402	1	0.000	0.069(0.024,0.201)
	Yes	74	(61.7%)	46	(38.3%)				
Support of regular screening	No	14	(93.3%)	1	(6.7%)	2.437	1	0.119	
	Yes	153	(75.7%)	49	(24.3%)				
Cervical cancer symptoms	Don't know	143	(89.9%)	16	(10.1%)	59.859	3	0.000	0.083(0.038,0.18)
	Foul vaginal smell	1	(16.7%)	5	(83.3%)				
	Vaginal bleeding	20	(42.6%)	27	(57.4%)				
	Others	3	(60%)	2	(40%)				
HPV causing cervical cancer	Don't know	143	(81.7%)	32	(18.3%)	13.949	2	0.001	0.224(0.097,0.515)
	No	10	(71.4%)	4	(28.6%)				
Risk factors for cervical cancer	Yes	14	(50%)	14	(50%)	35.593	4	0.000	0.083(0.038,0.18)
	Acquiring HPV virus	6	(40%)	9	(60%)				
	Don't know	137	(86.7%)	21	(13.3%)				
	Early sexual intercourse	1	(33.3%)	2	(66.7%)				
Multiple sexual partners	Long usage of oral contraceptives	21	(53.8%)	18	(46.2%)				0.494 (0.078, 3.237)
	HPV	0		1	(100%)				
	None	154	(90.6%)	16	(9.4%)				
	Pap smear	11	(35.5%)	20	(64.5%)				
How many methods of cervical screening do you know	VIA	167	(77%)	50	(23%)	85.465	3	0.000	0.016 (0.003, 0.077)
	Don't know	26	(78.8%)	7	(21.2%)				
	HPV vaccination prevents against cervical cancer	38	(90.5%)	4	(9.5%)				
Aware of HPV vaccination	Yes	103	(72.5%)	39	(27.5%)	5.957	2	0.051	
	No	38	(90.5%)	4	(9.5%)				
	Don't know	26	(78.8%)	7	(21.2%)				
Cancer screening is essential for women's health	No	102	(87.2%)	15	(12.8%)	14.958	1	0.000	0.273 (0.138, 0.539)
	Yes	65	(65%)	35	(35%)				
	Don't know	23	(100%)	0					
Cervical cancer screening detects cancer	No	3	(100%)	0		8.844	2	0.012	
	Yes	141	(73.8%)	50	(26.2%)				
	Don't know	23	(100%)	0					
Cervical cancer screening detects cancer	No	47	(92.2%)	4	(7.8%)	40.459	2	0.005	0.215(0.073,0.63)
	Yes	4	(100%)	0					
	Yes	116	(71.6%)	46	(28.4%)				

### 4.3.2 Enabling Factors

Women whose income derived from "other" sources had significantly higher odds of ever being screened for cervical cancer compared to those with no income, with 9 (45%) versus 8 (13.8%) screened ( $\chi^2(3) = 9.735$ ,  $p = 0.021$ ). However, pairwise odds ratios were not statistically significant (Table 4.10). Healthcare workers observed financial constraints as one of the factors that restrained women from screening for cervical cancer. As one healthcare worker noted,

*"Many women in Kaloleni cannot afford the transport costs to reach the health facilities and also the services associated with cervical cancer screening due to high levels of poverty." (HCW-2)*

Employed women were more than twice as likely to have been screened compared to unemployed women, with 18 (34%) versus 32 (19.5%) screened ( $\chi^2(1) = 4.717$ ,  $p = 0.030$ ; OR = 2.121, 95% CI [1.007, 4.218]). Healthcare workers highlighted the disparities in cervical cancer screening uptake between employed and unemployed women, emphasizing how job stability can influence health priorities and access to services. One HCW stated,

*"Women in stable employment tend to do regular health screenings into their routines." (HCW-16)*

A significant relationship was observed between screening utilization and the perceived cost of screening ( $\chi^2(2) = 60.345$ ,  $p < 0.001$ ). Only 7 (41.2%) of women who found screening affordable went for screening, while those who did not know about the costs reported only 12 (8.1%) utilization. The odds of screening for women who found it affordable was OR = 1.73 (95% CI [0.386, 3.569]). The healthcare workers stated that the high out-of-pocket costs for screening can be a major deterrent for many women, especially those with limited financial resources. A statement made by an HCW confirmed this:

*"It is expensive to screen for cervical cancer especially using pap smear procedure, since it requires a cytopathologist to write a report." (HCW-20)*

Perceived screening cost was strongly associated with utilization ( $\chi^2(2) = 60.345$ ,  $p < 0.001$ ). Women who perceived screening as free 28 (54.9%) or affordable 10 (58.8%)

demonstrated substantially higher uptake than those who did not know the cost 12 (8.1%); (OR for "don't know" = 0.072, 95% CI [0.032, 0.161]). Health insurance coverage was also positively associated with screening 18 (34%) versus 32 (19.5%); ( $\chi^2(1) = 4.717$ ,  $p = 0.030$ ; OR = 0.471, 95% CI [0.237,0.937]). In contrast, the mode of transport showed no significant association ( $p = 0.917$ ). These findings identify insurance coverage, and cost perception as key enabling factors for cervical cancer screening uptake. As one HCW worker explained,

*"Without health insurance, many women fear the costs associated with screening and may choose to forgo it altogether." (HCW-14)*

**Table 4.10: Association between Enabling Factors and Utilization of Cervical Cancer Screening Services in Kaloleni Sub-County**

Variables	Categories	Utilization of Cervical cancer screening		$\chi^2$	Df	P value	Odds ratio (95% CI)
		No (%)	Yes (%)				
Source of income	Partner	70(79.5%)	18(20.5%)	9.735	3	0.021	0.617(0.279,1.366)
	None	50(86.2%)	8(13.8%)				
	Other	11(55%)	9(45%)				
	Own	36(70.6%)	15(29.4%)				
Employment status	Employed	35(66%)	18(34%)	4.717	1	0.030	2.121(1.007,4.218)
	Unemployed	132(80.5%)	32(19.5%)				
	Combination	45(78.9%)	12(21.1%)				
Mode of transport	Motor vehicle	4(66.7%)	2(33.3%)	0.507	3	0.917	
	Motorbike	48(76.2%)	15(23.8%)				
	Walking	70(76.9%)	21(23.1%)				
Cost of screening	Affordable	7(41.2%)	10(58.8%)	60.345	2	0.000	1.73(0.386,3.569)
	Don't know	137(91.9)	12(8.1%)				
	Free	23(45.1%)	28(54.9%)				
Availability of insurance cover	No	132(80.5%)	32(19.5%)	4.717	1	0.030	0.471(0.237,0.937)
	Yes	35(66%)	18(34%)				

### 4.3.3 Need Factors

As indicated in Table 4.11, perceptions of screening providing peace of mind showed significant differences, with 35 (79.2%) of those who did not know if screening provided reassurance not utilizing it, compared to 129 (73.7%) of those who indicated

"Yes" ( $X^2(2) = 11.834$ ,  $p = 0.003$ ). The odds ratio indicated a significant association (OR = 0.080, 95% CI [0.011, 0.602]). The health workers highlighted social norms as barriers to screening. Many women don't want to go for cervical cancer screening because they fear the results, which correspond to their low screening rates. One HCW made the following statement,

*"Some of them are scared of the results, the outcome. What if they get cancer? Then what is next? And then you know, cancer has been associated with more of like a death sentence." (HCW-16)*

For the belief that regular screening is important, those who responded "Don't know" had a very high rate of non-utilization 33 (97.1%) compared to those who recognized its importance 134 (73.2%), and this difference was statistically significant ( $X^2(1) = 9.186$ ,  $p = 0.002$ ; OR = 0.083, 95% CI [0.011, 0.622]) (Table 4.11). The perspective shared by a healthcare provider sheds light on a common mindset regarding health screening behaviors. A healthcare provider noted that,

*"In my experience in this health facility, most women, of course, are scared of a cancer diagnosis. And it is common for people to say ignorance is bliss." (HCW-19)*

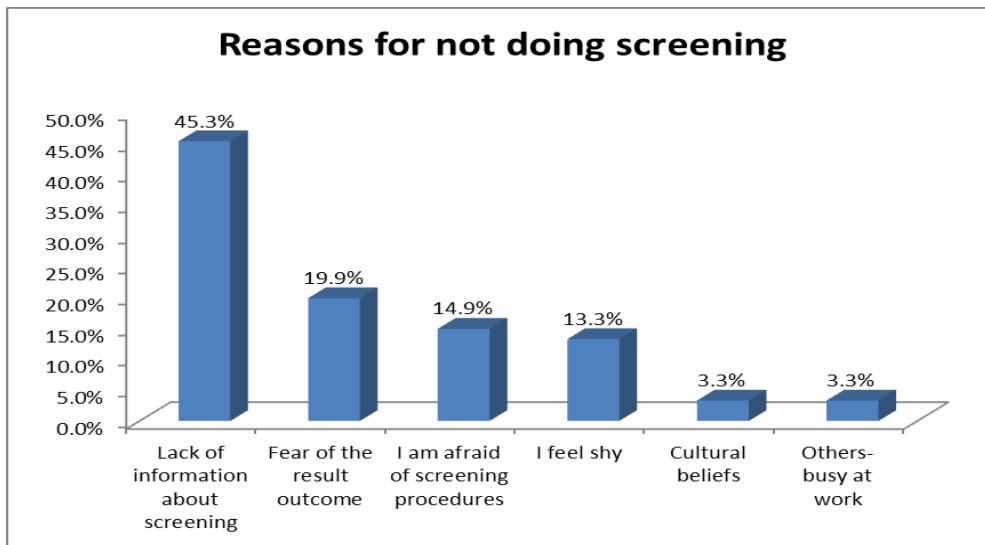
Husband approval for screening was also significantly associated with utilization, as 95 (88%) of those uncertain about their husbands' stance did not utilize screening, in contrast to only 61 (63.5%) of those whose husbands approved ( $X^2(2) = 17.551$ ,  $p = 0.000$ ; OR = 0.238, 95% CI [0.117, 0.487]) (Table 4.11). In light of cultural sensitivities surrounding gender and healthcare, healthcare workers need to approach patient interactions thoughtfully. They added that some women would be embarrassed no matter the sex of the health personnel. A response from a healthcare provider emphasizes this:

*"Women believe that you're not supposed to show your vaginal parts to any other person apart from your husband. So, they wait until the husband gives them the go-ahead" (HCW-15)*

**Table 4.11: Association between Individual Need Factors and Utilization of Cervical Cancer Screening Services in Kaloleni Sub-County**

Variables	Categories	Utilization of Cervical cancer screening		$\chi^2$	Df	P value	Odds ratio (95% CI)
		No (%)	Yes (%)				
Sexually active	No	20(71.4%)	8(28.6%)	0.554	1	0.457	
	Yes	147(77.8%)	42(22.2%)				
First encounter age	<15years	8(72.7%)	3(27.3%)	1.882	2	0.39	
	15-18 years	75(81.5%)	17(18.5%)				
	>18 years	84(73.7%)	30(26.3%)				
Ready for testing	No	72(79.1%)	19(20.9%)	0.413	1	0.52	
	Yes	95(75.4%)	31(24.6%)				
Screening gives peace of mind & reassurance	Don't know	35(79.2%)	1(2.8%)	11.834	2	0.003	0.080 (0.011,0.602)
	No	3(50%)	3(50%)				
	Yes	129(73.7%)	46(26.3%)				
Regular screening is important	Don't know	33(97.1%)	1(2.9%)	9.186	1	0.002	0.083(0.011,0.622)
	Yes	134(73.2%)	49(26.8%)				
Husband approves screening	Don't know	95(88%)	13(12%)	17.551	2	0.000	0.238(0.117,0.487)
	No	11(84.6%)	2(15.4%)				
	Yes	61(63.5%)	35(36.5%)				

As shown in Figure 4.4, the predominant reasons for non-utilization included lack of information about screening (45.3%), fear of results (19.9%), and embarrassment (13.3%).



**Figure 4.4: Reasons for Not Screening for Cervical Cancer**

#### **4.4 Health Facility-Level Factors that Affect the Utilization of Cervical Cancer Screening**

According to Table 4.12, a significant association was found concerning the availability of cervical cancer screening services in health facilities ( $\chi^2(2) = 25.644$ ,  $p < 0.001$ ). Approximately 38 (38.8%) of participants who knew that screening was available utilized the services, whereas utilization dropped to 12 (11.1%) among those who did not know (Odds ratio [OR] = 0.197; 95% CI [0.096, 0.407]). As shown in Table 4.15, health facility assessment indicates access to the VIA screening method in all the selected healthcare facilities. However, there is significant variation in cervical cancer services availability across healthcare facilities, as shown in Figure 4.3. Healthcare workers expressed concerns about inadequate resources at screening facilities, highlighting the gap between available infrastructure and necessary medical equipment. One healthcare worker stated.

*“I would say facility-based hindrances to screening services like shortage of supplies, shortage of equipment that is used in screening like speculums, examination tables, examination lamps.” (HCW-15)*

The convenience of operating hours was also significantly associated with screening utilization ( $\chi^2(2) = 49.937$ ,  $p < 0.001$ ), as indicated in Table 4.12. While 13 (9.5%) of individuals who did not know about the operating hours utilized this service, a statistically noteworthy 36 (52.9%) did when they were deemed convenient (OR = 0.093; 95% CI [0.044, 1.96]). Healthcare workers in Kaloleni Sub-County highlighted the challenges that limit access to care. One HCW reported,

*"An example in hand is actually where I work, we have the equipment, the speculums, and the brushes but we close at 5 pm." (HCW-5)*

**Table 4.12: Association between Health Facility Level Factors and Utilization of Cervical Cancer Screening Services in Kaloleni Sub-County**

Variables	Categories	Utilization of Cervical cancer screening		$\chi^2$	Df	P value	Odds ratio (95% CI)
		No (%)	Yes (%)				
Distance in km	<1	73(77.7%)	21(22.3%)	1.647	3	0.649	
	1-2	78(78.8%)	21(21.2%)				
	2-5	14(66.7%)	7(33.3%)				
	>5	2(66.7%)	1(33.3%)				
Average time in hours	<1	94(73.4%)	34(26.6%)	2.24	2	0.326	
	1-2	67(81.7%)	15(18.3%)				
	2-3	6(85.7%)	1(14.3%)				
Screening available in health center	Don't know	96(88.9%)	12(11.1%)	25.644	2	0.000	0.197(0.096,0.407)
	No	11(100%)	0				
	Yes	60(61.2%)	38(38.8%)				
Health facility	Don't know	124(90.5%)	13(9.5%)	49.937	2	0.000	0.093(0.044,1.96)
	Operating hours convenience	No	11(91.7%)				
	Yes	32(47.1%)	36(52.9%)				

According to Table 4.13, the promotion of screening services by health facility staff significantly influenced utilization ( $\chi^2(2) = 39.778$ ,  $p < 0.001$ ). Only 10 (8.1%) of those who were unaware of this promotion utilized the services, while 38 (45.8%) of patients

presented themselves for cervical cancer screening when the services were promoted by staff at the healthcare facilities (OR = 0.105; 95% CI [0.048, 0.228]). Healthcare workers highlighted the importance of educational resources in promoting health awareness among women in communities. One HCW emphasized:

*"Availability of educational posters is not adequate. So, if we have adequate educational posters, most women in communities can be aware of it and they come for screening." (HCW-18)*

There was a statistically significant association between the perceived adequacy of health worker training and screening utilization ( $\chi^2(2) = 47.514, p < 0.001$ ), as shown in Table 4.13. A mere 13 (9.1%) of respondents who were uncertain about training adequacy used screening services, compared to 36 (51.4%) of those who perceived the training as adequate (OR = 0.094; 95% CI [0.045, 0.198]). Health facility assessment found that four out of five healthcare facilities had trained their staff on VIA in the past 2 years (Table 4.15). Healthcare workers pointed out significant challenges in providing consistent care due to staffing issues such as lack of training. One healthcare worker stated,

*"Only one or two staff are trained, and if they are away then screening stops." (HCW-19)*

Women of reproductive age who had done cervical cancer screening before had a profound impact on utilization ( $\chi^2(1) = 194.86, p < 0.001$ ). Among those who had never been screened, only 3 (1.8%) utilized the service, as opposed to 47 (97.9%) of those who had previously participated in screening efforts (OR = 0.0002; 95% CI [0.000, 0.004]) (Table 4.13). Healthcare workers observed that prior experiences with health screenings significantly influence women's future screening behaviors. One HCW stated,

*"Once they get a negative result they normally leave the facility when they are happy and you can tell that the patients would want to come on every other alternate time." (HCW 17)*

**Table 4.13: Association between Perception of Health Facility Level Factors and Utilization of Cervical Cancer Screening Services in Kaloleni Sub-County**

Variables	Categories	Utilization of Cervical cancer screening		$\chi^2$	Df	P value	Odds ratio (95% CI)
		No (%)	Yes (%)				
Health facility staff promote screening with patients	Don't know	113(91.9%)	10(8.1%)	39.778	2	0.000	0.105(0.048,0.228)
	No	9(81.8%)	2(18.2%)				
	Yes	45(54.2%)	38(45.8%)				
Health workers training adequacy	Don't know	130(90.9%)	13(9.1%)	47.514	2	0.000	0.094(0.045,0.198)
	No	3(75%)	1(25%)				
	Yes	34(48.6%)	36(51.4%)				
Preferred gender	Any	114(79.7%)	29(20.3%)	1.82	2	0.402	
	Female	46(71.9%)	18(28.1%)				
	Male	7(70%)	3(30%)				
Done cervical cancer screening before	No	166(98.2%)	3(1.8%)	194.86	1	0.000	0.0002(0.000,0.004)
	Yes	1(2.1%)	47(97.9%)				

#### 4.5 Content Analysis of Key Informant Interviews with Health Care Workers

Healthcare workers described cervical cancer screening in Kaloleni Sub-County as low and opportunistic, with sporadic attendance often limited to women already at facilities or during campaigns. Increased awareness through health talks, community health providers, churches, or radio broadcasts is associated with greater willingness to undergo screening, whereas lack of awareness is strongly linked to non-utilization. Identified individual barriers include fear of results or pain, concerns regarding modesty, low perceived susceptibility, prevalent myths and fatalistic beliefs, spousal opposition, time constraints, and indirect costs such as transportation. At the facility level, barriers encompass supply and staffing shortages, inadequate privacy, limited

numbers of trained staff, high workloads, long waiting times, and occasional service fees.

**Table 4.14: Content Analysis of the HCWs Key Informant Interviews in Kaloleni Sub-County**

Variables	Theme	Category (Codes)	Short Illustrative Quote (with HCW)
Predisposing Factors	Perceived low and irregular utilization	Low turnout and sporadic attendance	<i>"Many women do not see the need for screening unless they have symptoms" (HCW-03)</i>
		Opportunistic rather than routine use	<i>"Most women only get screened when they come for ANC or family planning, not as a routine check." (HCW-07)</i>
		Geographical residential area	<i>"In Mariakani sub-county hospital, we have the basic things that we normally use.. We also do treatment using ablation methods" (HCW-19)</i>
	Knowledge and awareness	Fluctuation linked to outreach and campaigns	<i>"When we do outreach or campaigns the numbers go up, but after that they drop again." (HCW-12)</i>
		Awareness of cervical cancer and screening	<i>"Some women know about cervical cancer and that screening is done here, but many still do not understand it well." (HCW-01)</i>
		Awareness on HPV	<i>"They don't know that having more sexual partners is a risk factor of getting cervical cancer, whereby they don't know that men are often the carriers of this HPV virus." (HCW-19)</i>
Enabling factors	Socio-economic and practical constraints	Misconceptions and limited understanding	<i>"They say they will only go when they feel pain; they don't see the need when they are healthy." (HCW-09)</i>
		Competing roles and time constraints	<i>"Women say they are busy with work and home duties; they have no time to come for screening." (HCW-06)</i>
		Health Insurance	<i>"Without health insurance, many women fear the costs associated with screening and may choose to forgo it altogether." (HCW-14)</i>
	Socio-economic and practical constraints	Cost of screening	<i>"It is expensive to screen for cervical cancer especially using pap smear procedure, since it requires a cytopathologist to write a report." (HCW-20)</i>
		Employment	<i>"Women in stable employment tend to do regular health screenings into their routines." (HCW-16)</i>
		Transport and indirect costs	<i>"Many women in Kaloleni cannot afford the transport costs to reach the health facilities and also the services associated with cervical cancer screening due to high levels of poverty." (HCW-2)</i>

Variables	Theme	Category (Codes)	Short Illustrative Quote (with HCW)
Need factors	Socio-cultural and gender factors	Cultural beliefs and myths	<i>"Some believe if you are found with cancer it is witchcraft or a curse." (HCW-08)</i>
		Infertility fears	<i>"They think screening or treatment will make them barren." (HCW-11)</i>
		Male partner influence	<i>"Women believe that you're not supposed to show your vaginal parts to any other person apart from your husband. So, they wait until the husband gives them the go-ahead" (HCW-15)</i>
Health facility-level factors	Supplies, equipment, and privacy	Lack of supplies and equipment	<i>"I would say facility-based hindrances to screening services like shortage of supplies, shortage of equipment that is used in screening like speculums, examination tables, examination lamps." (HCW-15)</i>
		Inadequate space and privacy	<i>"We share the room with other clinics and there is no privacy for screening." (HCW-18)</i>
		Shortage of trained staff	<i>"Only one or two staff are trained, and if they are away then screening stops." (HCW-19)</i>
	Human resources and workload	High workload and competing tasks	<i>"The workload is high; sometimes we postpone screening because of emergencies." (HCW-17)</i>
		Long waiting time	<i>"Long queues discourage women; some leave before they are served." (HCW-20)</i>
	Organization, waiting time, and cost	Cost and user fees	<i>"Where there is a fee, poor women do not come; they say they can't afford it." (HCW-3)</i>
		Operating hours	<i>"An example in hand is actually where I work, we have the equipment, the speculums, and the brushes but we close at 5 pm." (HCW-5)</i>
		Facility health talks	<i>"Availability of educational posters is not adequate. So, if we have adequate educational posters, most women in communities can be aware of it and they come for screening." (HCW-18)</i>
	Facility-based education and experience	Past experiences	<i>"Once they get a negative result they normally leave the facility when they are happy and you can tell that the patients would want to come on every other alternate time ." (HCW-17)</i>

#### 4.6 Health Facility Assessment

All five assessed health facilities demonstrated complete availability of cervical cancer screening services, primarily visual inspection with acetic acid (VIA), and HPV vaccination. In contrast, only 2(40%) of facilities offered treatment for precancerous

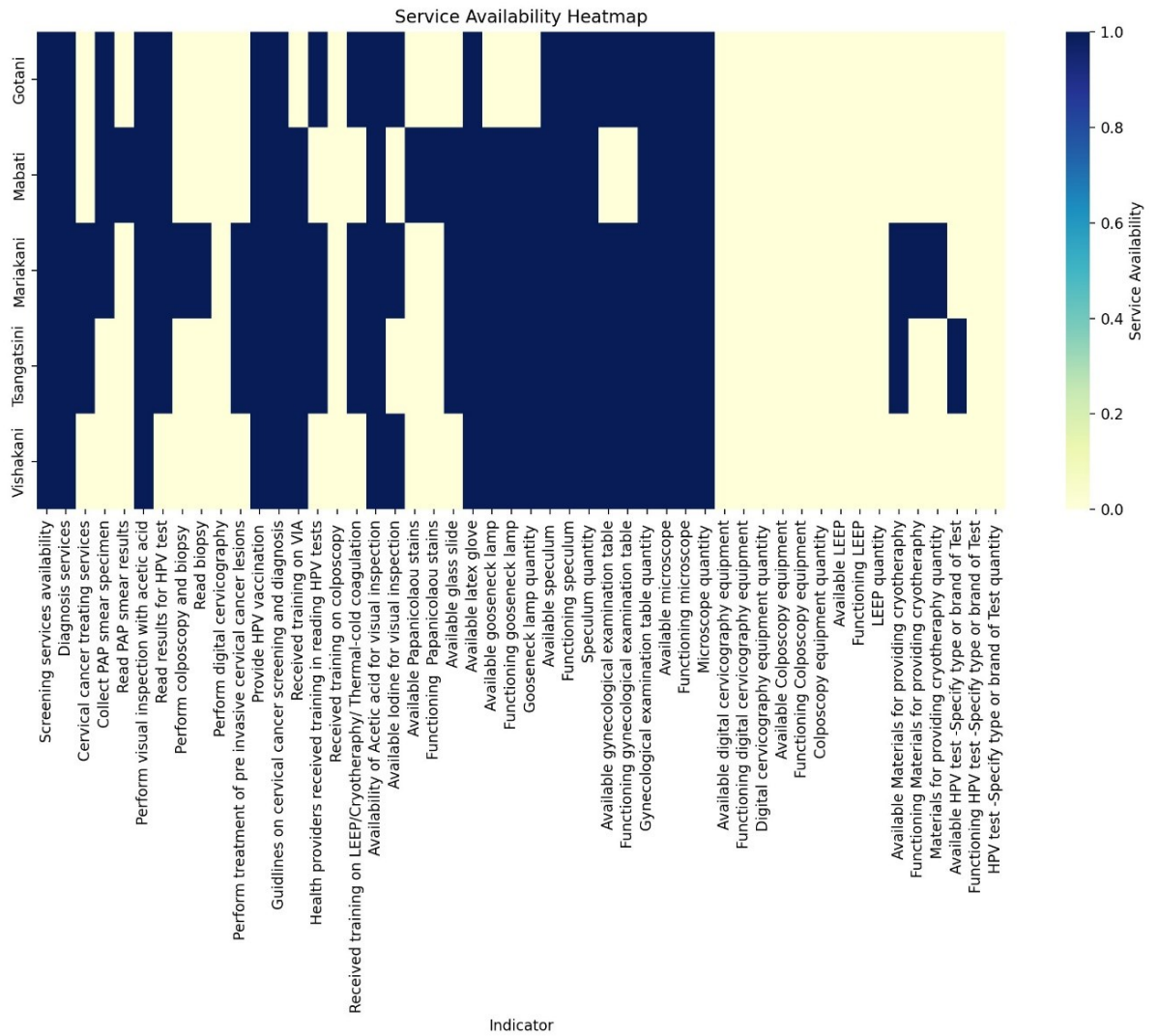
lesions, and advanced diagnostics such as colposcopy or biopsy 1(20%) and digital cervicography 0(0%) were infrequently available. These findings highlight substantial gaps in the screen-and-treat continuum. Essential screening materials, including acetic acid, speculums, and gloves, were widely accessible (80–100%), whereas supplies for cytology (Papanicolaou stains, 20%) and advanced testing (HPV tests, 20%; functioning, 0%) were limited. Training levels reflected these disparities, with 4 (80%) of facilities having providers trained in VIA, none in colposcopy, and only 3(60%) in cryotherapy or loop electrosurgical excision procedure (LEEP).

**Table 4.15: List of Resources Available by Health Facility in Kaloleni Sub-County**

Indicator	Health Facilities Service availability %
<b>Services Available</b>	
Screening services	100
Diagnosis services	100
Cervical cancer treating services	40
Collect PAP smear specimen	60
Read PAP smear results	20
Perform visual inspection with acetic acid	100
Read results for HPV test	80
Perform colposcopy and biopsy	20
Read biopsy	20
Perform digital cervicography	0
Perform treatment of pre invasive cervical cancer lesions	40
Provide HPV vaccination	100
<b>Support for Quality Services</b>	
Guidelines on cervical cancer screening and diagnosis	100
Received training on VIA	80
Health providers received training in reading HPV tests	60
Received training on colposcopy	0
Received training on LEEP/Cryotherapy/ Thermal-cold coagulation	60
<b>Materials for Screening Services</b>	
Availability of Acetic acid for visual inspection	100
Available Iodine for visual inspection	60
Available Papanicolaou stains	20
Functioning Papanicolaou stains	20
Available glass slide	60
Available latex glove	100
Available gooseneck lamp	80

<b>Indicator</b>	<b>Health Facilities Service availability %</b>
Functioning gooseneck lamp	80
Gooseneck lamp quantity	80
Available speculum	100
Functioning speculum	100
Speculum quantity	100
Available gynecological examination table	80
Functioning gynecological examination table	80
Gynecological examination table quantity	100
<b>Materials for Diagnostic Services</b>	
Available microscope	100
Functioning microscope	100
Microscope quantity	100
Available digital cervicography equipment	0
Functioning digital cervicography equipment	0
Digital cervicography equipment quantity	0
Available Colposcopy equipment	0
Functioning Colposcopy equipment	0
Colposcopy equipment quantity	0
Available HPV test -Specify type or brand of Test	20
Functioning HPV test -Specify type or brand of Test	0
HPV test -Specify type or brand of Test quantity	0
<b>Materials for Treatment Services</b>	
Available LEEP	0
Functioning LEEP	0
LEEP quantity	0
Available Materials for providing cryotherapy	40
Functioning Materials for providing cryotherapy	20
Materials for providing cryotherapy quantity	20

Note: 100% = available/functional; 0% = not available.



**Figure 4.5: Detailed Cervical Cancer Screening Services Availability per Health Facility**

## CHAPTER FIVE

### DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Discussion

##### 5.1.1 Proportion of Women Utilizing Cervical Cancer Screening

In Kaloleni Sub-County, only 23% of women aged 25-49 years have utilized cervical cancer screening services, which indicates a similar trend with other studies in Kenya and Sub-Saharan Africa. For instance, a study in central Kenya reported that 25.6% of women had undergone cervical cancer screening, while national data indicated that only 17% of women of childbearing age were screened (Gatumo et al., 2018; KDHS, 2022). In other countries, studies in South Africa, Ethiopia, Uganda, Nigeria, Ghana, and Ethiopia reported cervical cancer screening uptake rates of 35.5%, 22.9%, 20.6%, 18.4%, 24.6%, and 24%, respectively, highlighting a persistent challenge in promoting preventive care among women in low-resource settings (Akokuwebe et al., 2021; Belay et al., 2020; Isabirye et al., 2020; Mafiana et al., 2022; Tawiah et al., 2022; Tekle et al., 2020). These figures reveal that there is low screening uptake in low- and middle-income countries compared to high-income countries (Bruni et al., 2022).

The healthcare workers observed that the majority of the women go for screening when symptoms have developed, which supports the global notion that barriers such as lack of awareness, cultural beliefs, and inadequate access to healthcare services affect the uptake of cervical cancer screening. This finding aligns with the results of research investigating obstacles to cervical cancer screening, which frequently identifies a lack of awareness as a primary barrier and misconceptions as significant impediments (Binka et al., 2019; Yang et al., 2023).

The low utilization of cervical cancer screening in Kaloleni depicts an urgent need for targeted educational campaigns and community outreach programs to address the importance of regular screening and demystify the cultural and societal barriers that keep women away from going for screening services. Adopting an evidence-based

approach that has worked in other regions will result in improved uptake of services and early disease detection.

## **5.1.2 Individual-level Characteristics Associated with the Utilization of Cervical Cancer Screening**

### **5.1.2.1 Predisposing Factors**

This research shows disparities in the utilization of cervical cancer screening across the various selected health facilities located in different administrative wards. In Mariakani, the utilization rate is 36.6% due to service availability, whereas in Kaloleni, 83.9% do not utilize cervical cancer screening services. The finding aligns with existing literature emphasizing the importance of geographic accessibility in health care, particularly in rural areas where healthcare resources are often limited (Dickson et al., 2023).

There was no significant association between the utilization of cervical cancer services and marital status. This finding aligns with research conducted in Ghana (Ampofo et al., 2020). However, a study in Kenya reported that there was a high uptake of cervical cancer screening among married women at 61% (Kiboche et al., 2020). Thus, it indicates variation in the influence of marital status in the uptake of cervical cancer screening uptake across different studies.

Utilization of cervical cancer is higher among older women above 39 years at 40% compared to women below 39 years at 20.8%; this is consistent with studies in Ethiopia (Woldetsadik et al., 2020) and Nigeria (Rimande-Joel & Ekenedo, 2019) where the younger women do not identify themselves as at risk and do not take up the services. Research conducted in Kenya revealed that participation in cervical cancer screening was greater among older women than young women (Gebreegziabher et al., 2024). One possible explanation for this could be that women in this age range have a higher possibility of giving birth, having more gynecological exams, and may have more frequent visits to healthcare facilities for antenatal and postnatal care.

Religious affiliation did not show a statistically significant association with the utilization of cervical cancer screening services. This finding contrasts with research from Zimbabwe and Nigeria (Dareng et al., 2015; Gutusa & Roets, 2023; Tapera, Dreyer, et al., 2019), which suggested that religious beliefs may act as a barrier to cervical cancer screening.

No correlation was observed between educational attainment and the uptake of cervical cancer screening services. These results are consistent with studies in Egypt and Nigeria, which reported no influence of education level on screening utilization (Omotoso et al., 2020). In contrast, investigations in Kenya, Ghana, and Nepal identified a marked increase in cervical cancer screening among women with formal education compared to those without (Ampofo et al., 2020; Ng'ang'a et al., 2018; Pandey & Karmacharya, 2017).

Support for regular screening did not demonstrate a statistically significant relationship with the utilization of cervical cancer screening services, with 75.7% of those in support having a screening rate of 24.3%. Awareness of cervical cancer and its screening correlates strongly with screening rates; participants unaware of cervical cancer exhibited a 96.2% non-utilization rate, consistent with findings from Cameroon (Donatus et al., 2019). Respectively, showing that knowledge gaps hinder engagement in preventive health behaviors. Moreover, understanding the link between HPV and cervical cancer significantly impacted attitudes towards screening, as those unaware reflected an 81.7% non-utilization rate, echoing findings that identified awareness as a key determinant of screening acceptance (Belay et al., 2020).

Knowledge about symptoms also proved critical, with 89.9% of non-users unaware of cervical cancer symptoms. This is in line with a study in Nigeria that indicated most women did not know the symptoms and risk factors of cervical cancer (Olubodun et al., 2022). This emphasizes the need for targeted educational interventions (Binka et al., 2019). Overall, this underscores the importance of enhancing knowledge and accessibility surrounding cervical cancer screening to improve utilization rates, particularly in underserved areas, while also advocating for further exploration into

cultural and religious factors influencing screening behaviors (Tapera, Dreyer, et al., 2019).

The healthcare workers mentioned that there is a lack of educational initiatives that empower women with comprehensive information regarding regular cervical cancer screening prevention measures. Multiple studies have reported consistent findings (Yimer et al., 2021). Targeted interventions aimed at enhancing awareness and improving access to cervical cancer screening are important, as shown in the study. Educating women about HPV, the risks and symptoms associated with cervical cancer and the importance of screening should be a major priority. Addressing geographical and systemic barriers will reduce disparities in access to cervical cancer screening at healthcare facilities. Subsequent research should investigate the impact of cultural and religious factors on screening behaviors, as well as the lived experiences of women from underserved populations, to formulate culturally attuned strategies that promote the uptake of cervical cancer screening.

#### **5.1.2.2 Enabling Factors**

This research elucidates significant socio-economic disparities impacting the utilization of cervical cancer screening services among women in Kaloleni, emphasizing the substantial influence of financial resources, income sources, and employment status on health-seeking behaviors. Women dependent on their partner's income demonstrated reduced screening rates (20.5%) in comparison to those with independent income sources (45%). This finding aligns with past research indicating that economic dependency can hinder access to preventive health services (Tiruneh et al., 2017). The lower screening rates among women dependent on partners suggest that financial autonomy may empower women to prioritize their health.

Financial constraints emerged as a significant barrier to screening, with many healthcare workers noting that high poverty levels inhibit access to services. This observation resonates with findings that identified inadequate health insurance as a primary obstacle to timely screenings in the United States (Olusola et al., 2019). Furthermore, prior research has highlighted that out-of-pocket expenses associated with cervical cancer screening serve as a deterrent for many women (Ndejjo, Mukama,

Kiguli, et al., 2017; Woldetsadik et al., 2020). This study shows that perceived affordability of screening significantly affected participation rates, with individuals who considered the costs manageable exhibiting a higher utilization rate (41.2%) compared to those unaware of costs (8.1%). This finding reflects similar concerns articulated in research highlighting that economic barriers can lead to advanced-stage diagnoses among underprivileged women (Vaccarella, De Vries, et al., 2019).

Employment status also played a crucial role in screening utilization, with employed women exhibiting higher rates of participation (34.0%) compared to their unemployed counterparts (19.5%). The positive correlation between job stability and health-seeking behavior aligns with findings in studies conducted in four sub-Saharan countries and Japan (Kaneko, 2018; Mekonen et al., 2024), which indicated that employed women are more likely to engage in preventive health measures due to access of information about health issues from their employers. Stable employment allows women to incorporate health screenings into their routines and makes healthcare access more feasible (Ampofo et al., 2020).

Health insurance coverage was significantly associated with screening rates, revealing that women lacking insurance utilized screening services far less frequently (19.5%) than their insured peers (34.0%). The study reaffirms a consistent finding in previous research: Lack of health insurance is a major obstacle to accessing preventive healthcare services. Healthcare workers' perspectives shed light on the issue, revealing that many women are deterred by the costs of screenings, a finding that aligns with previous research (Twinomujuni et al., 2015).

Women with no income had a cervical cancer non-utilization rate of 86.2%, a huge figure that underscores the impact of low-income status on screening uptake. This finding aligns with studies showing that low-income status significantly hinders women's access to cervical cancer screening (Ba et al., 2021). As healthcare workers indicated, the primary concern for many women from predominantly low-income brackets is on socioeconomic challenges rather than health screenings (Black et al., 2019).

The findings of this study highlight the significant role socio-economic factors play in influencing cervical cancer screening utilization in Kaloleni. Addressing barriers related to financial constraints, employment status, and insurance coverage is critical for improving access to these essential health services. Future interventions could focus on enhancing health education and improving the affordability and accessibility of screening services, especially for women from low socio-economic backgrounds who may have difficulty accessing necessary preventive care.

### **5.1.2.3 Need Factors**

The results highlight a significant association between women's perceptions of screening providing peace of mind and their actual utilization of screening services. Specifically, a notable difference was found between those who were uncertain about the reassurance provided by screening, 2.8% of whom did not participate in screening, and those who believed it offered reassurance, with 26.3% utilizing cervical cancer screening. This aligns with a meta-analysis done on 72 studies spanning 34 countries, which indicated that women's decisions around cervical cancer screening are heavily influenced by their attitudes and beliefs (Lau et al., 2022a)

The data revealed that fear of cancer diagnoses remains a primary barrier to screening, echoing sentiments expressed by healthcare workers where patients often perceive it as a death sentence. Similarly, research conducted in Kenya demonstrated that fear and stigma related to pelvic examinations represent significant individual-level barriers to the uptake of cervical cancer screening (Adewumi et al., 2021). As highlighted in previous studies, the negative societal labels attached to cervical cancer significantly deter women from engaging in prevention strategies (Mboineki et al., 2020; Petersen et al., 2022).

An overwhelming 97.1% of individuals who exhibited uncertainty regarding the value of regular screening did not utilize the services, as opposed to 73.2% who acknowledged its significance. This aligns with findings that determined that the increase in the uptake of screening services for cervical cancer is directly proportional to the amount of awareness about the disease (Donatus et al., 2019). A study in Kenya found that women who had visited a healthcare facility within the preceding 12 months

demonstrated a higher likelihood of engaging in cervical cancer screening compared to those who had not (Gebreegziabher et al., 2024). This highlights the importance of advanced health education strategies to promote an exhaustive and resilient comprehensive of cervical cancer screening's role in preventive health.

Husband approval emerged as a critical influencing factor, directly correlating with screening utilization rates. The analysis indicated that 88% of women unsure about their husbands' stance on screening did not participate, contrasting sharply with 63.5% of those whose husbands supported the idea. This is in line with studies conducted in low and middle-income countries that show cervical cancer was viewed as private and taboo and lacked of peer support (Petersen et al., 2022).

The healthcare workers demonstrated how cultural perceptions of women's health decisions have a substantial impact on utilizing cervical cancer screening, making it important to navigate these cultural dynamics carefully. This finding reflects similar concerns articulated in research in Kwale, highlighting the effects of socio-cultural norms, gender prejudice, and partner and family influence, which also play a role in hindering healthcare choices (Mochache et al., 2020). In some studies, cervical cancer screening has been associated with sexual transmission, with women attending screening assumed to be engaged in infidelity or promiscuity (Petersen et al., 2022).

The embarrassment and discomfort experienced by many women are significant obstacles during the examination and screening process. However, these misconceptions can be addressed through public health education (Black et al., 2019). The study highlights that multifaceted interventions on knowledge, cultural beliefs, and social norms can enhance cervical cancer screening participation. Acknowledging the factors influencing women's decision-making processes and the role of male partner support can help develop community-driven educational campaigns to combat stigma and fear, demystify screening, and empower women. Additionally, the healthcare provider's role is crucial in facilitating open dialogues and offering supportive care that addresses women's concerns.

### **5.1.3 Health Facility-Level Factors that Affect the Utilization of Cervical Cancer Screening**

This study's findings point to awareness levels, resource accessibility, healthcare worker involvement, the convenience of service schedules, and prior screening experiences as key determinants that influence participation in cervical cancer screening. They demonstrate strong correlations between attributes of healthcare facilities and utilization of screening services. These findings are consistent with prior studies, especially in settings with constrained resources.

A relationship was observed between awareness of cervical cancer screening service availability and their utilization. The analysis revealed that 38.8% of participants who were informed about the services utilized them, in contrast to only 11.1% of those who lacked such awareness ( $p < 0.001$ ). This highlights the importance of health promotion and awareness in improving health-seeking behaviors. The proximity of healthcare facilities to screened households was significantly correlated with screening uptake (Barrett et al., 2020). The healthcare providers pointed out the lack of educational materials concerning cervical cancer and the importance of screening in medical facilities.

Promoting screening services by health facility staff is another significant factor influencing utilization. Only 8.1% of those unaware of promotional efforts engaged in screening, contrasting sharply with 45.8% in those receiving active encouragement ( $p < 0.001$ ). This is consistent with findings pointing to healthcare provider attitudes as critical in patients' screening decision-making processes (Nigussie et al., 2019). This also aligns with a study in Uganda, which found that women who received relevant information from their health providers had higher odds been screened (Isabirye et al., 2020). The facility staff's role as healthcare facilitators is paramount, as positive interactions can enhance patients' willingness to access services, a sentiment supported by other studies emphasizing the importance of trust and rapport between healthcare providers and patients (Binka et al., 2019). Healthcare workers are essential in health messaging since they are considered knowledgeable and trustworthy.

The adequacy of health worker training also surfaced as a determinant of screening utilization. The study found that 51.4% of respondents who perceived training as adequate utilized services, whereas only 9.1% of those unsure about staff training engaged in screening ( $p < 0.001$ ). This aligns with findings emphasizing that inadequate knowledge among healthcare workers contributes to poor screening rates (Odera et al., 2017). A study in Kenya posited that clinics with at least one trained healthcare worker reported 84% cervical cancer screening compared to those not reporting 28% (Eastment et al., 2022). The healthcare workers raised concerns about the lack of training programs and knowledge sharing across healthcare facilities to enhance service delivery.

The study established that while 52.9% took advantage of convenient hours ( $p < 0.001$ ) to attend screening, 90.5% of women unaware of operating hours had not utilized cervical cancer screening. Similar findings have been gathered, which found that geographical and logistical barriers significantly affect screening uptake (Waiswa et al., 2017). The healthcare workers revealed that operating hours in many facilities do not accommodate patients' needs. Convenient operating hours at health facilities can improve access to cervical cancer screening utilization.

The impact of past experiences with cervical cancer screening is significant, as evidenced by the overwhelming 97.9% utilization rate among women who had previously participated ( $p < 0.001$ ). This suggests that positive initial experiences create a reinforcing cycle of participation in screening programs. Similarly, building positive relationships and satisfactory experiences with women undergoing screenings could contribute substantially to increased follow-up screenings (Njuguna et al., 2017). This finding is also consistent with other studies done in Sub-Saharan Africa that found an association between knowing someone has been screened and willingness to accept screening (Adewumi et al., 2021; Mabelele et al., 2018). There was no significant association between distance to screening facility and utilization of cervical cancer screening, consistent with a study in Uganda (Isabirye et al., 2020).

This study shows the need for comprehensive interventions to enhance awareness, staff engagement, training for healthcare personnel, operational hours, and positive

screening experiences to improve cervical cancer screening uptake. It emphasizes the importance of developing effective strategies by policymakers and healthcare providers, especially in underserved communities, to reduce cervical cancer morbidity and mortality. This will ultimately lead to more effective cervical cancer prevention strategies and better patient-centered care.

## **5.2 Conclusions**

### **5.2.1 Proportion of Women Utilizing Cervical Cancer Screening**

The study found that only 23.0% of women aged 25–49 years attending selected facilities in Kaloleni Sub-County had ever been screened for cervical cancer, far below the national target of 70%. Uptake varied significantly by facility level, with higher rates in Mariakani sub-county hospital (33%) compared to dispensaries (8–13%). This low proportion confirms the persistence of gaps in opportunistic screening coverage in rural coastal Kenya.

### **5.2.2 Individual-Level Characteristics Associated with Utilization of Cervical Cancer Screening**

Individual-level factors, particularly predisposing factors identified in Andersen's model, were the strongest determinants of screening uptake. Women who were unaware of cervical cancer or unaware of screening availability were significantly less likely to be screened. Additional knowledge gaps, such as a lack of awareness of cervical cancer symptoms, were also associated with lower uptake. Employed women and those with health insurance demonstrated higher screening rates. Husbands' approval significantly increased the likelihood of utilization. Qualitative data identified need-related barriers, including fear of results or pain, low perceived susceptibility, modesty concerns, myths or fatalism, and spousal opposition. These results determine that knowledge deficits and socio-cultural barriers as the primary individual constraints on screening in this population.

### **5.2.3 Health Facility-Level Factors Affecting Utilization of Cervical Cancer Screening**

Facility-level barriers significantly constrained utilization, including unreliable supplies, inadequate privacy, limited trained staff (especially in lower-level facilities), and inconsistent health education. Qualitative findings reinforced that integration with routine services and free outreach facilitated uptake, while stock-outs and long waiting times deterred it. Higher readiness in the Level IV facility correlated with greater screening rates, emphasizing the role of resource availability and service organization.

### **5.3 Recommendations**

This study makes recommendations based on study findings, discussions, and conclusions.

- i. **Intensify Community Awareness Campaigns:** Kilifi County authorities, in collaboration with community health promoters, radio stations, and churches, should prioritize educational initiatives on cervical cancer causes, symptoms, and the benefits of screening to address significant knowledge gaps ( $p < 0.001$ ).
- ii. **Promote Gender-Sensitive Interventions:** Implement male engagement and peer education programs to address fear, concerns about modesty, prevalent myths and fatalistic beliefs, as well as spousal opposition, which have been identified as key qualitative barriers.
- iii. **Enhance Economic Enablers:** Expand Social Health Insurance Fund (SHIF) coverage for preventive services and provide incentives, such as transport vouchers, to unemployed and low-income women, given the significant associations with employment ( $OR = 2.121, p = 0.030$ ) and insurance status ( $OR = 2.123, p = 0.030$ ).
- iv. **Strengthen Facility Readiness:** Allocate resources to lower-level facilities to ensure consistent supplies, private examination rooms, and an increased number of trained female providers, thereby addressing stock-outs, privacy concerns, and staffing shortages identified through assessments and qualitative data.

- v. Monitor and Evaluate: Conduct follow-up studies to assess the impact of interventions on service uptake, thereby supporting the objectives of Kenya's National Cancer Control Strategy (2023–2027).

## REFERENCES

- Adewumi, K., Nishimura, H., Oketch, S. Y., Adsul, P., & Huchko, M. (2021). Barriers and Facilitators to Cervical Cancer Screening in Western Kenya: A Qualitative Study. *Journal of Cancer Education : The Official Journal of the American Association for Cancer Education*, 37(4), 1122. <https://doi.org/10.1007/s13187-020-01928-6>
- Akokuwebe, M. E., Idemudia, E. S., Lekulo, A. M., & Motlogeloa, O. W. (2021). Determinants and levels of cervical Cancer screening uptake among women of reproductive age in South Africa: Evidence from South Africa Demographic and health survey data, 2016. *BMC Public Health*, 21(1), 2013. <https://doi.org/10.1186/s12889-021-12020-z>
- Ali-Risasi, C., Mulumba, P., Verdonck, K., Vanden Broeck, D., & Praet, M. (2014). Knowledge, attitude and practice about cancer of the uterine cervix among women living in Kinshasa, the Democratic Republic of Congo. *BMC Women's Health*, 14(1), 30. <https://doi.org/10.1186/1472-6874-14-30>
- Alkawaldeh, A., ALBashtawy, M., Rayan, A., Abdalrahim, A., Musa, A., Eshah, N., Abu Khait, A., Qaddumi, J., Khraisat, O., & ALBashtawy, S. (2023). Application and Use of Andersen's Behavioral Model as Theoretical Framework: A Systematic Literature Review from 2012–2021. *Iranian Journal of Public Health*, 52(7), 1346–1354. <https://doi.org/10.18502/ijph.v52i7.13236>
- Ampofo, A. G., Adumatta, A. D., Owusu, E., & Awuviry-Newton, K. (2020). A cross-sectional study of barriers to cervical cancer screening uptake in Ghana: An application of the health belief model. *PloS One*, 15(4), e0231459. <https://doi.org/10.1371/journal.pone.0231459>
- Andersen, R., & Newman, J. F. (1973). Societal and individual determinants of medical care utilization in the United States. *The Milbank Memorial Fund Quarterly. Health and Society*, 51(1), 95–124.

- Andersen, R., & Newman, J. F. (2005). Societal and Individual Determinants of Medical Care Utilization in the United States. *The Milbank Quarterly*, 83(4), Online-only-Online-only. <https://doi.org/10.1111/j.1468-0009.2005.00428.x>
- Ararsa, T., Tadele, N., Ayalew, Y., & Gela, D. (2021). Knowledge towards cervical cancer screening and associated factors among urban health extension workers at Addis Ababa, Ethiopia: Facility based cross-sectional survey. *BMC Cancer*, 21(1), 224. <https://doi.org/10.1186/s12885-021-07952-z>
- Ba, D. M., Ssentongo, P., Musa, J., Agbese, E., Diakite, B., Traore, C. B., Wang, S., & Maiga, M. (2021). Prevalence and determinants of cervical cancer screening in five sub-Saharan African countries: A population-based study. *Cancer Epidemiology*, 72, 101930. <https://doi.org/10.1016/j.canep.2021.101930>
- Barrett, B. W., Paz-Soldan, V. A., Mendoza-Cervantes, D., Sánchez, G. M., Córdova López, J. J., Gravitt, P. E., Rositch, A. F., & Proyecto Precancer Study Group. (2020). Understanding Geospatial Factors Associated With Cervical Cancer Screening Uptake in Amazonian Peruvian Women. *JCO Global Oncology*, 6, 1237–1247. <https://doi.org/10.1200/GO.20.00096>
- Bedell, S. L., Goldstein, L. S., Goldstein, A. R., & Goldstein, A. T. (2020). Cervical Cancer Screening: Past, Present, and Future. *Sexual Medicine Reviews*, 8(1), 28–37. <https://doi.org/10.1016/j.sxmr.2019.09.005>
- Belay, Y., Dheresa, M., Sema, A., Desalew, A., & Assefa, N. (2020). Cervical Cancer Screening Utilization and Associated Factors Among Women Aged 30 to 49 Years in Dire Dawa, Eastern Ethiopia. *Cancer Control*, 27(1), 1073274820958701. <https://doi.org/10.1177/1073274820958701>
- Binka, C., Nyarko, S. H., Awusabo-Asare, K., & Doku, D. T. (2019). Barriers to the Uptake of Cervical Cancer Screening and Treatment among Rural Women

in Ghana. *BioMed Research International*, 2019, 6320938.  
<https://doi.org/10.1155/2019/6320938>

Black, E., Hyslop, F., & Richmond, R. (2019). Barriers and facilitators to uptake of cervical cancer screening among women in Uganda: A systematic review. *BMC Women's Health*, 19(1), 108. [https://doi.org/10.1186/s12905-019-0809-](https://doi.org/10.1186/s12905-019-0809-0)

Bozhar, H., McKee, M., Spadea, T., Veerus, P., Heinävaara, S., Anttila, A., Senore, C., Zielonke, N., de Kok, I. M. C. M., van Ravesteyn, N. T., Lansdorp-Vogelaar, I., de Koning, H. J., & Heijnsdijk, E. A. M. (2022). Socio-economic inequality of utilization of cancer testing in Europe: A cross-sectional study. *Preventive Medicine Reports*, 26, 101733. <https://doi.org/10.1016/j.pmedr.2022.101733>

Bray, F., Laversanne, M., Sung, H., Ferlay, J., Siegel, R. L., Soerjomataram, I., & Jemal, A. (2024). Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, 74(3), 229–263. <https://doi.org/10.3322/caac.21834>

Bruni, L., Serrano, B., Roura, E., Alemany, L., Cowan, M., Herrero, R., Poljak, M., Murillo, R., Broutet, N., Riley, L. M., & de Sanjose, S. (2022). Cervical cancer screening programmes and age-specific coverage estimates for 202 countries and territories worldwide: A review and synthetic analysis. *The Lancet. Global Health*, 10(8), e1115–e1127. [https://doi.org/10.1016/S2214-109X\(22\)00241-8](https://doi.org/10.1016/S2214-109X(22)00241-8)

Creswell, J. W., & Clark, V. L. P. (2017). *Designing and Conducting Mixed Methods Research*. SAGE Publications.

Dadipoor, S., Alavi, A., Kader, Z., Eshaghi Sani Kakhaki, H., Mohseni, S., & Shahabi, N. (2023). Utilization of cervical cancer screening services and its

associated factors in Iran: A case-control study. *Infectious Agents and Cancer*, 18(1), 17. <https://doi.org/10.1186/s13027-023-00496-w>

Dareng, E. O., Jedy-Agba, E., Bamisaye, P., Modibbo, F. I., Oyeneyin, L. O., Adewole, A. S., Olaniyan, O. B., Dakum, P. S., Pharoah, P. D., & Adebamowo, C. A. (2015). Influence of Spirituality and Modesty on Acceptance of Self-Sampling for Cervical Cancer Screening. *PLOS ONE*, 10(11), e0141679. <https://doi.org/10.1371/journal.pone.0141679>

De Prez, V., Jolidon, V., Cullati, S., Burton-Jeangros, C., & Bracke, P. (2022). Cervical cancer (over-)screening in Europe: Balancing organised and opportunistic programmes. *Scandinavian Journal of Public Health*, 14034948221118215. <https://doi.org/10.1177/14034948221118215>

Devarapalli, P., Labani, S., Nagarjuna, N., Panchal, P., & Asthana, S. (2018). Barriers affecting uptake of cervical cancer screening in low and middle income countries: A systematic review. *Indian Journal of Cancer*, 55(4), 318–326. [https://doi.org/10.4103/ijc.IJC\\_253\\_18](https://doi.org/10.4103/ijc.IJC_253_18)

Dickson, K. S., Boateng, E. N. K., Acquah, E., Ayebe, 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. <https://doi.org/10.1186/s12913-023-09055-w>

Donatus, L., Nina, F. K., Sama, D. J., Nkfusai, C. N., Bede, F., Shirinde, J., & Cumber, S. N. (2019). Assessing the uptake of cervical cancer screening among women aged 25-65 years in Kumbo West Health District, Cameroon. *Pan African Medical Journal*, 33(1), Article 1. <https://www.ajol.info/index.php/pamj/article/view/210306>

Fitzpatrick, M., Pathipati, M. P., McCarty, K., Rosenthal, A., Katzenstein, D., Chirenje, Z. M., & Pinsky, B. (2020). Knowledge, attitudes, and practices of cervical Cancer screening among HIV-positive and HIV-negative

women participating in human papillomavirus screening in rural Zimbabwe. *BMC Women's Health*, 20, 153. <https://doi.org/10.1186/s12905-020-01017-2>

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), 745. <https://doi.org/10.1186/s12885-018-4642-9>

Gebreegiabher, Z. A., Semagn, B. E., Kiflew, Y., Abebaw, W. A., & Tilahun, W. M. (2024). Cervical cancer screening and its associated factors among women of reproductive age in Kenya: Further analysis of Kenyan demographic and health survey 2022. *BMC Public Health*, 24(1), 741. <https://doi.org/10.1186/s12889-024-18148-y>

Getahun, T., Kaba, M., & Dersseh, B. T. (2020). Intention to Screen for Cervical Cancer in Debre Berhan Town, Amhara Regional State, Ethiopia: Application of Theory of Planned Behavior. *Journal of Cancer Epidemiology*, 2020(1), 3024578. <https://doi.org/10.1155/2020/3024578>

Gutusa, F., & Roets, L. (2023). Early cervical cancer screening: The influence of culture and religion. *African Journal of Primary Health Care and Family Medicine*, 15(1), 3776. <https://doi.org/10.4102/phcfm.v15i1.3776>

Hi, W., C, M., M, S., Mh, M., Gp, P., L, M., Dm, G., & E, C. (2012, May). "Worse than HIV" or "not as serious as other diseases"? Conceptualization of cervical cancer among newly screened women in Zambia. *Social Science & Medicine* (1982); Soc Sci Med. <https://doi.org/10.1016/j.socscimed.2012.01.028>

IARC. (2023). Best Practices in Cervical Screening Programmes: Audit of Cancers, Legal and Ethical Frameworks, Communication, and Workforce Competencies. <https://publications.iarc.fr/Book-And-Report-Series/Iarc-Working-Group-Reports/Best-Practices-In-Cervical-Screening->

Programmes-Audit-Of-Cancers-Legal-And-Ethical-Frameworks-  
Communication-And-Workforce-Competencies-2023

- Isabirye, A., Mbonye, M. K., & Kwagala, B. (2020). Predictors of cervical cancer screening uptake in two districts of Central Uganda. *PLOS ONE*, *15*(12), e0243281. <https://doi.org/10.1371/journal.pone.0243281>
- Kaneko, N. (2018). Factors associated with cervical cancer screening among young unmarried Japanese women: Results from an internet-based survey. *BMC Women's Health*, *18*(1), 132. <https://doi.org/10.1186/s12905-018-0623-z>
- Kangmennaang, J., Thogarapalli, N., Mkandawire, P., & Luginaah, I. (2015). Investigating the disparities in cervical cancer screening among Namibian women. *Gynecologic Oncology*, *138*(2), 411–416. <https://doi.org/10.1016/j.ygyno.2015.05.036>
- KDHS. (2014). *Kenya—Kenya Demographic and Health Survey 2014*. <https://statistics.knbs.or.ke/nada/index.php/catalog/65>
- KDHS. (2022). *Kenya Demographic and Health Survey (KDHS) 2022—Kenya National Bureau of Statistics*. <https://www.knbs.or.ke/kenya-demographic-and-health-survey-kdhs-2022/>
- Kiboche, J., Ariya, O., & Mustami, A. (2020). Assessment of uptake of cervical cancer screening services among women of reproductive age in Khwisero sub-county, Kakamega County, Kenya. *International Journal Of Community Medicine And Public Health*, *8*, 111. <https://doi.org/10.18203/2394-6040.ijcmph20205684>
- KNBS. (2019a). 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County. *Kenya National Bureau of Statistics*. <https://www.knbs.or.ke/?wpdmpro=2019-kenya-population-and-housing-census-volume-i-population-by-county-and-sub-county>

- KNBS. (2019b). 2019 Kenya Population and Housing Census Volume IV: Distribution of Population by Socio-Economic Characteristics. *Kenya National Bureau of Statistics*. <https://www.knbs.or.ke/download/2019-kenya-population-and-housing-census-volume-iv-distribution-of-population-by-socio-economic-characteristics/>
- Kokuro, M. (2017). Factors affecting the utilisation of cervical cancer screening among women attending health services in the Kumasi metropolis of Ghana [Stellenbosch : Stellenbosch University]. <http://hdl.handle.net/10019.1/101327>
- Lau, J., Shrestha, P., Shaina Ng, J., Jianlin Wong, G., Legido-Quigley, H., & Tan, K.-K. (2022a). Qualitative factors influencing breast and cervical cancer screening in women: A scoping review. *Preventive Medicine Reports*, 27, 101816. <https://doi.org/10.1016/j.pmedr.2022.101816>
- Lemp, J. M., De Neve, J.-W., Bussmann, H., Chen, S., Manne-Goehler, J., Theilmann, M., Marcus, M.-E., Ebert, C., Probst, C., Tsabedze-Sibanyoni, L., Sturua, L., Kibachio, J. M., Moghaddam, S. S., Martins, J. S., Houinato, D., Houehanou, C., Gurung, M. S., Gathecha, G., Farzadfar, F., ... Geldsetzer, P. (2020). Lifetime Prevalence of Cervical Cancer Screening in 55 Low- and Middle-Income Countries. *JAMA*, 324(15), 1532–1542. <https://doi.org/10.1001/jama.2020.16244>
- Li, M., Nyabigambo, A., Navvuga, P., Nuwamanya, E., Nuwasiima, A., Kaganda, P., Asiimwe, F. T., Vodicka, E., Mugisha, N. M., Mukose, A., Kwesiga, D. K., Lubinga, S. J., Garrison, L. P., & Babigumira, J. B. (2017). Acceptability of cervical cancer screening using visual inspection among women attending a childhood immunization clinic in Uganda. *Papillomavirus Research (Amsterdam, Netherlands)*, 4, 17–21. <https://doi.org/10.1016/j.pvr.2017.06.004>
- Linus, A. M., Wanyoro, A., & Gitahi, M. M. (2021). Demographic and Economic Predictors of Uptake of Cervical Cancer Screening among Women in

Isiolo County, Kenya. *Global Journal of Health Science*, 13(12), Article 12. <https://doi.org/10.5539/gjhs.v13n12p72>

- Mabelele, M. M., Materu, J., Ng'ida, F. D., & Mahande, M. J. (2018). Knowledge towards cervical cancer prevention and screening practices among women who attended reproductive and child health clinic at Magu district hospital, Lake Zone Tanzania: A cross-sectional study. *BMC Cancer*, 18(1), 565. <https://doi.org/10.1186/s12885-018-4490-7>
- Mafiana, J. J., Dhital, S., Halabia, M., & Wang, X. (2022). Barriers to uptake of cervical cancer screening among women in Nigeria: A systematic review. *African Health Sciences*, 22(2), 295–309. <https://doi.org/10.4314/ahs.v22i2.33>
- Mboineki, J. F., Wang, P., Dhakal, K., Getu, M. A., Millanzi, W. C., & Chen, C. (2020). Predictors of uptake of cervical cancer screening among women in Urban Tanzania: Community-based cross-sectional study. *International Journal of Public Health*, 65(9), 1593–1602. <https://doi.org/10.1007/s00038-020-01515->
- Mekonen, E. G., Gebrehana, D. A., & Tamir, T. T. (2024). Determinants of cervical cancer screening among women of childbearing age in four sub-Saharan African countries: Insights from large population surveys. *BMC Cancer*, 24(1), 1304. <https://doi.org/10.1186/s12885-024-13079-8>
- Mekuria, M., Edosa, K., Endashaw, M., Bala, E. T., Chaka, E. E., Deriba, B. S., & Tesfa, B. (2021). Prevalence of Cervical Cancer and Associated Factors Among Women Attended Cervical Cancer Screening Center at Gahandi Memorial Hospital, Ethiopia. *Cancer Informatics*, 20, 11769351211068431. <https://doi.org/10.1177/11769351211068431>
- Mochache, V., Wanje, G., Nyagah, L., Lakhani, A., El-Busaidy, H., Temmerman, M., & Gichangi, P. (2020). Religious, socio-cultural norms and gender stereotypes influence uptake and utilization of maternal health services

among the Digo community in Kwale, Kenya: A qualitative study. *Reproductive Health*, 17(1), 71. <https://doi.org/10.1186/s12978-020-00919-6>

MOH. (2018). *Ministry of Health, Kenya. Kenya National Cancer Screening Guidelines. 2018*. Ministry of Health. <http://guidelines.health.go.ke/#/category/7/406/meta>

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), 335. <https://doi.org/10.1186/1472-6963-14-335>

Muluneh, B. A., Atnafu, D. D., & Wassie, B. (2019). Predictors of cervical cancer screening service utilization among commercial sex workers in Northwest Ethiopia: A case-control study. *BMC Women's Health*, 19(1), 162. <https://doi.org/10.1186/s12905-019-0862-7>

Murfin, J., Irvine, F., Meechan-Rogers, R., & Swift, A. (2020). Education, income and occupation and their influence on the uptake of cervical cancer prevention strategies: A systematic review. *Journal of Clinical Nursing*, 29(3–4), 393–415. <https://doi.org/10.1111/jocn.15094>

NCI. (2021). *Trends at a Glance | Cancer Trends Progress Report*. National Cancer Institute. <https://progressreport.cancer.gov/trends>

Ndejjo, R., Mukama, T., Kiguli, J., & Musoke, D. (2017). Knowledge, facilitators and barriers to cervical cancer screening among women in Uganda: A qualitative study. *BMJ Open*, 7(6), e016282. <https://doi.org/10.1136/bmjopen-2017-016282>

Ndejjo, R., Mukama, T., Musinguzi, G., Halage, A. A., Ssempebwa, J. C., & Musoke, D. (2017). Women's intention to screen and willingness to vaccinate their daughters against cervical cancer – a cross sectional study in eastern

Uganda. *BMC Public Health*, 17(1), 255. <https://doi.org/10.1186/s12889-017-4180-4>

Ng'ang'a, A., Nyangasi, M., Nkonge, N. G., Gathitu, E., Kibachio, J., Gichangi, P., Wamai, R. G., & Kyobutungi, C. (2018). Predictors of cervical cancer screening among Kenyan women: Results of a nested case-control study in a nationally representative survey. *BMC Public Health*, 18(3), 1221. <https://doi.org/10.1186/s12889-018-6054-9>

Nigussie, T., Admassu, B., & Nigussie, A. (2019). Cervical cancer screening service utilization and associated factors among age-eligible women in Jimma town using health belief model, South West Ethiopia. *BMC Women's Health*, 19(1), 127. <https://doi.org/10.1186/s12905-019-0826-y>

Njuguna, E., Ilovi, S., Muiruri, P., Mutai, K., Kinuthia, J., & Njoroge, P. (2017). Factors influencing cervical cancer screening in a Kenyan Health Facility: A mixed qualitative and quantitative study. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 6(4), 1180–1185. <https://doi.org/10.18203/2320-1770.ijrcog20171381>

Njuita, P. K., Baliddawa, J. B., & Koskei, P. (2021). INFLUENCE OF KNOWLEDGE ON CERVICAL CANCER SCREENING AMONG WOMEN OF REPRODUCTIVE AGE: A CASE STUDY OF RUNYENJES, EMBU KENYA. *International Journal of Public Health*, 2(1), Article 1. <https://serialpublishers.org/index.php/ijph/article/view/155>

Odera, J. O., Odera, E., Githang'a, J., Walong, E. O., Li, F., Xiong, Z., & Chen, X. L. (2017). Esophageal cancer in Kenya. *American Journal of Digestive Disease*, 4(3), 23–33.

Olubodun, T., Balogun, M. R., Odeyemi, A. K., Odukoya, O. O., Ogunyemi, A. O., Kanma-Okafor, O. J., Okafor, I. P., Olubodun, A. B., Ogundele, O. O. P., Ogunnowo, B., & Osibogun, A. (2022). Barriers and recommendations for a cervical cancer screening program among women in low-resource

settings in Lagos Nigeria: A qualitative study. *BMC Public Health*, 22(1), 1906. <https://doi.org/10.1186/s12889-022-14314-2>

Olusola, P., Banerjee, H. N., Philley, J. V., & Dasgupta, S. (2019). Human Papilloma Virus-Associated Cervical Cancer and Health Disparities. *Cells*, 8(6), Article 6. <https://doi.org/10.3390/cells8060622>

Omotoso, O., Matariek, G., Omotoso, E., Matareek, A., Abdul-Rafee, G. M., Malakar, S., & Chutia, N. (2020). Practice of Breast Self-Examination and Knowledge of Breast and Cervical Cancer Screening: A bi-national Survey in Africa. *AfricArXiv Preprints*. <https://doi.org/10.14293/111.000/000013.v1>

Pandey, R. A., & Karmacharya, E. (2017). Cervical cancer screening behavior and associated factors among women of Ugrachandi Nala, Kavre, Nepal. *European Journal of Medical Research*, 22, 32. <https://doi.org/10.1186/s40001-017-0274-9>

Petersen, Z., Jaca, A., Ginindza, T. G., Maseko, G., Takatshana, S., Ndlovu, P., Zondi, N., Zungu, N., Varghese, C., Hunting, G., Parham, G., Simelela, P., & Moyo, S. (2022). Barriers to uptake of cervical cancer screening services in low-and-middle-income countries: A systematic review. *BMC Women's Health*, 22(1), 486. <https://doi.org/10.1186/s12905-022-02043-y>

Peterson, C. E., Silva, A., Gobin, A. H., Ongtengco, N. P., Hu, E. Z., Khanna, D., Nussbaum, E. R., Jasenof, I. G., Kim, S. J., & Dykens, J. A. (2021). Stigma and cervical cancer prevention: A scoping review of the U.S. literature. *Preventive Medicine*, 153, 106849. <https://doi.org/10.1016/j.ypmed.2021.106849>

Pieters, M. M., Proeschold-Bell, R. J., Coffey, E., Huchko, M. J., & Vasudevan, L. (2021). Knowledge, attitudes, and practices regarding cervical cancer screening among women in metropolitan Lima, Peru: A cross-sectional

study. *BMC Women's Health*, 21(1), 304. <https://doi.org/10.1186/s12905-021-01431-0>

Qin, J., Shahangian, S., Saraiya, M., Holt, H., Gagnon, M., & Sawaya, G. F. (2021). Trends in the use of cervical cancer screening tests in a large medical claims database, United States, 2013–2019. *Gynecologic Oncology*, 163(2), 378–384. <https://doi.org/10.1016/j.ygyno.2021.08.023>

Rimande-Joel, R., & Ekenedo, G. O. (2019). Knowledge, Belief and Practice of Cervical Cancer Screening and Prevention among Women of Taraba, North-East Nigeria. *Asian Pacific Journal of Cancer Prevention : APJCP*, 20(11), 3291–3298. <https://doi.org/10.31557/APJCP.2019.20.11.3291>

Rosser, J. I., Hamisi, S., Njoroge, B., & Huchko, M. J. (2015). Barriers to Cervical Cancer Screening in Rural Kenya: Perspectives from a Provider Survey. *Journal of Community Health*, 40(4), 756–761. <https://doi.org/10.1007/s10900-015-9996-1>

Siegel, R. L., Miller, K. D., & Jemal, A. (2020). Cancer statistics, 2020. *CA: A Cancer Journal for Clinicians*, 70(1), 7–30. <https://doi.org/10.3322/caac.21590>

Singh, D., Vignat, J., Lorenzoni, V., Eslahi, M., Ginsburg, O., Lauby-Secretan, B., Arbyn, M., Basu, P., Bray, F., & 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. [https://doi.org/10.1016/S2214-109X\(22\)00501-0](https://doi.org/10.1016/S2214-109X(22)00501-0)

Singla, A. A., & Komesaroff, P. (2018). Self-collected Pap smears may provide an acceptable and effective method of cervical cancer screening. *Health Science Reports*, 1(5), e33. <https://doi.org/10.1002/hsr2.33>

Srinath, A., Merode, F. van, Rao, S. V., & Pavlova, M. (2022). Barriers to cervical cancer and breast cancer screening uptake in low-and-middle-income

countries: A systematic review. *Health Policy and Planning*.  
<https://doi.org/10.1093/heapol/czac104>

Tapera, O., Dreyer, G., Kadzatsa, W., Nyakabau, A. M., Stray-Pedersen, B., & SJH, H. (2019). Cervical cancer knowledge, attitudes, beliefs and practices of women aged at least 25 years in Harare, Zimbabwe. *BMC Women's Health*, *19*(1), 91. <https://doi.org/10.1186/s12905-019-0790-6>

Tapera, O., Kadzatsa, W., Nyakabau, A. M., Mavhu, W., Dreyer, G., Stray-Pedersen, B., & SJH, H. (2019). Sociodemographic inequities in cervical cancer screening, treatment and care amongst women aged at least 25 years: Evidence from surveys in Harare, Zimbabwe. *BMC Public Health*, *19*(1), 428. <https://doi.org/10.1186/s12889-019-6749-6>

Tawiah, A., Konney, T. O., Dassah, E. T., Visser, L. E., Amo-Antwi, K., Appiah-Kubi, A., Bell, S. G., Johnston, C., & Lawrence, E. R. (2022). Determinants of cervical cancer screening uptake among women with access to free screening: A community-based study in peri-urban Ghana. *International Journal of Gynaecology and Obstetrics: The Official Organ of the International Federation of Gynaecology and Obstetrics*, *159*(2), 513–521. <https://doi.org/10.1002/ijgo.14158>

Teame, H., Gebremariam, L., Kahsay, T., Berhe, K., Gebreheat, G., & Gebremariam, G. (2019). Factors affecting utilization of cervical cancer screening services among women attending public hospitals in Tigray region, Ethiopia, 2018; Case control study. *PLOS ONE*, *14*(3), e0213546. <https://doi.org/10.1371/journal.pone.0213546>

Tekle, T., Wolka, E., Nega, B., Kumma, W. P., & Koyira, M. M. (2020). Knowledge, Attitude and Practice Towards Cervical Cancer Screening Among Women and Associated Factors in Hospitals of Wolaita Zone, Southern Ethiopia. *Cancer Management and Research*, *12*, 993–1005. <https://doi.org/10.2147/CMAR.S240364>

- Tiruneh, F. N., Chuang, K.-Y., Ntenda, P. A. M., & Chuang, Y.-C. (2017). Individual-level and community-level determinants of cervical cancer screening among Kenyan women: A multilevel analysis of a Nationwide survey. *BMC Women's Health*, *17*(1), 109. <https://doi.org/10.1186/s12905-017-0469-9>
- Tsikouras, P., Zervoudis, S., Manav, B., Tomara, E., Iatrakis, G., Romanidis, C., Bothou, A., & Galazios, G. (2016). Cervical cancer: Screening, diagnosis and staging. *Journal of B.U.ON.: Official Journal of the Balkan Union of Oncology*, *21*(2), 320–325.
- Twinomujuni, C., Nuwaha, F., & Babirye, J. N. (2015). Understanding the Low Level of Cervical Cancer Screening in Masaka Uganda Using the ASE Model: A Community-Based Survey. *PloS One*, *10*(6), e0128498. <https://doi.org/10.1371/journal.pone.0128498>
- United Nations. (2015). Goal 3: Ensure healthy lives and promote well-being for all at all ages. *United Nations Sustainable Development*. <https://www.un.org/sustainabledevelopment/health/>
- Vaccarella, S., De Vries, E., Sierra, M. S., Conway, D. I., & Mackenbach, J. P. (2019). Social inequalities in cancer within countries. In S. Vaccarella, J. Lortet-Tieulent, R. Saracci, D. I. Conway, K. Straif, & C. P. Wild (Eds.), *Reducing social inequalities in cancer: Evidence and priorities for research*. International Agency for Research on Cancer. <http://www.ncbi.nlm.nih.gov/books/NBK566179/>
- Vaccarella, S., Lortet-Tieulent, J., Saracci, R., Conway, D. I., Straif, K., & Wild, C. P. (Eds.). (2019). *Reducing social inequalities in cancer: Evidence and priorities for research*. International Agency for Research on Cancer. <http://www.ncbi.nlm.nih.gov/books/NBK566181/>
- Vega, R. B. M., Balogun, O. D., Ishaq, O. F., Bray, F., Ginsburg, O., & Formenti, S. C. (2019). Estimating child mortality associated with maternal mortality

from breast and cervical cancer. *Cancer*, 125(1), 109–117.  
<https://doi.org/10.1002/cncr.31780>

Vodicka, E. L., Babigumira, J. B., Mann, M. R., Kosgei, R. J., Lee, F., Mugo, N. R., Okech, T. C., Sakr, S. R., Garrison, L. P., & Chung, M. H. (2017). Costs of integrating cervical cancer screening at an HIV clinic in Kenya. *International Journal of Gynaecology and Obstetrics: The Official Organ of the International Federation of Gynaecology and Obstetrics*, 136(2), 220–228. <https://doi.org/10.1002/ijgo.12025>

Waiswa, A., Nsubuga, R., Muwasi, M., Kimera, I., Ndikabona, G., Tusingwire, P. D., Mshilla, M., Ovuga, E., & Akera, P. (2017). Knowledge and Attitude towards Cervical Cancer Screening among Females Attending out Patient Department in Health Centre IIIs in Oyam District. *Open Journal of Preventive Medicine*, 07(04), Article 04. <https://doi.org/10.4236/ojpm.2017.74005>

WHO. (2018). Global Cancer Observatory. Cancer tomorrow: A tool that predicts the future cancer incidence and mortality burden worldwide from the current estimates in 2018 up until 2040. International Agency for Research on Cancer, World Health Organization; <https://gco.iarc.fr/tomorrow/en>

WHO. (2020). Global strategy to accelerate the elimination of cervical cancer as a public health problem. <https://www.who.int/publications/i/item/9789240014107>

WHO. (2021). *Harmonized health facility assessment (HHFA): Core questions*. World Health Organization. [https://www.who.int/publications-detail-redirect/harmonized-health-facility-assessment-\(hhfa\)](https://www.who.int/publications-detail-redirect/harmonized-health-facility-assessment-(hhfa))

WHO. (2024). *Cervical cancer*. WHO. <https://www.who.int/news-room/fact-sheets/detail/cervical-cancer>

Wilding, S., Wighton, S., Halligan, D., West, R., Conner, M., & O'Connor, D. B. (2020). What factors are most influential in increasing cervical cancer

screening attendance? An online study of UK-based women. *Health Psychology and Behavioral Medicine*, 8(1), 314–328. <https://doi.org/10.1080/21642850.2020.1798239>

Williams, J., Rakovac, I., Victoria, J., Tatarinova, T., Corbex, M., Barr, B., Rose, T., Sturua, L., Obreja, G., Andreasyan, D., Shukurov, S., Gahraman, H., Mikkelsen, B., Berdzuli, N., & Breda, J. (2021). Cervical cancer testing among women aged 30–49 years in the WHO European Region. *European Journal of Public Health*, 31(4), 884–889. <https://doi.org/10.1093/eurpub/ckab100>

Woldetsadik, A. B., Amhare, A. F., Bitew, S. T., Pei, L., Lei, J., & Han, J. (2020). Socio-demographic characteristics and associated factors influencing cervical cancer screening among women attending in St. Paul's Teaching and Referral Hospital, Ethiopia. *BMC Women's Health*, 20(1), 70. <https://doi.org/10.1186/s12905-020-00927-5>

World Health Organization. (2014). *Comprehensive Cervical Cancer Control: A Guide to Essential Practice* (2nd ed.). World Health Organization. <http://www.ncbi.nlm.nih.gov/books/NBK269619/>

Yang, L., Boily, M.-C., Rönn, M. M., Obiri-Yeboah, D., Morhason-Bello, I., Meda, N., Lompo, O., Mayaud, P., Pickles, M., Brisson, M., Hodgins, C., Delany-Moretlwe, S., & Maheu-Giroux, M. (2023). Regional and country-level trends in cervical cancer screening coverage in sub-Saharan Africa: A systematic analysis of population-based surveys (2000-2020). *PLoS Medicine*, 20(1), e1004143. <https://doi.org/10.1371/journal.pmed.1004143>

Yimer, N. B., Mohammed, M. A., Solomon, K., Tadese, M., Grutzmacher, S., Meikena, H. K., Alemnew, B., Sharew, N. T., & Habtewold, T. D. (2021). Cervical cancer screening uptake in Sub-Saharan Africa: A systematic review and meta-analysis. *Public Health*, 195, 105–111. <https://doi.org/10.1016/j.puhe.2021.04.014>

## APPENDICES

### **Appendix I: Informed Consent Form – Key Informant Interview**

#### **Utilization of Cervical Cancer Screening and its Associated Factors among Women aged 25-49 years in Kaloleni Sub-County, Kilifi County**

##### **Informed Consent Form- Key informant interview**

“Good morning/ afternoon.” My name is..... I am the research assistant for this study, which is being carried out in Kaloleni Sub-County, Kilifi County, Kenya.

This form, called an Informed Consent Form, will explain what this study is about. Please read this form or have it read to you. Before you decide if you want to join this study or not, we want to explain the study, its risks, its potential benefits, and what you will be asked to do. You may ask questions as we discuss the study so that you understand what the study is about. It is important that you know the following:

- **Your participation in this study is entirely voluntary.**
- **You can ask questions now or at any time during the study.**

Before you decide whether to join this study, I will explain:

- The purpose of this study
- How the study may help you or others
- Any risks you may face while participating in this study

Once you understand the study and decide to take part, you will be asked to sign this consent form and you will be given a copy of it to keep. This process is called informed consent.

### ***Purpose of the project***

Emmanuel Moffat Onduko plans to study in Kaloleni Sub-County, Kilifi County-Kenya. The study aims to determine the utilization of cervical cancer screening and its associated factors among women aged 25- 49 in Kaloleni Sub-County, Kilifi County.

We would like to invite you to participate in an interview that will explore themes on the uptake of cervical cancer screening services. The information you provide us in this study will be used to improve the provision of cervical cancer screening services. We will be interviewing 20 health workers.

### ***Procedures***

If you agree to participate in the study, one of the project team members will interview you individually. The interview will take about 30 minutes of your time and will take place in a private room within this venue. The interviewer will ask you questions about your knowledge of cervical cancer, screening services, infrastructure, perceptions among women, primary barriers and strategies employed to influence the uptake of cervical cancer screening.

### **Confidentiality**

Your participation in this study will be treated with confidentiality. Some sections of conducting this analysis may require identifying the source of information of the collected data, and the year and period that it refers to. However, neither the health facility nor the health professional personnel's identification will be known or related to data after data storage. The final report will only provide code numbers. Anonymity and confidentiality will be guaranteed.

The study personnel will take all care possible to handle your information with strict confidence. Only research personnel involved in this study and members of the National Council for Science and Technology and Jomo Kenyatta University of Agriculture (JKUAT) Institutional Scientific Ethics Review Committee will access the

information. Results from the study will be presented in meetings and conferences, but your identity will not be disclosed in those presentations.

### **Your role in this situation analysis**

We would be grateful if you would agree to participate in the study. If you do, we will ask you questions about your knowledge of cervical cancer, screening services, infrastructure, perceptions among women, primary barriers and strategies employed to influence the uptake of cervical cancer screening.

This will require you to spare about 30 minutes of your time today.

### **Withdrawal from participation in the situation analysis**

Your participation in this study is entirely voluntary. You can refuse to participate in this study if you do not want to. It will not affect your right to receive services at the health facilities. You can also refrain from answering any question you feel uncomfortable with. However, we request for your full participation in answering all the questions for the study to be beneficial.

### **Risks**

There are no risks in participating in this study.

### **Benefits**

You will not receive any direct benefit by participating in this study and answering our questions. However, the information from the interview will greatly inform and assist in improving of cervical cancer screening services offered at health facilities in Kaloleni Sub-County, Kilifi County.

### **Costs of participating in the situation analysis**

You will not incur any cost for participating in the study.

## **Research Standards and Rights of Participants**

Please feel free to contact us about the study in future. Your participation in this study is entirely voluntary. If you decide not to participate, or if you later decide to stop participating, or refuse to answer any question at any time, you will not lose any benefits to which you are otherwise entitled.

If you have any questions about your rights as a research participant you may contact the secretary, JKUAT Institutional Scientific Ethics Review Committee, Tel. (067)58700001-4; e-mail; [ethics@jkuat.ac.ke](mailto:ethics@jkuat.ac.ke)

You may also contact Emmanuel Moffat Onduko, the study Principal Investigator, at cell phone +254727724651 or e-mail: [moffatonduko@gmail.com](mailto:moffatonduko@gmail.com) ; with any questions you may have.

][You will be given a copy of this consent form to keep.](#)

You now have an opportunity to ask me questions concerning the project.

**Do you have any questions?**

**YES  [Interviewer to respond to any questions]**

**NO  [Interviewer, go to the next question]**

**Do you agree to take part in the interview?**

**YES  [Interviewer, ask the respondent to sign the consent form]**

**NO  [Interviewer, thank the interviewee and leave her]**

***Declaration of the Volunteer***

I have understood the purpose of the study. I have read the above information, or it has been read to me. I have had the opportunity to ask questions about it, and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate in this study and understand that I have the right to withdraw from the interview at any time.

-----  
Signature or thumbprint of Research Participant

-----  
Date

-----  
Printed Name of Research Participant

-----  
Signature of Witness (if applicable)

-----  
Date

-----  
Printed Name of Witness (if applicable)

I have discussed the proposed research study with this participant, and in my opinion, this participant understands the benefit, risks and alternatives (including non-participation) and is capable of freely consenting to participate in this research

-----  
(Print name)

-----  
(Date)

-----  
(Signature)

## **Appendix II: Informed Consent Form – Questionnaire**

### **Utilization of Cervical Cancer Screening and its Associated Factors among Women aged 25-49 years in Kaloleni Sub-County, Kilifi County**

#### **Informed Consent Form- Interview**

“Good morning/ afternoon.” My name is..... I am the research assistant for this study, which is being carried out in Kaloleni Sub-County, Kilifi County, Kenya.

This form, called an Informed Consent Form, will explain what this study is about. Please read this form or have it read to you. Before you decide if you want to join this study or not, we want to explain the study, its risks, its potential benefits, and what you will be asked to do. You may ask questions as we discuss the study, so that you understand what the study is about. It is important you know the following:

- **Your participation in this study is entirely voluntary.**
- **You can ask questions now or at any time during the study.**

Before you decide whether to join this study, I will explain:

- The purpose of this study
- How the study may help you or others
- Any risks you may face while participating in this study

Once you understand the study, and if you decide to take part, you will be asked to sign this consent form, and you will be given a copy of it to keep. This process is called informed consent.

#### ***Purpose of the project***

Emmanuel Moffat Onduko is planning to undertake a study in Kaloleni Sub-County, Kilifi County-Kenya. The study aims to determine the utilization of cervical cancer

screening and its associated factors among women aged 25- 49 in Kaloleni Sub-County, Kilifi County.

We would like to invite you to participate in an interview, which will provide essential information regarding utilization of cervical cancer screening services; individual level characteristics and health facility factors. The information you provide us in this study will be used to improve provision of cervical cancer screening services. We will be interviewing about 217 women in the research.

### ***Procedures***

If you agree to participate in the study, one of the project team members will interview you individually. The interview will take about thirty minutes of your time and will take place in a private room within this venue. The interviewer will ask you questions about your individual level characteristics; predisposing factors, enabling factors, need factors and health facility level factors

### **Confidentiality**

Your participation in this study will be treated with confidentiality. Some sections of conducting this analysis may require identification of the source of information of the collected data, and the year and period that it refers to as well. However, neither the Health Facility nor the health professional personnel identification will be known or related to data, after data storage. The final report will only provide code numbers. Anonymity and confidentiality will be guaranteed.

All care possible will be taken by the study personnel to handle your information with strict confidence. Only research personnel involved in this study and members of the National Council for science and Technology and Jomo Kenyatta University of Agriculture (JKUAT) Institutional Scientific Ethics Review Committee will access the information. Results from the study will be presented in meetings and conferences, but your identity will not be disclosed in those presentations.

### **Your role in this situation analysis**

We would be grateful if you would agree to participate in the study. If you do, we will ask you questions about your individual level characteristics; predisposing factors, enabling factors, need factors and health facility level factors.

### **Withdrawal from participation in the situation analysis**

Your participation in this study is entirely voluntary. You can refuse to participate in this study if you do not want to. It will not affect your right to receive services at the health facilities. You can also refrain from answering any question that you do not feel comfortable with. However, we request for your full participation in answering all the questions for the study to be beneficial.

### **Risks**

There are no risks in participating in this study.

### **Benefits**

By participating in this study and answering our questions, you will not receive any direct benefit. However, the information from the interview will greatly inform and assist in improvement of services offered at health facilities in Kaloleni Sub-County, Kilifi County.

### **Costs of participating in the situation analysis**

You will not incur any cost for participating in the study.

### **Research Standards and Rights of Participants**

Please feel free to contact us about the study in future. Your participation in this study is entirely voluntary. If you decide not to participate, or if you later decide to stop

participating, or refuse to answer any question, at any time, you will not lose any benefits to which you are otherwise entitled.

If you have any questions about your rights as a research participant you may contact the secretary, JKUAT Institutional Scientific Ethics Review Committee, Tel. (067)5870001-4; e-mail; [ethics@jkuat.ac.ke](mailto:ethics@jkuat.ac.ke)

You may also contact Emmanuel Moffat Onduko, the study Principal Investigator at cell phone +254727724651 or e-mail: [moffatonduko@gmail.com](mailto:moffatonduko@gmail.com) ; with any questions you may have.

You will be given a copy of this consent form to keep.

You now have an opportunity to ask me questions concerning the project.

**Do you have any questions?**

**YES  [Interviewer to respond to any questions]**

**NO  [Interviewer, go to the next question]**

**Do you agree to take part in the interview?**

**YES  [Interviewer, ask the respondent to sign the consent form]**

**NO  [Interviewer, thank the interviewee and leave her]**

***Declaration of the Volunteer***

I have understood the purpose of the study, I have read the above information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this study and understand that I have the right to withdraw from the interview at any time.

-----  
Signature or thumbprint of Research Participant

-----  
Date

-----  
Printed Name of Research Participant

-----  
Signature of Witness (if applicable)

-----  
Date

-----  
Printed Name of Witness (if applicable)

I have discussed the proposed research study with this participant, and in my opinion, this participant understands the benefit, risks and alternatives (including non-participation) and is capable of freely consenting to participate in this research.

-----  
(Print name)

-----  
(Date)

-----  
(Signature)

### **Appendix III: Informed Consent Form Kiswahili Version – Questionnaire**

**Matumizi ya Uchunguzi wa Kansa ya Shingo ya Kizazi na Mambo Yanayohusiana kati ya Wanawake wenye Umri wa Miaka 25-49 katika Kaunti ndogo ya Kaloleni, Kaunti ya Kilifi.**

#### **Fomu ya Kupata Ridhaa ya Kufanya Mahojiano**

"Habari ya asubuhi/ mchana". Jina langu ni....., mimi ni msaidizi wa utafiti katika utafiti huu unaoendelea katika Kaunti ndogo ya Kaloleni, Kaunti ya Kilifi, Kenya.

Fomu hii, inaitwa Fomu ya Ridhaa ya Kufahamishwa, itaeleza kuhusu utafiti huu. Tafadhali soma fomu hii au uiruhusu isomwe kwako. Kabla ya kuamua kama unataka kujiunga na utafiti huu au la, tunataka kueleza utafiti huu, hatari zake, faida zake zinazowezezekana, na kile utakachoulizwa kufanya. Unaweza kuuliza maswali wakati tunajadili utafiti, ili uelewe ni nini utafiti huu unahusu. Ni muhimu ufahamu mambo yafuatayo:

- **Ushiriki wako katika utafiti huu ni kabisa wa hiari.**
- **Unaweza kuuliza maswali sasa au wakati wowote wakati wa utafiti.**

Kabla ya kuamua kama utajiunga na utafiti huu, nitaeleza:

- Malengo ya utafiti huu
- Jinsi utafiti huu unavyoweza kukusaidia wewe au wengine
- Hatari zozote unazoweza kukutana nazo wakati wa kushiriki katika utafiti huu

Baada ya kuelewa utafiti, na ukiamua kushiriki, utaulizwa kusaini fomu hii ya ridhaa, na utapewa nakala yake. Mchakato huu unaitwa ridhaa iliyoelewa.

## **Lengo la Utafiti huu**

Emmanuel Moffat Onduko anapanga kufanya utafiti katika Kaunti ndogo ya Kaloleni, Kaunti ya Kilifi-Kenya. Utafiti unalenga kubaini matumizi ya uchunguzi wa kansa ya shingo ya kizazi na mambo yanayohusiana na wanawake wenye umri wa miaka 25-49 huko Kaloleni, Kaunti ya Kilifi.

Tungetaka kukualika kushiriki katika mahojiano, ambayo yatatupa taarifa muhimu kuhusu matumizi ya huduma za uchunguzi wa kansa ya shingo ya kizazi; tabia za kiwango cha mtu binafsi na mambo ya viwango vya huduma na viwango vya vituo vya afya. Taarifa utakayotupatia katika utafiti huu itatumika kuboresha utoaji wa huduma za uchunguzi wa kansa ya shingo ya kizazi. Tutakuwa tukihoji wanawake takribani 217 katika utafiti.

## **Taratibu**

Kama utaamua kushiriki katika utafiti, mmoja wa wanachama wa timu ya mradi atakufanyia mahojiano binafsi. Mahojiano hayo yatakuchukua takribani dakika thelathini na yatafanyika katika chumba cha faragha ndani ya jengo hili. Mpira mahojiano atakuuliza maswali kuhusu tabia zako za kiwango cha mtu binafsi; sababu za kuhamasisha, sababu zinazoruhusu, sababu za kuhitajika na mambo ya viwango vya vituo vya afya.

## **Usiri**

Ushiriki wako katika utafiti huu utashughulikiwa kwa usiri. Baadhi ya sehemu za kufanya uchambuzi huu zinaweza kuhitaji kutambua chanzo cha taarifa ya data iliyokusanywa, na mwaka na kipindi inachohusiana. Hata hivyo, wala kitambulisho cha Kituo cha Afya wala utambulisho wa wafanyakazi wa kitaalamu wa afya hautajulikana au kuhusianishwa na data, baada ya kuhifadhi data. Ripoti ya mwisho itatoa namba za nambari tu. Anonimia na usiri vitaimarishwa.

Jitihada zote zitachukuliwa na wafanyakazi wa utafiti kuendesha taarifa yako kwa siri kabisa. Mtu pekee wa utafiti aliye kuhusika katika utafiti huu na wanachama wa

Baraza la Taifa la Sayansi na Teknolojia na Kamati ya Tathmini ya Maadili ya Kitaasisi ya Jomo Kenyatta University of Agriculture (JKUAT) watapata ufikivu wa taarifa hizo. Matokeo kutoka kwenye utafiti huo yatapresentiwa katika mikutano na mikutano, lakini utambulisho wako hautafichuliwa katika hizo mawasilisho.

### **Jukumu lako katika uchambuzi huu wa hali**

Tungekuwa wenye shukrani ikiwa utakubali kushiriki katika utafiti. Ikiwa utakubali, tutakuuliza maswali kuhusu tabia yako ya kiwango cha mtu binafsi; sababu za kuhamasisha, sababu zinazoruhusu, sababu za kuhitajika na mambo ya viwango vya vituo vya afya.

### **Kujiondoa kushiriki katika uchambuzi wa hali**

Ushiriki wako katika utafiti huu ni kabisa wa hiari. Unaweza kukataa kushiriki katika utafiti huu ikiwa hutaki. Hii haitaathiri haki yako ya kupokea huduma katika vituo vya afya. Unaweza pia kutoa jibu katika swali lolote usilolihisi vizuri. Hata hivyo, tunakuomba ushiriki wako kamili katika kujibu maswali yote ili utafiti uwe wenye manufaa.

### **Athari**

Hakuna athari katika kushiriki katika utafiti huu.

### **Faida**

Kwa kushiriki katika utafiti huu na kujibu maswali yetu, hutapata faida moja kwa moja. Hata hivyo, taarifa kutoka kwenye mahojiano itatoa mchango mkubwa katika kuboresha huduma zinazotolewa katika vituo vya afya Kaloleni, Kaunti ya Kilifi.

### **Gharama za kushiriki katika uchambuzi wa hali**

Hautakumbana na gharama yoyote kwa kushiriki katika utafiti.

## **Viwango vya Utafiti na Haki za Washiriki**

Tafadhali jisikie huru kuwasiliana nasi kuhusu utafiti huu kwa siku za usoni. Ushiriki wako katika utafiti huu ni kabisa wa hiari. Ikiwa utaamua kutoshiriki, au ikiwa baadaye utaamua kuacha kushiriki, au kukataa kujibu swali lolote, kwa wakati wowote, hutapoteza faida yoyote ambayo kwa kawaida umejipatia.

Ikiwa una maswali yoyote kuhusu haki zako kama washiriki wa utafiti unaweza kuwasiliana na katibu, Kamati ya Tathmini ya Maadili ya Kitaasisi ya JKUAT, Simu. (067) 58700001-4; barua-pepe; ethics@jkuat.ac.ke

Unaweza pia kuwasiliana na Emmanuel Moffat Onduko, Mpelelezi Mkuu wa utafiti kwa simu +254727724651 au barua-pepe: moffatonduko@gmail.com; kwa maswali yoyote unayoweza kuwa nayo.

Utapewa nakala ya fomu hii ya ridhaa kuihifadhi.

Sasa unayo fursa ya kuniuliza maswali kuhusu mradi.

**Je, una maswali yoyote?**

NDIYO  [Mpiga mahojiano ajibu maswali yoyote]

HAPANA  [Mpiga mahojiano, endelea na swali lifuatalo]

**Je, unaafikiana kushiriki katika mahojiano?**

NDIYO  [Mpiga mahojiano, mwombe aliyehojiwa kusaini fomu ya ridhaa]

HAPANA  [Mpiga mahojiano, shukuru mhohojwa na muache]

## **Ilani ya anayejitolea**

Nimeelewa lengo la utafiti, nimekusoma maelezo yaliyotajwa hapo juu, au yamemsomwa kwangu. Nimepata fursa ya kuuliza maswali kuhusu hilo na maswali yoyote niliyouliza yamejibiwa kikamilifu na kuridhisha kwangu. Naafikiana kwa hiari kushiriki kama mshiriki katika utafiti huu na ninaelewa kwamba nina haki ya kujitoa katika mahojiano wakati wowote.

---

Saini au Alama ya Kidole cha Mshiriki wa Utafiti

---

Tarehe

---

Jina la Mshiriki wa Utafiti

---

Saini ya Shahidi (ikiwa inahitajika)

---

Tarehe

---

Jina la Shahidi (ikiwa inahitajika)

Nimejadiliana na mshiriki kuhusu utafiti uliopendekezwa, na kwa maoni yangu, mshiriki huyu anaelewa faida, hatari na mbadala zake (ikiwa ni pamoja na kutoshiriki) na ni mtu anayeweza kutoa ridhaa kwa hiari kuwa mshiriki katika utafiti huu.

---

(Andika Jina)

---

(Tarehe)

---

(Saini)

## **Appendix IV: Informed Consent Form – Health Facility Assessment**

### **Utilization of Cervical Cancer Screening and its Associated Factors among Women aged 25-49 years in Kaloleni Sub-County, Kilifi County**

#### **Informed Consent Form- Health Facility Assessment Interview**

“Good morning/ afternoon.” My name is..... I am the research assistant for this study, which is being carried out in Kaloleni Sub-County, Kilifi County, Kenya.

This form, called an Informed Consent Form, will explain what this study is about. Please read this form or have it read to you. Before you decide if you want to join this study or not, we want to explain the study, its risks, its potential benefits, and what you will be asked to do. You may ask questions as we discuss the study, so that you understand what the study is about. It is important you know the following:

- **Your participation in this study is entirely voluntary.**
- **You can ask questions now or at any time during the study.**

Before you decide whether to join this study, I will explain:

- The purpose of this study
- How the study may help you or others
- Any risks you may face while participating in this study

Once you understand the study, and if you decide to take part, you will be asked to sign this consent form, and you will be given a copy of it to keep. This process is called informed consent.

#### ***Purpose of the project***

Emmanuel Moffat Onduko is planning to undertake a study in Kaloleni Sub-County, Kilifi County-Kenya. The study aims to determine the utilization of cervical cancer

screening and its associated factors among women aged 25- 49 in Kaloleni Sub-County, Kilifi County.

We would like to invite you to participate in an interview, which will explore health facility assessment cervical cancer screening services. The information you provide us in this study will be used to improve provision of cervical cancer screening services. We will be interviewing 5 health workers at the procedure rooms for cervical cancer screening in 5 health facilities

### ***Procedures***

If you agree to participate in the study, one of the project team members will interview you individually. The interview will take about 30 minutes of your time and will take place in the procedure room or work station for cervical cancer screening. The interviewer will ask you questions about availability of cervical cancer screening, support for quality services and materials for screening, diagnosis, and treatment.

### **Confidentiality**

Your participation in this study will be treated with confidentiality. Some sections of conducting this analysis may require identification of the source of information of the collected data, and the year and period that it refers to as well. However, neither the Health Facility nor the health professional personnel identification will be known or related to data, after data storage. The final report will only provide code numbers. Anonymity and confidentiality will be guaranteed.

All care possible will be taken by the study personnel to handle your information with strict confidence. Only research personnel involved in this study and members of the National Council for science and Technology and Jomo Kenyatta University of Agriculture (JKUAT) Institutional Scientific Ethics Review Committee will access the information. Results from the study will be presented in meetings and conferences, but your identity will not be disclosed in those presentations.

### **Your role in this situation analysis**

We would be grateful if you would agree to participate in the study. If you do, we will ask you questions about availability of cervical cancer screening, support for quality services and materials for screening, diagnosis, and treatment.

This will require you to spare about 30 minutes of your time today.

### **Withdrawal from participation in the situation analysis**

Your participation in this study is entirely voluntary. You can refuse to participate in this study if you do not want to. It will not affect your right to receive services at the health facilities. You can also refrain from answering any question that you do not feel comfortable with. However, we request for your full participation in answering all the questions for the study to be beneficial.

### **Risks**

There are no risks in participating in this study.

### **Benefits**

By participating in this study and answering our questions, you will not receive any direct benefit. However, the information from the interview will greatly inform and assist in improvement of cervical cancer screening services offered at health facilities in Kaloleni Sub-County, Kilifi County.

### **Costs of participating in the situation analysis**

You will not incur any cost for participating in the study.

## **Research Standards and Rights of Participants**

Please feel free to contact us about the study in future. Your participation in this study is entirely voluntary. If you decide not to participate, or if you later decide to stop participating, or refuse to answer any question, at any time, you will not lose any benefits to which you are otherwise entitled.

If you have any questions about your rights as a research participant you may contact the secretary, JKUAT Institutional Scientific Ethics Review Committee, Tel. (067)58700001-4; e-mail; [ethics@jkuat.ac.ke](mailto:ethics@jkuat.ac.ke)

You may also contact Emmanuel Moffat Onduko, the study Principal Investigator at cell phone +254727724651 or e-mail: [moffatonduko@gmail.com](mailto:moffatonduko@gmail.com) ; with any questions you may have.

You will be given a copy of this consent form to keep.

You now have an opportunity to ask me questions concerning the project.

**Do you have any questions?**

YES  [Interviewer to respond to any questions]

NO  [Interviewer, go to the next question]

**Do you agree to take part in the interview?**

YES  [Interviewer, ask the respondent to sign the consent form]

NO  [Interviewer, thank the interviewee and leave her]

***Declaration of the Volunteer***

I have understood the purpose of the study, I have read the above information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this study and understand that I have the right to withdraw from the interview at any time.

-----  
Signature or thumbprint of Research Participant

-----  
Date

-----  
Printed Name of Research Participant

-----  
Signature of Witness (if applicable)

-----  
Date

-----  
Printed Name of Witness (if applicable)

I have discussed the proposed research study with this participant, and in my opinion, this participant understands the benefit, risks and alternatives (including non-participation) and is capable of freely consenting to participate in this research.

-----  
(Print name)

-----  
(Date)

-----  
(Signature)

## Appendix V: Questionnaire

### Utilization of Cervical Cancer Screening and its Associated Factors among Women aged 25-49 years in Kaloleni Sub-County, Kilifi County

#### QUESTIONNAIRE

The research invites participants to answer questions about cervical cancer screening without revealing their identity. The questionnaire is optional and confidential. The collected data will provide valuable insights for improving cervical cancer screening uptake in the future. The aim is to maintain honesty and transparency in the process.

<b>Predisposing Factors</b>												
<b>Date</b>	_____ / _____ / _____											
<b>Subject ID</b>	<table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> </table>											
<b>Q01</b>	How old are you?  _____ years											
<b>Q02</b>	What is your marital status?											
	1	<input type="checkbox"/> Single										
	2	<input type="checkbox"/> Married										
	3	<input type="checkbox"/> Divorced										
	4	<input type="checkbox"/> Widowed										
	5	<input type="checkbox"/> Cohabiting										
<b>Q03</b>	Where do you live?  Administrative ward  1. <input type="checkbox"/> Mariakani 2. <input type="checkbox"/> Kayafungo 3. <input type="checkbox"/> Mwanamwinga 4. <input type="checkbox"/> Kaloleni											

<b>Q04</b>	How many children do you have?	
	1	<input type="checkbox"/> None
	2	<input type="checkbox"/> One
	3	<input type="checkbox"/> Two
	4	<input type="checkbox"/> Three
	5	<input type="checkbox"/> Four
	6	<input type="checkbox"/> Five or more
<b>Q05</b>	Do you know cervical cancer?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
<b>Q06</b>	Are you aware of the existence of cervical cancer screening?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
<b>Q07</b>	Have you gone for cervical cancer screening?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
<b>Q08</b>	Do you support regular cervical cancer screening?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
<b>Q09</b>	What are the symptoms of cervical cancer?	
	1	<input type="checkbox"/> Vaginal bleeding
	2	<input type="checkbox"/> Foul smelling of vaginal discharges
	3	<input type="checkbox"/> Do not know
	4	<input type="checkbox"/> Others

<b>Q10</b>	What are the risk factors for cervical cancer?	
	1	<input type="checkbox"/> Acquiring HPV virus
	2	<input type="checkbox"/> Having multiple sexual partners
	3	<input type="checkbox"/> Early sexual intercourse
	4	<input type="checkbox"/> Having many children
	5	<input type="checkbox"/> Long usage of oral contraceptives
	6	<input type="checkbox"/> Cigarette smoking
	7	<input type="checkbox"/> Don't know
	8	<input type="checkbox"/> Others (Specify)
<b>Q11</b>	Does HPV cause cervical cancer?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> Don't know
<b>Q12</b>	Do you think cervical cancer screening can detect cancer at an early stage?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> Don't know
<b>Q13</b>	How many methods of cervical screening do you know?	
	1	<input type="checkbox"/> Pap smear
	2	<input type="checkbox"/> VIA
	3	<input type="checkbox"/> VILI
	4	<input type="checkbox"/> HPV
	5	<input type="checkbox"/> None

<b>Q14</b>	Which method of cervical screening do you prefer?	
	1	<input type="checkbox"/> Pap smear
	2	<input type="checkbox"/> VIA
	3	<input type="checkbox"/> VILI
	4	<input type="checkbox"/> HPV
	5	<input type="checkbox"/> None
	6	<input type="checkbox"/> Don't Know
<b>Q15</b>	When did you first learn about cancer of the cervix?	
	1	<input type="checkbox"/> News media
	2	<input type="checkbox"/> Brochures and posters
	3	<input type="checkbox"/> Health workers
	4	<input type="checkbox"/> Family, friends, neighbours and colleagues
	5	<input type="checkbox"/> Religious leaders
	6	<input type="checkbox"/> Teachers
7	<input type="checkbox"/> Others (Specify)	
<b>Q16</b>	Do you believe that cervical cancer screening is essential for women's health?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
3	<input type="checkbox"/> Don't know	
<b>Q17</b>	Do you perceive that cervical cancer screening can prevent cancer or identify precancerous conditions?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
3	<input type="checkbox"/> Don't know	

<b>Q18</b>	Are you aware of HPV vaccination against cervical cancer?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
<b>Q19</b>	Do you believe HPV vaccination prevents against cervical cancer?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> Don't Know
<b>Q20</b>	What is your religion?	
	1	<input type="checkbox"/> Christian
	2	<input type="checkbox"/> Muslim
	3	<input type="checkbox"/> Atheist
	4	<input type="checkbox"/> Others
<b>Q21</b>	What is your level of education?	
	1	<input type="checkbox"/> Primary
	2	<input type="checkbox"/> Secondary
	3	<input type="checkbox"/> Higher education
	4	<input type="checkbox"/> Did not attend school
<b>Enabling factors</b>		
<b>Q22</b>	What is your source of income?	
	1	<input type="checkbox"/> No income
	2	<input type="checkbox"/> Income from partner
	3	<input type="checkbox"/> Own income
	4	<input type="checkbox"/> Other source

<b>Q23</b>	What is your occupation?	
	1	<input type="checkbox"/> Unemployed
	2	<input type="checkbox"/> Employed
<b>Q24</b>	Is your health facility far away?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> I don't know
<b>Q25</b>	What mode of transport did you use to reach the health facility?	
	1	<input type="checkbox"/> Walking
	2	<input type="checkbox"/> Cycling
	3	<input type="checkbox"/> Motorbike
	4	<input type="checkbox"/> Motor vehicle
	5	<input type="checkbox"/> Combination
<b>Q26</b>	What is the cost of cervical cancer screening in your health facility?	
	1	<input type="checkbox"/> Free
	2	<input type="checkbox"/> Affordable cost
	3	<input type="checkbox"/> Expensive
	4	<input type="checkbox"/> Don't Know
<b>Q27</b>	Do you have health insurance cover?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
<b>Q28</b>	How much is your income per month in KES?	
	1	<input type="checkbox"/> 50 – 15201
	2	<input type="checkbox"/> 15202 – 34,302
	3	<input type="checkbox"/> 34302 – 99,999
	4	<input type="checkbox"/> >100,000

	5	<input type="checkbox"/>	< None
<b>Need factors</b>			
<b>Q29</b>	Are you sexually active?		
	1	<input type="checkbox"/>	Yes
	2	<input type="checkbox"/>	No
<b>Q30</b>	Your first sex encounter was at what age?		
	1	<input type="checkbox"/>	<15 Years
	2	<input type="checkbox"/>	15 -18 Years
	3	<input type="checkbox"/>	>18 Years
<b>Q31</b>	Are you ready to be tested now?		
	1	<input type="checkbox"/>	Yes
	2	<input type="checkbox"/>	No
<b>Q32</b>	Do you think cervical cancer screening provides peace of mind and reassurance about one's health?		
	1	<input type="checkbox"/>	Yes
	2	<input type="checkbox"/>	No
	3	<input type="checkbox"/>	Don't know
<b>Q33</b>	Do you think regular participation in cervical cancer screening is important for women's health?		
	1	<input type="checkbox"/>	Yes
	2	<input type="checkbox"/>	No
	3	<input type="checkbox"/>	Don't know

<b>Q34</b>	If you have not utilized cervical cancer screening services, what are the reasons?	
	1	<input type="checkbox"/> Lack of information about screening methods
	2	<input type="checkbox"/> Fear of the result
	3	<input type="checkbox"/> I feel shy
	4	<input type="checkbox"/> I am afraid of the screening procedures
	5	<input type="checkbox"/> Religious beliefs
	6	<input type="checkbox"/> Cultural beliefs
	7	<input type="checkbox"/> Others (Specify)
<b>Q35</b>	Does your husband/partner approve of cervical cancer screening?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> I don't Know
<b>Health facility factors</b>		
<b>Q36</b>	What is the average distance in KM from where you live to the nearest health facility?	
	1	<input type="checkbox"/> < 1KM
	2	<input type="checkbox"/> 1-2 KM
	3	<input type="checkbox"/> 2-5KM
	4	<input type="checkbox"/> > 5KM
<b>Q37</b>	What is the average time in hours from where you live to the nearest health facility?	
	1	<input type="checkbox"/> < 1HR
	2	<input type="checkbox"/> 1-2 HRS
	3	<input type="checkbox"/> 2-3HRS
	4	<input type="checkbox"/> > 3HRS

<b>Q38</b>	Are cervical cancer screening available in your health facilities?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> I don't know
<b>Q39</b>	Have you utilized cervical cancer screening services at a health facility?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
<b>Q40</b>	Are any specific barriers preventing you from visiting health facilities for cervical cancer screening?	
	1	<input type="checkbox"/> Lack of transportation
	2	<input type="checkbox"/> Long waiting times at the health facility
	3	<input type="checkbox"/> Embarrassment
	4	<input type="checkbox"/> Fear of positive results
	5	<input type="checkbox"/> Lack of support from family and friends
	6	<input type="checkbox"/> Stigma
	7	<input type="checkbox"/> Pain and discomfort
	8	<input type="checkbox"/> Don't Know
<b>Q41</b>	Do the health facility staff promote or discuss cervical cancer screening with patients?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> Don't Know

<b>Q42</b>	Are the health personnel adequately trained to perform cervical cancer screening?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> Don't Know
<b>Q43</b>	Are the operating hours of your health facilities convenient for your access to cervical cancer screening?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> Don't Know
<b>Q44</b>	How were the services by the health personnel during cervical cancer screening?	
	1	<input type="checkbox"/> Good
	2	<input type="checkbox"/> Bad
	3	<input type="checkbox"/> Mistreated
	4	<input type="checkbox"/> Not done the test before
<b>Q45</b>	During your last cervical cancer screening test, what was the results turnaround time?	
	1	<input type="checkbox"/> On time
	2	<input type="checkbox"/> Delayed
	3	<input type="checkbox"/> Not done the test before
<b>Q46</b>	During your last cervical cancer screening, did you have a follow-up for treatment?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
	3	<input type="checkbox"/> Not done the test before

<b>Q47</b>	Which gender of healthcare personnel would you prefer to administer screening on you?	
	1	<input type="checkbox"/> Male
	2	<input type="checkbox"/> Female
	3	<input type="checkbox"/> Any
<b>Q48</b>	What is the quality of cervical cancer screening services in your health facility?	
	1	<input type="checkbox"/> Good
	2	<input type="checkbox"/> Poor
	3	<input type="checkbox"/> Don't Know
<b>Q49</b>	Have you ever done a cervical cancer screening test before?	
	1	<input type="checkbox"/> Yes
	2	<input type="checkbox"/> No
<b>Q50</b>	How many cervical cancer screening tests have you done in the last 5 years?	
	1	<input type="checkbox"/> 0
	2	<input type="checkbox"/> 1
	3	<input type="checkbox"/> 2
	4	<input type="checkbox"/> 3
	5	<input type="checkbox"/> 4+

**Appendix VI: Questionnaire Kiswahili Version**

**Matumizi ya Uchunguzi wa Saratani ya Shingo ya Kizazi na Mambo Yanayohusiana nayo kati ya Wanawake wenye Umri wa Miaka 25-49 katika Kaunti ndogo ya Kaloleni, Kaunti ya Kilifi**

**MASWALI**

Utafiti unawakaribisha washiriki kujibu maswali kuhusu uchunguzi wa saratani ya shingo ya kizazi, bila kufichua utambulisho wao. Hojaji ni hiari na ni ya siri. Data itakayokusanywa itatoa ufahamu muhimu kwa kuboresha upokeaji wa uchunguzi wa

<b>Masuala ya Kuwezesha</b>														
<b>Tarehe</b>	_____ / _____ / _____													
<b>ID ya Mshiriki</b>	<table border="1" style="width: 100%; height: 30px; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>													
<b>Q01</b>	Una miaka mingapi?  _____													
<b>Q02</b>	Hali yako ya ndoa ni ipi?													
	1	<input type="checkbox"/> Mmoja												
	2	<input type="checkbox"/> Mkewa												
	3	<input type="checkbox"/> Talaka												

	4	<input type="checkbox"/>	Mtu mwenye kumpoteza mwenza																		
	5	<input type="checkbox"/>	Kaishi pamoja																		
<b>Q03</b>	Unaishi wapi?  Kata ya utawala,  1. <input type="checkbox"/> Mariakani 2. <input type="checkbox"/> Kayafungo 3. <input type="checkbox"/> Mwanamwinga 4. <input type="checkbox"/> Kaloleni  _____																				
<b>Q04</b>	Una watoto wangapi?  <table border="1"> <tr> <td>1</td> <td><input type="checkbox"/></td> <td>Sina</td> </tr> <tr> <td>2</td> <td><input type="checkbox"/></td> <td><b>Mmoja</b></td> </tr> <tr> <td>3</td> <td><input type="checkbox"/></td> <td>Wawili</td> </tr> <tr> <td>4</td> <td><input type="checkbox"/></td> <td><b>Watatu</b></td> </tr> <tr> <td>5</td> <td><input type="checkbox"/></td> <td>Wanne</td> </tr> <tr> <td>6</td> <td><input type="checkbox"/></td> <td>Watano au Zaidi</td> </tr> </table>			1	<input type="checkbox"/>	Sina	2	<input type="checkbox"/>	<b>Mmoja</b>	3	<input type="checkbox"/>	Wawili	4	<input type="checkbox"/>	<b>Watatu</b>	5	<input type="checkbox"/>	Wanne	6	<input type="checkbox"/>	Watano au Zaidi
1	<input type="checkbox"/>	Sina																			
2	<input type="checkbox"/>	<b>Mmoja</b>																			
3	<input type="checkbox"/>	Wawili																			
4	<input type="checkbox"/>	<b>Watatu</b>																			
5	<input type="checkbox"/>	Wanne																			
6	<input type="checkbox"/>	Watano au Zaidi																			
<b>Q05</b>	Je, unajua kuhusu ugonjwa wa saratani ya shingo ya kizazi?  <table border="1"> <tr> <td>1</td> <td><input type="checkbox"/></td> <td>Ndiyo</td> </tr> <tr> <td>2</td> <td><input type="checkbox"/></td> <td>La</td> </tr> </table>			1	<input type="checkbox"/>	Ndiyo	2	<input type="checkbox"/>	La												
1	<input type="checkbox"/>	Ndiyo																			
2	<input type="checkbox"/>	La																			

<b>Q06</b>	Je, unajua kuhusu uchunguzi wa saratani ya shingo ya kizazi?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
<b>Q07</b>	Je, umeenda kwa uchunguzi wa saratani ya shingo ya kizazi?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
<b>Q08</b>	Je, unaunga mkono uchunguzi wa saratani ya shingo ya kizazi?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
<b>Q09</b>	Ni dalili zipi za saratani ya shingo ya kizazi?	
	1	<input type="checkbox"/> Kutokwa damu kwenye uke
	2	<input type="checkbox"/> Ukungu wa harufu wa uto wa uke
	3	<input type="checkbox"/> Sijui
	4	<input type="checkbox"/> Wengine
<b>Q10</b>	Viashiria vya hatari za saratani ya shingo ya kizazi?	
	1	<input type="checkbox"/> Kupata virusi vya HPV
	2	<input type="checkbox"/> Kuwa na washirika wa kimapenzi wengi
	3	<input type="checkbox"/> Kujamiiana mapema
	4	<input type="checkbox"/> Kuwa na watoto wengi
	5	<input type="checkbox"/> Kutumia muda mrefu wa vidonge vya uzazi
	6	<input type="checkbox"/> Uvutaji wa sigara

	7	<input type="checkbox"/>	Sijui
	8	<input type="checkbox"/>	Wengine (Taja)
<b>Q11</b>	Je, HPV husababisha saratani ya shingo ya kizazi?		
	1	<input type="checkbox"/>	Ndiyo
	2	<input type="checkbox"/>	La
	3	<input type="checkbox"/>	Sijui
<b>Q12</b>	Je, unaona kwamba uchunguzi wa saratani ya shingo ya kizazi unaweza kugundua saratani katika hatua za mwanzo?		
	1	<input type="checkbox"/>	Ndiyo
	2	<input type="checkbox"/>	La
	3	<input type="checkbox"/>	Sijui
<b>Q13</b>	Umejuzaje njia kadhaa za uchunguzi wa shingo ya kizazi?		
	1	<input type="checkbox"/>	Pap smear
	2	<input type="checkbox"/>	VIA
	3	<input type="checkbox"/>	VILI
	4	<input type="checkbox"/>	HPV
	5	<input type="checkbox"/>	Hakuna
<b>Q14</b>	Njia ipi ya uchunguzi wa shingo ya kizazi unapendelea?		
	1	<input type="checkbox"/>	Pap smear
	2	<input type="checkbox"/>	VIA
	3	<input type="checkbox"/>	VILI
	4	<input type="checkbox"/>	HPV
	5	<input type="checkbox"/>	Hakuna

	6	<input type="checkbox"/>	Sijui
<b>Q15</b>	Lini ulisikia kuhusu saratani ya shingo ya kizazi kwa mara ya kwanza?		
	1	<input type="checkbox"/>	Vyombo vya Habari
	2	<input type="checkbox"/>	Vipeperushi na matangazo
	3	<input type="checkbox"/>	Wafanyakazi wa afya
	4	<input type="checkbox"/>	Familia, marafiki, majirani na wenzake
	5	<input type="checkbox"/>	Viongozi wa dini
	6	<input type="checkbox"/>	Waalimu
	7	<input type="checkbox"/>	Wengine (Taja)
<b>Q16</b>	Je, unaamini kwamba uchunguzi wa saratani ya shingo ya kizazi ni muhimu kwa afya ya wanawake?		
	1	<input type="checkbox"/>	Ndiyo
	2	<input type="checkbox"/>	La
	3	<input type="checkbox"/>	Sijui
<b>Q17</b>	Je, unaona kwamba uchunguzi wa saratani ya shingo ya kizazi unaweza kuzuia saratani au kutambua hali ya mapema ya kansa?		
	1	<input type="checkbox"/>	Ndiyo
	2	<input type="checkbox"/>	La
	3	<input type="checkbox"/>	Sijui
<b>Q18</b>	Je, unajua kuhusu chanjo ya HPV dhidi ya saratani ya shingo ya kizazi?		
	1	<input type="checkbox"/>	Ndiyo
	2	<input type="checkbox"/>	La

<b>Q19</b>	Je, unakubali kwamba chanjo ya HPV dhidi inaweza kuzuia saratani ya shingo ya kizazi?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
<b>Q20</b>	Udini wako ni upi?	
	1	<input type="checkbox"/> Mkristu
	2	<input type="checkbox"/> Muislamu
	3	<input type="checkbox"/> Kiitikadi
	4	<input type="checkbox"/> Wengine
<b>Q21</b>	Una kiwango gani chako cha elimu?	
	1	<input type="checkbox"/> Shule ya Msingi
	2	<input type="checkbox"/> Shule ya Sekondari
	3	<input type="checkbox"/> Elimu ya juu
	4	<input type="checkbox"/> Hakuhudhuria shule
<b>Faktari za Kuwezesha</b>		
<b>Q22</b>	Ni chanzo gani cha mapato yako?	
	1	<input type="checkbox"/> Hakuna mapato
	2	<input type="checkbox"/> Mapato ya mwenzu
	3	<input type="checkbox"/> Mapato yako mwenyewe
	4	<input type="checkbox"/> Chanzo kingine
<b>Q23</b>	Ni kazi gani unafanya?	
	1	<input type="checkbox"/> Sina ajira
	2	<input type="checkbox"/> Kuajiriwa

<b>Q24</b>	Je, kituo chako cha afya ni mbali?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
	3	<input type="checkbox"/> Sijui
<b>Q25</b>	Ulikuwa unatumia usafiri gani kufika kituo cha afya?	
	1	<input type="checkbox"/> Kutembea
	2	<input type="checkbox"/> Baiskeli
	3	<input type="checkbox"/> Pikipiki
	4	<input type="checkbox"/> Gari
	5	<input type="checkbox"/> Mchanganyiko
<b>Q26</b>	Ni kiasi gani cha gharama za uchunguzi wa saratani ya shingo katika kituo chako cha afya?	
	1	<input type="checkbox"/> Bure
	2	<input type="checkbox"/> Gharama nafuu
	3	<input type="checkbox"/> Ghali
	4	<input type="checkbox"/> Sijui
<b>Q27</b>	Una bima ya afya?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
<b>Q28</b>	Ni kiasi gani cha mapato yako kwa mwezi katika Shilingi ya Kenya?	
	1	<input type="checkbox"/> 50 – 15201
	2	<input type="checkbox"/> 15202 – 34,302
	3	<input type="checkbox"/> 34302 – 99,999
	4	<input type="checkbox"/> >100,000
	5	<input type="checkbox"/> Sina
<b>Faktari za Mahitaji</b>		

<b>Q29</b>	Je, una shughuli ya kimapenzi?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
<b>Q30</b>	Marafiki wa kimapenzi walikuwa na umri gani wakati wa kwanza kujamiiana?	
	1	<input type="checkbox"/> <15 Miaka
	2	<input type="checkbox"/> 15 -18 Miaka
	3	<input type="checkbox"/> >18 Miaka
<b>Q31</b>	Je, uko tayari kupimwa sasa hivi?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
<b>Q32</b>	Je, unadhani uchunguzi wa saratani ya shingo ya kizazi unatoa amani ya akili na uhakika kuhusu afya ya mtu?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
	3	<input type="checkbox"/> Sijui
<b>Q33</b>	Je, unaona kwamba kushiriki mara kwa mara katika uchunguzi wa saratani ya shingo ya kizazi ni muhimu kwa afya ya wanawake?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
	3	<input type="checkbox"/> Sijui
<b>Q34</b>	Kama hukutumia huduma za uchunguzi wa saratani ya shingo ya kizazi, ni sababu zipi zinazokuzuia?	
	1	<input type="checkbox"/> Ukosefu wa taarifa kuhusu njia za uchunguzi

	2	<input type="checkbox"/>	Hofu ya matokeo	
	3	<input type="checkbox"/>	Nina aibu	
	4	<input type="checkbox"/>	Ninaogopa taratibu za uchunguzi	
	5	<input type="checkbox"/>	Imani za kidini	
	6	<input type="checkbox"/>	Imani za kitamaduni	
	7	<input type="checkbox"/>	Wengine (Taja)	
<b>Q35</b>	Je, mume/mwenzi wako anakubaliana na uchunguzi wa saratani ya shingo ya kizazi?			
	1	<input type="checkbox"/>	Ndiyo	
	2	<input type="checkbox"/>	La	
	3	<input type="checkbox"/>	Sijui	
<b>Faktari za Vituo vya Afya</b>				
<b>Q36</b>	Umbali wastani katika KM kutoka ulipo hadi kituo cha afya kinachokaribika zaidi kwako?			
	1	<input type="checkbox"/>	< 1KM	
	2	<input type="checkbox"/>	1-2 KM	
	3	<input type="checkbox"/>	2-5KM	
	4	<input type="checkbox"/>	> 5KM	
<b>Q37</b>	Muda wa wastani katika masaa kutoka unapoishi hadi kituo cha afya kilicho karibu nawe?			
	1	<input type="checkbox"/>	< SAA 1	
	2	<input type="checkbox"/>	SAA 1-2	
	3	<input type="checkbox"/>	SAA 2-3	
	4	<input type="checkbox"/>	> SAA 3	

<b>Q38</b>	<p>Je, huduma za uchunguzi wa saratani ya shingo ya kizazi zinapatikana katika kituo cha afya?</p> <table border="1" data-bbox="443 416 1394 591"> <tr> <td data-bbox="443 416 507 472">1</td> <td data-bbox="507 416 571 472"><input type="checkbox"/></td> <td data-bbox="571 416 1394 472">Ndiyo</td> </tr> <tr> <td data-bbox="443 472 507 528">2</td> <td data-bbox="507 472 571 528"><input type="checkbox"/></td> <td data-bbox="571 472 1394 528">La</td> </tr> <tr> <td data-bbox="443 528 507 591">3</td> <td data-bbox="507 528 571 591"><input type="checkbox"/></td> <td data-bbox="571 528 1394 591">Sijui</td> </tr> </table>	1	<input type="checkbox"/>	Ndiyo	2	<input type="checkbox"/>	La	3	<input type="checkbox"/>	Sijui															
1	<input type="checkbox"/>	Ndiyo																							
2	<input type="checkbox"/>	La																							
3	<input type="checkbox"/>	Sijui																							
<b>Q39</b>	<p>Je, umetumia huduma za uchunguzi wa saratani ya shingo ya kizazi katika kituo cha afya?</p> <table border="1" data-bbox="443 748 1394 864"> <tr> <td data-bbox="443 748 507 804">1</td> <td data-bbox="507 748 571 804"><input type="checkbox"/></td> <td data-bbox="571 748 1394 804">Ndiyo</td> </tr> <tr> <td data-bbox="443 804 507 864">2</td> <td data-bbox="507 804 571 864"><input type="checkbox"/></td> <td data-bbox="571 804 1394 864">La</td> </tr> </table>	1	<input type="checkbox"/>	Ndiyo	2	<input type="checkbox"/>	La																		
1	<input type="checkbox"/>	Ndiyo																							
2	<input type="checkbox"/>	La																							
<b>Q40</b>	<p>Je, kuna vikwazo maalum vinavyokuzuia kufika vituo vya afya kwa ajili ya uchunguzi wa saratani ya shingo ya kizazi?</p> <table border="1" data-bbox="443 1088 1394 1592"> <tr> <td data-bbox="443 1088 507 1144">1</td> <td data-bbox="507 1088 571 1144"><input type="checkbox"/></td> <td data-bbox="571 1088 1394 1144">Ukosefu wa usafiri</td> </tr> <tr> <td data-bbox="443 1144 507 1200">2</td> <td data-bbox="507 1144 571 1200"><input type="checkbox"/></td> <td data-bbox="571 1144 1394 1200">Usafiri mrefu katika kituo cha afya</td> </tr> <tr> <td data-bbox="443 1200 507 1256">3</td> <td data-bbox="507 1200 571 1256"><input type="checkbox"/></td> <td data-bbox="571 1200 1394 1256">Aibu</td> </tr> <tr> <td data-bbox="443 1256 507 1312">4</td> <td data-bbox="507 1256 571 1312"><input type="checkbox"/></td> <td data-bbox="571 1256 1394 1312">Hofu ya matokeo ya chanya</td> </tr> <tr> <td data-bbox="443 1312 507 1424">5</td> <td data-bbox="507 1312 571 1424"><input type="checkbox"/></td> <td data-bbox="571 1312 1394 1424">Ukosefu wa msaada kutoka kwa familia na marafiki</td> </tr> <tr> <td data-bbox="443 1424 507 1480">6</td> <td data-bbox="507 1424 571 1480"><input type="checkbox"/></td> <td data-bbox="571 1424 1394 1480">Ubaguzi</td> </tr> <tr> <td data-bbox="443 1480 507 1536">7</td> <td data-bbox="507 1480 571 1536"><input type="checkbox"/></td> <td data-bbox="571 1480 1394 1536">Uchungu na kero</td> </tr> <tr> <td data-bbox="443 1536 507 1592">8</td> <td data-bbox="507 1536 571 1592"><input type="checkbox"/></td> <td data-bbox="571 1536 1394 1592">Sijui</td> </tr> </table>	1	<input type="checkbox"/>	Ukosefu wa usafiri	2	<input type="checkbox"/>	Usafiri mrefu katika kituo cha afya	3	<input type="checkbox"/>	Aibu	4	<input type="checkbox"/>	Hofu ya matokeo ya chanya	5	<input type="checkbox"/>	Ukosefu wa msaada kutoka kwa familia na marafiki	6	<input type="checkbox"/>	Ubaguzi	7	<input type="checkbox"/>	Uchungu na kero	8	<input type="checkbox"/>	Sijui
1	<input type="checkbox"/>	Ukosefu wa usafiri																							
2	<input type="checkbox"/>	Usafiri mrefu katika kituo cha afya																							
3	<input type="checkbox"/>	Aibu																							
4	<input type="checkbox"/>	Hofu ya matokeo ya chanya																							
5	<input type="checkbox"/>	Ukosefu wa msaada kutoka kwa familia na marafiki																							
6	<input type="checkbox"/>	Ubaguzi																							
7	<input type="checkbox"/>	Uchungu na kero																							
8	<input type="checkbox"/>	Sijui																							
<b>Q41</b>	<p>Je, wafanyakazi wa afya katika vituo vyenu vinasaidia au kujadili uchunguzi wa saratani ya shingo na wagonjwa?</p> <table border="1" data-bbox="443 1749 1394 1921"> <tr> <td data-bbox="443 1749 507 1805">1</td> <td data-bbox="507 1749 571 1805"><input type="checkbox"/></td> <td data-bbox="571 1749 1394 1805">Ndiyo</td> </tr> <tr> <td data-bbox="443 1805 507 1861">2</td> <td data-bbox="507 1805 571 1861"><input type="checkbox"/></td> <td data-bbox="571 1805 1394 1861">La</td> </tr> <tr> <td data-bbox="443 1861 507 1921">3</td> <td data-bbox="507 1861 571 1921"><input type="checkbox"/></td> <td data-bbox="571 1861 1394 1921">Sijui</td> </tr> </table>	1	<input type="checkbox"/>	Ndiyo	2	<input type="checkbox"/>	La	3	<input type="checkbox"/>	Sijui															
1	<input type="checkbox"/>	Ndiyo																							
2	<input type="checkbox"/>	La																							
3	<input type="checkbox"/>	Sijui																							

<b>Q42</b>	Je, wafanyakazi wa afya wamepata mafunzo ya kutosha kutekeleza uchunguzi wa saratani ya shingo?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
	3	<input type="checkbox"/> Sijui
<b>Q43</b>	Je, masaa ya kufanya kazi ya vituo vyenu vya afya yanaridhisha kwa upatikanaji wako wa uchunguzi wa saratani ya shingo?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
	3	<input type="checkbox"/> Sijui
<b>Q44</b>	Jinsi ilivyokuwa huduma kwa wafanyakazi wa afya wakati wa uchunguzi wa saratani ya shingo?	
	1	<input type="checkbox"/> Nzuri
	2	<input type="checkbox"/> Mbaya
	3	<input type="checkbox"/> Kutendewa vibaya
	4	<input type="checkbox"/> Hawakufanya kipimo hapo awali
<b>Q45</b>	Wakati wa mwisho wako wa uchunguzi wa saratani ya shingo, muda wa kutolewa kwa matokeo ulikuwa wa muda gani?	
	1	<input type="checkbox"/> Kwa wakati unao faa
	2	<input type="checkbox"/> Kucheleweshwa
	3	<input type="checkbox"/> Hawakufanya kipimo hapo awali
<b>Q46</b>	Wakati wa mwisho wako wa uchunguzi wa saratani ya shingo, je, ulikuwa na ufuatiliaji wa matibabu?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
	3	<input type="checkbox"/> Hawakufanya kipimo hapo awali

<b>Q47</b>	Ni jinsia gani ya wafanyakazi wa afya ungetaka kutumia kufanya uchunguzi kwako?	
	1	<input type="checkbox"/> Kiume
	2	<input type="checkbox"/> Kike
	3	<input type="checkbox"/> Yeyote
<b>Q48</b>	Je, ubora wa huduma za uchunguzi wa saratani ya shingo katika kituo chako cha afya ni vipi?	
	1	<input type="checkbox"/> Nzuri
	2	<input type="checkbox"/> Mbaya
	3	<input type="checkbox"/> Sijui
<b>Q49</b>	Je, umewahi kufanya vipimo vya uchunguzi wa saratani ya shingo ya kizazi hapo awali?	
	1	<input type="checkbox"/> Ndiyo
	2	<input type="checkbox"/> La
<b>Q50</b>	Ni vipimo vingapi vya uchunguzi wa saratani ya shingo ya kizazi umefanyiwa katika miaka 5 iliyopita?	
	1	<input type="checkbox"/> 0
	2	<input type="checkbox"/> 1
	3	<input type="checkbox"/> 2
	4	<input type="checkbox"/> 3
	5	<input type="checkbox"/> 4+

## Appendix VII: Health Facility Assessment for Cervical Cancer Screening

### Utilization of Cervical Cancer Screening and its Associated Factors among Women aged 25-49 years in Kaloleni Sub-County, Kilifi County

Below is the modified health facility assessment adopted from the WHO Harmonized Health Facility Assessment (WHO, 2021)

#### HEALTH FACILITY ASSESSMENT

#### CERVICAL CANCER

Please find the most knowledgeable person about cervical cancer diagnostic services for the completion of this questionnaire.

The research invites participants who are knowledgeable about cervical cancer diagnostic services to answer questions without revealing their identities. The assessment is optional and confidential. The collected data will provide valuable insights for improving cervical cancer screening uptake in the future. The aim is to maintain honesty and transparency in the process.

Health Facility Name: \_\_\_\_\_ Date \_\_\_\_\_

Respondent's ID \_\_\_\_\_ Role \_\_\_\_\_

<b><u>A: Services Available</u></b>		<b>Assessment If yes 1, if no 0</b>
Availability	Does this facility have any services for screening?	
	Does this facility have any services for diagnosing?	
	Does this facility have any services for treating cervical cancer?	
Does this facility have the ability to:	Collect PAP smear specimens	
	Read PAP smear results	
	Perform visual inspection with acetic acid (VIA)	
	Read results for HPV test	

	Perform colposcopy and biopsy	
	Read biopsy	
	Perform digital cervicography	
	Perform treatment of pre-invasive cervical cancer lesions (e.g. cryotherapy, thermal/cold coagulation or loop electrosurgical excision procedure (LEEP)	
	Provide HPV Vaccination	

**Total: \_\_\_\_ / 12**

<b><u>B: Support for Quality Services</u></b>	<b>Assessment If yes 1, if no 0</b>
Does this facility have any guidelines for cervical cancer screening, diagnosis, or treatment at this service site today?  IF YES, ASK TO SEE THE GUIDELINES	
Have you or any health provider(s) received training in VIA in the past 2 years?	
Have you or any health provider(s) received training in reading HPV tests in the past 2 years?	
Have you or any health provider(s) received training in colposcopy in the past 2 years?	
Have you or any health provider(s) received training in performing treatment with LEEP or cryotherapy/thermal-cold coagulation in the past 2 years?	

**Total: \_\_\_\_ / 5**

<b><u>C: Materials for Screening, Diagnosis, and Treatment</u></b>	<b>Available? If yes 1, if no 0</b>	<b>Functioning? If yes 1, if no 0</b>	<b>Quantity</b>
<b>Please tell me if the following basic equipment/items are available in this service area today:</b>			

(ASK TO SEE EACH ITEM THAT IS AVAILABLE)			
Acetic acid for visual inspection (VIA)		n/a	n/a
Lugol's iodine for visual inspection (VILI)		n/a	n/a
Papanicolaou stains			n/a
Glass slides		n/a	n/a
Latex gloves		n/a	n/a
Goose-neck lamp (or alternative light source – headlamp or flashlight)			
Speculum			
Gynecological examination table			
Microscope			
Digital cervicography equipment			
Colposcopy equipment			
Materials for providing loop electrosurgical excision procedure (LEEP)			
Materials for providing cryotherapy/thermal-cold coagulation			
HPV test – Specify type or brand of test _____			

**Total:** \_\_\_\_ / 33

**GRAND TOTAL:** \_\_\_\_ / 50

**Reviewer Initials:** \_\_\_\_\_

## Appendix VIII: Healthcare Workers Key Informant Interview Guide

### Utilization of Cervical Cancer Screening and its Associated Factors among Women aged 25-49 years in Kaloleni Sub-County, Kilifi County

#### INTERVIEW QUESTIONS

The research invites participants who are knowledgeable about cervical cancer screening to answer questions without revealing their identities. The interview is optional and confidential. The collected data will provide valuable insights for improving cervical cancer screening uptake in the future. The aim is to maintain honesty and transparency in the process.

Health Facility Name: \_\_\_\_\_ Date \_\_\_\_\_

±

Respondent's \_\_\_\_\_ ID \_\_\_\_\_

Role \_\_\_\_\_

1. Are you aware of the existing cervical cancer screening services in Kaloleni Sub- County?
2. What information do you have regarding the significance of cervical cancer screening in preventing cervical cancer?
3. How do you perceive the accessibility of cervical cancer screening services in Kaloleni Sub- County?
4. Can you provide insights into the availability of screening facilities, equipment, and trained personnel?
5. From your perspective, what are the primary barriers hindering women aged 25-49 from utilizing cervical cancer screening services?
6. Could you share specific examples of logistical, cultural, or educational barriers impacting the utilization of cervical cancer screening?
7. How actively are healthcare providers involved in community engagement to educate them about cervical cancer and screening?

8. What strategies do you employ to raise awareness and encourage women to undergo cervical cancer screening?
9. In your experience, how do women in the 25-49 age group perceive their risk of developing cervical cancer?
10. From your interactions, what factors have you observed influencing how women weigh the benefits and risks of undergoing cervical cancer screening?

## Appendix IX: Results for Other Questions in the Questionnaire

Health Facility Characteristics (those who were screened only)

<b>Characteristics</b>	<b>Cases</b>	<b>Frequency (%)</b>
Results turn around	Delayed	4(8.33%)
	On time	44 (91.67%)
Follow up for treatment	No	38 (80.85%)
	Yes	9(19.15%)
Quality of cervical cancer screening	Good	46 (97.87%)
	poor	1 (2.13%)
Number of cervical cancer screening done in the last five years	1	30 (62.5%)
	2	13 (27.08%)
	3	2 (4.17%)
	4	3 (6.25%)

## Appendix X: Letter of Ethical Approval



JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY  
P.O BOX 62000(00200) NAIROBI, Tel:(067) 58700001-4  
(Office of the Deputy Vice Chancellor, Research Production and Extension Division)  
JKUAT INSTITUTIONAL SCIENTIFIC AND ETHICS REVIEW COMMITTEE

REF: JKU/2/4/896B

Date: 28<sup>th</sup> March, 2024

EMMANUEL MOFFAT ONDUKO  
SCHOOL OF PUBLIC HEALTH, JKUAT

Dear Mr. Onduko,

**RE: UTILIZATION OF CERVICAL CANCER SCREENING AND ITS ASSOCIATED FACTORS AMONG WOMEN AGED 25-49 YEARS IN KALOLENI SUB-COUNTY, KILIFI COUNTY.**

This is to inform you that JKUAT Institutional Scientific and Ethical Review Committee has reviewed and approved your above research proposal. Your application approval number is JKU/ISERC/02317/1289. The approval period is 28<sup>th</sup> March 2024 to 27<sup>th</sup> March 2025.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, Material Transfer Agreement (MTA) will be used
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by JKUAT ISERC.
- 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 JKUAT ISERC 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 JKUAT ISERC 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 JKUAT ISERC.

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

Yours sincerely,

Dr Amos Mbugua  
CHAIR, JKUAT ISERC



JKUAT is ISO 9001:2015 and ISO 14001:2015 certified



Setting Trends in Higher Education, Research, Innovation and Entrepreneurship

## Appendix XI: JKUAT Approval Letter for Research



**JOMO KENYATTA UNIVERSITY  
OF  
AGRICULTURE AND TECHNOLOGY**

**OFFICE OF THE DIRECTOR, GRADUATE SCHOOL**

P.O. BOX 62000, 00200 • NAIROBI • KENYA • TEL: (067)-5870001-4 • Email: [director@bps.jkuat.ac.ke](mailto:director@bps.jkuat.ac.ke)

REF: JKU/2/11/HSH311-C005-1604/2018

14<sup>TH</sup> MAY, 2024

EMMANUEL MOFFAT ONDUKO  
C/o SOPH  
JKUAT

Dear, Moffat,

**RE: APPROVAL OF RESEARCH PROPOSAL AND APPOINTMENT OF  
SUPERVISORS**

Kindly note that your MSc. research proposal entitled: "UTILIZATION OF CERVICAL CANCER SCREENING AND ITS ASSOCIATED FACTORS AMONG WOMEN AGED 25-49 YEARS IN KALOENI SUB-COUNTY, KILIFI COUNTY," has been approved. The following are your approved supervisors:-

1. Dr. George Makalliwa - JKUAT
2. Ms. Caroline Musita - JKUAT

Please be advised that you are expected to publish your research outputs in quality and indexed journals.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Francis K. Njonge'.

**PROF. FRANCIS K. NJONGE, Ph.D**  
**DIRECTOR, GRADUATE SCHOOL**

Copy to: Dean, SOPH<sub>cao</sub>




JKUAT is ISO 9001:2015 and ISO 14001:2015 Certified  
Setting Trends in Higher Education, Research, Innovation and Entrepreneurship



**Appendix XII: NACOSTI Research License**

RefNo: 257320

**RESEARCH LICENSE**




**This is to Certify that Mr. EMMANUEL MOFFAT ONDUKO of Jomo Kenyatta University of Agriculture and Technology, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kilifi on the topic: Utilization of Cervical Cancer Screening and Its Associated Factors among Women aged 25-49 Years in Kaloleni Sub-County, Kilifi County for the period ending : 06/May/2025.**

License No: NACOSTI/P/24/35129

Applicant Identification Number: 257320

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.**

**See overleaf for conditions**

## Appendix XIII: Kilifi County Research Approval Letter

### COUNTY GOVERNMENT OF KILIFI DEPARTMENT OF HEALTH SERVICES

When Replying quote  
Email: [chmtkilifi@gmail.com](mailto:chmtkilifi@gmail.com)  
REF: KLF/DOH/RESEARCH /VOL.1/142



P. O. Box 9-80108  
Kilifi  
Date: 30 May 2024

#### OFFICE OF THE COUNTY DIRECTOR HEALTH & SANITATION SERVICES

Emmanuel Moffat Onduko,  
**JKUAT.**

Dear Sir,

**RE: DEPARTMENTAL AUTHORIZATION TO CARRY OUT RESEARCH ON UTILIZATION OF CERVICAL CANCER SCREENING AND ITS ASSOCIATED FACTORS AMONG WOMEN AGED 25-49YEARS IN KALOLENI SUBCOUNTY, KILIFI.**

The Kilifi County Department of Health Services is in receipt of your letter requesting to conduct a study on "**Utilization of Cervical Cancer Screening and Its Associated Factors Among Women Aged 25-49years In Kaloleni Subcounty, Kilifi**" together with the protocol and ethical and scientific approval from JKU/ISERC/02317/1289 and NACOSTI permit Ref: NACOSTI/P/24/35129.

The Department is pleased to grant you authorization to conduct your study within Kilifi County in line with ethical consideration and approved study protocol, and within the expiry date of your ISERC approval **27<sup>th</sup> March, 2025**.

It is required that you engage the **Sub County Manager of Health-Kaloleni** for (Vishakani and Tsangatsini Dispensaries and Gotani Health Center) and the **Medical Superintendent for Mariakani Sub County Hospital** respectively prior to commencing data collection.

Upon completion of the study, you will be required to share your study findings, conclusion and recommendations with the Department of Health Services, Kilifi County.

Sincerely,

  
Dr. Hassan Leil  
Ag. Director - Health & Sanitation Services  
**KILIFI COUNTY**

Cc.

- CECM- Health & Sanitation Services
- Chief Officer - Health & Sanitation Services
- Heads of Divisions

## Appendix XIV: Publication

Home About Us Journals Submit Manuscript Fortune Online ▾ Guidelines Editorial Process Membership Contact Us

### Journal of Cancer Science and Clinical Therapeutics

ISSN: 2637-5079

#### Utilization of Cervical Cancer Screening and Its Associated Factors among Women aged 25-49 Years in Kaloleni Sub-County, Kilifi County

**Author(s):** Emmanuel Moffat Onduko, George Makalliwa, Caroline Mustta.

Background: Cervical cancer causes a significant number of deaths and morbidity among women. The aim of the study was to determine utilization of cervical cancer screening and its associated factors among women in Kaloleni Sub-County of Kilifi County aged between 25 and 49 years. Methods: A health facility-based descriptive cross-sectional study in five medical facilities was undertaken in Kaloleni Sub-County. 217 women filled the questionnaire, in depth interviews was done on 20 healthcare workers and health facility assessment. Descriptive statistics and chi-square analysis were utilized to explore the relationship between cervical cancer screening rates and various factors, including individual and healthcare facility characteristics. Content analysis was applied to identify important themes arising in qualitative data. Results: In a study of 217 women aged 25-49 in Kaloleni Sub-County, only 23% had undergone cervical cancer screening. Significant associations were found between screening utilization and geographical location residential area ( $p = 0.008$ ), awareness of cervical cancer screening ( $p < 0.001$ ), knowledge of symptoms ( $p < 0.001$ ), and cost of screening ( $p < 0.001$ ). Source of income ( $p = 0.021$ ), while insurance cover ( $p = 0.030$ ). In addition, health facility factors, such as service promotion ( $p < 0.001$ ) and staff training adequacy ( $p < 0.001$ ), significantly affected utilization. Health facility-level assessments determined a lack of advanced cervical cancer services. Conclusion: Cervical cancer screening rates are considerably low. Therefore, it is essential to introduce awareness initiatives, enhance access to screening via outreach activities, subsidize prices, strengthen the healthcare system, and offer patient centered training for healthcare professionals.

[PDF](#) [Full Text](#)

Impact Factor 4.1	Submit Manuscript
35 Editorial Board	463 Citations
262 Total Articles	9263 Likes

#### Journals List

- Anesthesia and Critical Care
- Archives of Clinical and Biomedical Research
- Archives of Clinical and Medical Case Reports
- Archives of Internal Medicine Research