

**CERVICAL CANCER PREVENTION PRACTICES AMONG WOMEN OF
REPRODUCTIVE AGE IN KIAMBU COUNTY, KENYA**

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UNIVERSITY**

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DECLARATION

“This this is my original work and has not been presented by anybody for a degree at any other University”

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DEDICATION

I dedicate this work to my loving parents Charles Ndung'u and Hellen Wambui as well as my wife Esther Wanjiru and my daughter Helena Wambui

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Many thanks to God for granting me love, good health and an opportunity to pursue my studies at Kenyatta University

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ABBREVIATIONS AND ACRONYMS

CC:	Cervical Cancer
FGDs:	Focussed Group Discussions
FP:	Family Planning
HPV:	Human papillomavirus
HR:	High Risk
ICO:	Institut Català d'Oncologia (The Catalan Institute of Oncology)
KDHS:	Kenya Demographic and Health Survey
KII:	Key Informants Interview
KPHC:	Kenya Population and Housing Census
KSH:	Kenya Shilling
KUERC:	Kenyatta University Ethics Review Committee
MCH:	Maternal and child health
MOH:	Ministry of Health
SPSS:	Statistical Package for Social Sciences
VIA:	Visual Inspection using Acetic Acid
VILI:	Visual Inspection with Lugol's Iodine
WHO:	World Health Organization

DEFINITION OF OPERATIONAL TERMS

Disease:	Refers to an ailment of function or structure in a human body, particularly one that generates certain symptoms or that causes adverse effects a particular location and that is not just a direct effect of injury (Denny & Anorlu, 2012).
Mortality rate:	The number of deaths in a population arising from a certain illness within a period of time (Blake <i>et al.</i> , 2015)
Pap smear:	Refers to a procedure to test for cervical cancer in females and encompasses collection of cells from the cervix (Denny & Anorlu, 2012).
Screening:	It refers to medical examination or testing that is used to determine the existence of causative agent or disease in the body (Denny & Anorlu, 2012).
Susceptibility:	It means the vulnerability of an individual to human papillomavirus infection (Blake <i>et al.</i> , 2015)

ABSTRACT

Cervical cancer is a preventable disease but it remains a significant cause of deaths in the developing countries. Globally, nearly 530,000 new cases and 266,000 deaths are registered annually. In Kenya, nearly 4800 women are diagnosed with cervical cancer every year and over 3200 of these cases succumb to this disease. The main objectives of this survey was to determine the level of knowledge of the cervical cancer risk factors, prevention practices towards cervical cancer, and perceived barriers to cervical cancer screening among women of reproductive age. The survey adopted a descriptive cross-sectional study design and was completed among 422 respondents in systematically chosen households. Multistage sampling was adopted to choose the research participants. Questionnaires were used to collect quantitative data while FGDs facilitated gathering of qualitative data. Insights of health officials such as managers, facility administrators and nurses were obtained via KIIs. The investigator processed the data using SPSS software version 20. Logistic regression and chi square tests were used in data analysis and test hypothesis. Data was presented in column graphs/charts and tables. Results indicated that out of 422 respondents, 16.8% (n=71) had been screened for cervical cancer. Of the unscreened respondents (n=351), 86.6% (n=304) were aware of screening for cervical cancer. There was a strong statistical difference between education level ($P<0.001$) and household income ($P<0.001$) with use of screening services. The mean knowledge score of risk factors for cervical cancer was 2.23 (95% CI: 2.09-2.37) out of the possible score of 6. Two hundred and twenty eight respondents (54.1%) could identify at least one risk factor for cervical cancer. There was significant statistical difference between knowledge level of cervical cancer risk factors and screening ($P=0.017$). Knowledge level on risk factors for cervical cancer was a significant predictor for having a cervical cancer screen ($P=0.022$). Respondents who had least knowledge level on risk factor for cervical cancer were about 14 times more likely to be unscreened as compared to those who had highest knowledge level [OR, 17.40 (95% CI: 1.510-200.6) $P=0.02$]. On perceived barriers, there was statistically significant difference between perceived embarrassment and cervical cancer screening ($P<0.001$). The study concluded that few people had undergone cervical cancer screening at 16.8% against national target of 75%. Knowledge of cervical cancer risk factors was a major determinant of participating in cervical cancer screening. The study recommended that county government of Kiambu should use strategies such as promoting women education and improving standards of living for women to increase screening rate. Furthermore, Kiambu County Government and stakeholders should use mass media to educate residents about cervical cancer risk factors. In addition, health facilities should initiate self-testing kits of the patients to eliminate perceived embarrassment in the screening process.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Globally, cancer of the cervix has the second highest prevalence as compared to any other kind of cancer (Finocchiaro-Kessler *et al.*, 2016). Nearly 530,000 new cases are registered annually. Each year, the death rate throughout the globe is estimated to be 266,000 deaths (Modibbo *et al.*, 2017). Cervical cancer disproportionately affects the emerging nations since they experience the highest proportions of illnesses and mortalities. Data from Africa continent indicates that over 82,000 people are identified with the disease annually, whereby 61,230 people succumb to the disease (Denny & Anorlu, 2012). Moreover, sub-Saharan Africa has also recorded highest incidence of cervical cancer at 75,100 new cases where by 66.7 per cent of these people die (Bouassa *et al.*, 2017). The East Africa also recorded the highest incidences of cervical cancer in Africa with over 52,600 new cases in 2018 and a mortality of 37,017 (Njugana *et al.*, 2020).

In Kenya, cervical cancer records the highest proportion of deaths as compared to other kind of cancers (Morris, 2016). Women of reproductive age in Kenya have the highest prevalence rate of cancer of the cervix. Approximately 4800 women in the country are diagnosed with the disease while more than 3200 lose their lives (Institut Català d'Oncologia (ICO) Information Centre, 2019). Women in their reproductive age face the greatest risk of contracting Human Papillomavirus (HPV) infection in Kenya (Kenya National Bureau of Statistics (KNBS *et al.*, 2014).

Cervical cancer is caused by high-risk HPV which is spread through sexual intercourse (Modibbo *et al.*, 2017). According to the WHO, over 80.9 per cent of women harbour HPV infection in the course of their lives (WHO, 2017). The signs and symptoms of this infection occur following a protracted period after infection

hence it is quite difficult to understand when an individual was infected (ICO Information Centre, 2017). In Kenya, about 20 per cent and 11 per cent of women and men respectively first take part in sexual intercourse prior to their fifteenth birthday (Nelson *et al.*, 2016). The frequency of new cases is 25 women per 100,000 women every year (Modibbo *et al.*, 2017). Cervical cancer is a serious health burden among females aged 15 years to 45 years in Kenya. Essentially, 70 to 80 per cent of cervical cancer cases are identified in the late stages when cancer has seriously spread. Cervical cancer diagnosis at late stages has been linked with low utilization of screening services and low level of knowledge of its progression and risk factors (Modibbo *et al.*, 2017).

1.2 Statement of the problem

Report released by the National Cancer Institute (NCI) of Kenya in 2019 indicated that Kiambu County has a cervical cancer prevalence rate of 11.7% and was ranked at position sixth nationally (Awich, 2019). Report from Kenyatta National Hospital (KNH) Cancer Registry indicated that Kiambu County had second highest prevalence of cervical cancer (448 cases) only after Nairobi County (1028 cases) (Mugo & Mundeoyo, 2017). Besides, 70-80% of people in Kiambu County visit the screening centres when the disease has progressed to serious stage making it challenging to contain or treat it (Kanyina *et al.*, 2017).

Kiambu County has documented poor uptake levels of screening for cervical cancer which is a reflection of the entire nation (Wanyoro & Kabiru, 2017). The rate of uptake of cervical cancer screening services in the county is low among women susceptible for HPV infection (Mugwe, 2014). Health centres in Kiambu County have integrated screening services for cervical cancer in the maternal and child health (MCH) departments. Screening services largely use visual tests and

sometimes Pap smear tests. Although many interventions have been introduced to contain the rising instances of disease, the prevalence and deaths are continuing to rise (Njiru, 2016).

Additionally, in Thika Level Five Hospital screening services utilization was recorded in out-patient department among women attending MCH department. Data from the hospital highlighted that in 2011, six hundred and eighty women had a cervical cancer screen, out of which thirty nine women had precancerous lesions in the cervix (Mugwe, 2014). Furthermore, twelve (12) women were diagnosed with advanced stage of the disease which needed immediate hospitalization at the hospital (Mugwe, 2014). Moreover, four women were transferred to Kenyatta National Hospital (KNH) for treatment via radiotherapy. The report point out that most cases of cervical cancer are identified at second, third or fourth stage making it difficult to treat or contain it. The data is also indicative of low utilization of screening services offered at the health centres which compounds the efforts to fight cancer of the cervix in Kiambu County.

1.3 Justification of the study

Cervical cancer is a preventable non-communicable disease, but it contributes one of the highest morbidity rates among women in the Kiambu County (Awich, 2019). One of the most effective strategies to contain high mortality rate is regular screening of women susceptible for cervical cancer. Primary prevention strategies such as screening and immunization of HPV are one of the most effective control approach (Kanyina *et al.*, 2017). By initiating health education at the community level and initiation of screening and immunization services for cervical cancer, the people can benefit from economical and effective disease containment and management in Kiambu County.

Cervical cancer is linked to premature deaths since the majority of the diagnosis occurs at an advanced level where the options for successful treatment are largely limited. Health centres in Kiambu County offer free screening services but most females rarely utilize the services (Mugwe, 2014). It is for these reasons that a survey is designed to serve as the foundation for successful prevention and control of the disease.

Since women at reproductive age are at a higher risk of HR-HPV infection and cervical cancer, it is imperative to focus on the level of knowledge of women aged between 18-49 years because this age group is sexually active which means they are at a higher risk of HPV infection. It is important to determine their level of knowledge level of the risk factors of the disease.

1.4 Research questions and hypothesis

1.4.1 Research questions

- (i) What is the knowledge level on risk factors for cervical cancer among women of reproductive age in Juja Sub-County?
- (ii) What are the prevention practices of women towards screening for cervical cancer in Juja Sub-County?
- (iii) What are the perceived barriers towards utilization of available cervical cancer prevention services in Juja Sub-County?

1.4.2 Null hypothesis

- (i) There is no significant difference between knowledge levels of risk factors and cervical cancer screening practices
- (ii) There is no significant difference between perceived barriers towards utilization of cervical cancer services and cervical cancer screening practices

1.5 Objectives of the study

1.5.1 General objective

To investigate cervical cancer prevention practices among women of reproductive age in Juja Sub-county, Kiambu County

1.5.2 Specific objectives

- (i) To determine the knowledge level of the risk factors for cervical cancer among women of reproductive age in Juja sub-county
- (ii) To establish the prevention practices of women towards screening for cancer of the cervix in Juja Sub-County
- (iii) To establish the perceived barriers towards utilization of available screening services in Juja Sub-County

1.6 Limitations and delimitations of the study

1.6.1 Limitations of the study

The main limitation in the cross-sectional study was the time spent with the research participants. Secondly, the study was limited in terms of memory of the study respondents. Furthermore, the study was limited because of non-compliance and delays from relevant government authorities and study participants (Creswell, 2013).

1.6.2 Delimitations of the study

The researchers utilized the time with the research participants appropriately hence enabling to obtain and maximize important data. Similarly, the respondents were advised to be truthful when answering the questions. The researcher visited public offices severally to ensure that government officials and study participants granted permits, approvals within appropriate period and that they provided required data (Creswell, 2013).

1.7 Theoretical and conceptual frameworks

1.7.1 Theoretical framework

The conceptual framework was developed based on healthcare utilization model developed by Anderson which explains the factors that contribute to the usage of health services (Jahangir *et al.*, 2012). Based on the model, the utilization of healthcare services such as screening is affected by factors including enabling factors and predisposing factors. Predisposing factors are features such as demographic factors (e.g. age) and socioeconomic factors (e.g. household income). Enabling factors can be personal resources and health facility factors. Predisposing factors and enabling factors form the independent variables while healthcare policy implementation is the intermediate factors. Utilization of screening services represents the dependent variables. Figure 1.1 helps to demonstrate this model.

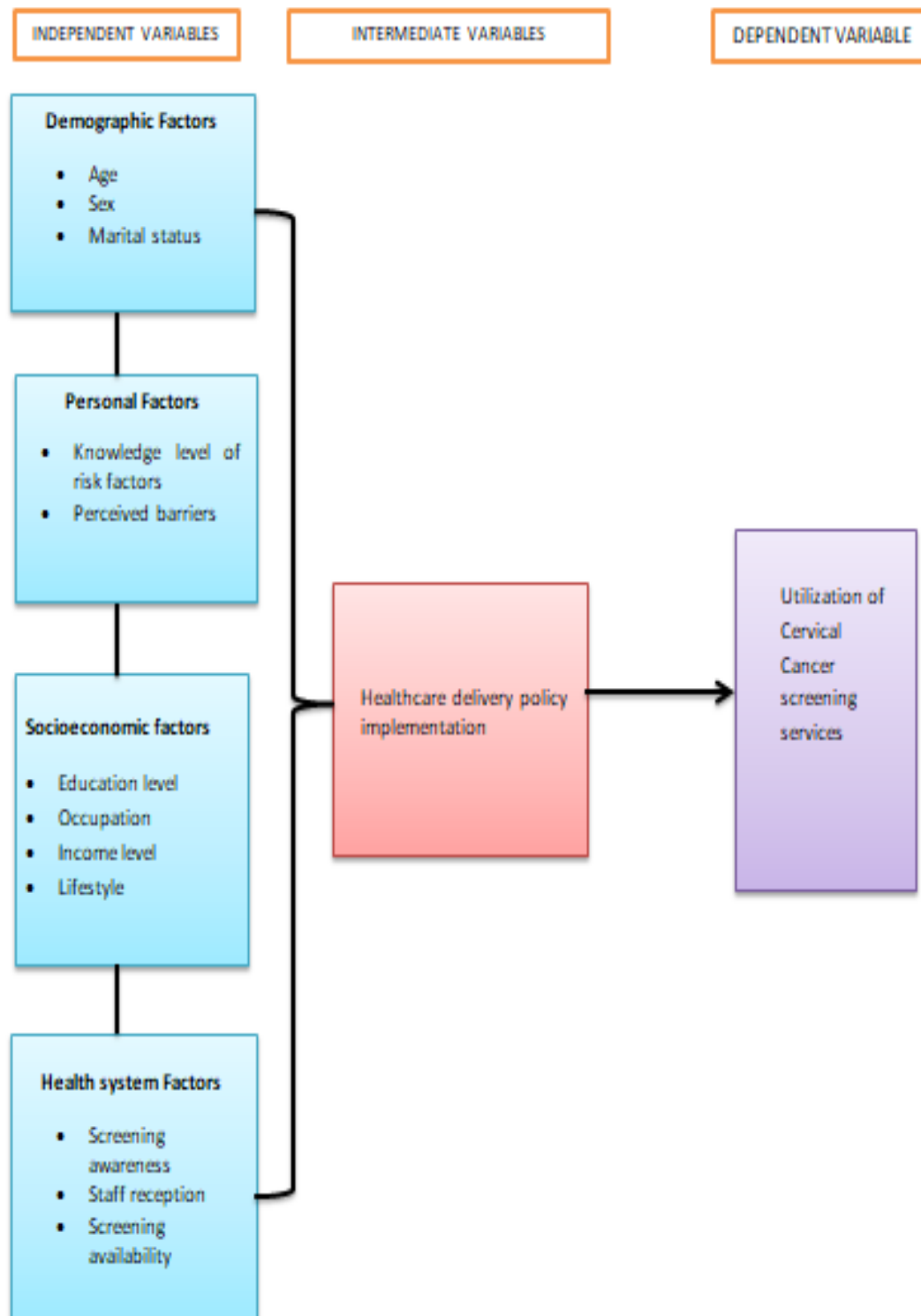


Figure 0.1: Conceptual Framework: Andersen Model of Health care Utilization adapted and modified from literature review

1.8 Significance of the study

The findings of this study will benefit the policy makers in both the County government and the National government to generate new ways of preventing current trends of cervical cancer. Moreover, the results will increase the level of available information on cervical cancer prevention practices, screening practices, knowledge of risk factors for cervical cancer and perceived barriers to screening. For this reason, it will benefit the policy makers because it will deliver strategies which can be implemented to increase the screening rates and reduce the incidence of cervical cancer not only in Juja sub-county but also in Kiambu County and the country in general. The community will benefit from this study through introduction health education interventions, better strategies to address perceived barriers and addressing issues related to screening practices in the community. By understanding the perceived barriers towards the cervical cancer screening, community will benefit from targeted strategies to address the perceived barriers.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The literature review section comprises of topics such as causes of cancer of the cervix, practices towards its screening, knowledge level of its risk factors, and barriers to cervical cancer screening as well as gaps in reviewed literature

2.2 Knowledge level of the risk factors linked to cancer of the cervix

Empirical evidence has showed that women across the globe are less likely to comprehend the factors linked with risk of contagion of HPV and cancer of the cervix. The findings of study by Chorley *et al.*, (2017) demonstrated that majority of women have inadequate understanding on the association between sexual behaviours and cervical cancer. Importantly, the majority of women assumed that the disease was related to hereditary, lifestyle, and psychosocial issues as well as other health factors. Although the respondents of this research had the aspiration to understand the risk factors associated to the disease, they believed that information delivered by health officials and government was inconsistent, unclear and insufficient. Another study conducted by Karadag *et al.*, (2014) exposed that some interviewees responded that nurses providing screening services failed to deliver information on the risk factors of the disease. The findings of the paper also demonstrated that health practitioners were reluctant to give facts to their customers on the risk factors of the cancer of the cervix since majority of patients did not have the capability to absorb this type of information on cervical cancer.

A similar study by Altay *et al.*, (2015) noted that mothers normally felt nervousness linked to cervical cancer prevention. A huge percentage of the research participants illustrated a sense of susceptibility in screening and examination of the pelvis. Moreover, such sensation of uneasiness was mainly linked to inadequate knowledge

related to the contagion. For this reason, the study proposed that provision of sufficient information on the risk factors was expected to support in dealing with challenges of screening. Essentially, increasing knowledge level on the risk factors would be a key milestone to minimize their anxiety and nervousness.

2.3 Prevention practices for cervical cancer among women of reproductive age

Findings of a past research conducted by Pandey *et al.*, (2012) indicated that contagion of high risk human papillomavirus (HR-HPV) can be contained through both primary and secondary prevention interventions. The key aim of primary prevention is to minimize contagion with HPV and other factors that increase the likelihood of progression and acquisition of the virus. According to Elamurugan *et al.*, (2016) primary prevention of cervical cancer encompasses use of HPV vaccination focussing on adolescent girls to minimize the incidence of cancer of the cervix. The study noted that vaccination programme is only effective if it is given to young girls prior to being sexually active, because of high susceptibility of infection following debut of sexual activity and loss of immunization efficacy against already existing infection. A research by Watson-Jones *et al.* (2015) noted that in Kenya, HPV vaccination targets girls aged below 10 years, who receive two doses of the vaccine in six months interval. The study revealed that effective and safe HPV vaccines can avert nearly 90 per cent of all cases of cervical cancer in the country.

Secondary prevention of cervical cancer entails use of cervical cancer screening programs. A study conducted by Ministry of Health, Kenya, (2018) argued that since vaccine may not avert over 25 per cent of HPV infections that may contribute to cervical cancer. Therefore, immunized women are supposed to adhere to screening recommendation just like non-immunized women. According to Njuguna *et al.*, (2020), even when universal coverage is attained, secondary prevention

(screening) would be needed because vaccination does not change the natural history of dominant infections and vaccine does not prevent some infections. In the health centres, screening concentrates on women above 25 years but females below 25 years of age manifesting severe abnormalities in the cervix are screened for cervical cancer. According to Ministry of Health, Kenya, (2018), women who have been diagnosed of HIV, with past abnormal screening outcomes, who had early debut of sexual intercourse undergo screening.

Empirical evidence have highlighted that participation of cervical cancer screening is influenced by different factors such as community and individual issues. According to a research conducted by Marlow *et al.*, (2015), most females who utilized the screening programmes in the health centres tended to be over 40 years, had ever used contraceptives, have been previously pregnant, and well educated. A study conducted by Hasahya *et al.*, (2016) in Uganda countryside suggested that the socio-demographic and socioeconomic profile of females especially residence area, marital status, income level, less education, early marriage affected cervical cancer practices on screening.

A research by Blake *et al.*, (2015), revealed that the knowledge of services such as screening in the community affects the use of the screening programmes. Moreover, the utilization of screening for cancer of the cervix was openly linked to fairness status of women. The study determined that past engagement in the departments of gynaecological services could increase their consciousness to be more welcoming towards health workers and medical care settings. The findings of a study conducted by Aweke *et al.*, (2017) indicated that only 9.9 per cent of the study participants had received cervical cancer screening. However, the study found out that 85.8 per cent of the respondents were unwilling to be screened owing to issues such as they had

not heard about the cervical cancer and they had not experienced the disease before. Only 14.2 per cent of the participants were willing to receive cervical cancer screening. However, the findings of a research by Touch & Oh, (2018) indicated that 74 per cent of study participants had an intention to undergo a Pap smear test but only 7 per cent had been screened. The findings also noted that age and marital status influenced screening practices among the research participants. Married women and those aged 20-29 years indicated higher willingness to receive screening or be vaccinated (Touch & Oh, 2018).

2.4 Barriers to cervical cancer screening

Various factors serve as barriers that affect the community norms and practices which hinder women to participate in health seeking activities. Moreover, according to Williams *et al.*, (2017) the procedure of screening by male medical practitioners may contribute to reduced level of uptake of the screening services especially among Muslim women. Another study pointed out that an efficient programme for screening of cervical cancer should pay attention to all gender because male spouses have a significant role in inspiring their wives to undergo screening. A similar study conducted by Mwangi (2015) reasoned that male leaders could hinder women to undergo screening of the disease irrespective of their spousal status.

Past literature have identified that in both the developing and developed nations, embarrassment tend to be the main barrier which limit utilization of screening services. According to a study by Chang *et al.*, (2017) women mentioned that embarrassment specifically in antenatal screening reduces their chances of participating in screening. In this respect, the majority of women accepted that embarrassment is one of the barriers that delay use of screening services. The investigator is contended that scarce knowledge has been recorded on specific

fundamentals of screening that are embarrassing to women but it has a substantial impact on uptake and adherence to screening.

The results of a research completed by Salem *et al.*, (2017) exposed that some of the underlying issues to embarrassment include lack of privacy, sexual discomfort, anxiety, religious factors. The investigators suggested that the barrier is mainly viewed as a psychosocial impediment.

Moreover, economic issues have a detrimental effect on the exploitation of programmes for cervical cancer screening. A research conducted by Onyenwenyi & Mchunu (2018) demonstrated that because of monetary challenges women tend to pay attention to other financial and social roles linked to their families rather than their health contributing to self-neglect. The results indicated that travel costs to far away screening centres and screening charges hinder many women from prioritizing cervical cancer screening.

2.4 Gaps in reviewed literature

The past literature has not explored the knowledge level of cervical cancer risk factors on in Juja sub-county Kenya. Various researches have been conducted in Kiambu County to determine the magnitude of screening among the population at risk but no study has assessed the association between prevention practices and the risk factors' level of knowledge among women aged 18-49 years. The study is designed to determine the cervical cancer prevention practices among women aged 18-49 years; the knowledge level of women regarding the risk factors of cervical cancers and perceived barriers to cervical cancer screening.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction

The chapter describes the process and methods of collection, processing and analysing data. It entails subheadings such as research design, location of study, variables, data collection techniques, data analysis and ethical considerations.

3.2 Research design

Descriptive, cross-sectional study design was used in this study. The researcher utilized this study design because it gave an opportunity to collect data on different variables from participants at one particular point in time. A community-based study was adopted because it provided an opportunity to study cervical cancer prevention practices at the community level.

3.3 Study variables

3.3.1 Independent variables

The independent variables of the study included Socioeconomic and Demographic factors. Socioeconomic factors such as household income, occupation, residency, and academic qualification while demographic factors included age, marital status, religion and sex. Personal factors included attitudes and perceptions towards cervical cancer screening, knowledge of risk factors, and perceived barriers to cervical cancer screening. Health system factors included screening availability, screening awareness and staff reception.

3.3.2 Intermediate variables

Intermediate variable for this study was the healthcare policy delivery and implementation.

3.3.3 Dependent variables

Utilization of screening programmes was the dependant variable.

3.4 Location of study

Kiambu County is located in the central Kenya and 25 KM from Nairobi – Kenya’s capital. Neighbouring counties include Nairobi City County to the South, Machakos County to the East, Murang’a County to the North, Nyandarua County to North West and Kajiado to the West. Juja sub-county in Kiambu County was the study area (Appendix 7). The sub-county is one of the twelve sub-counties of Kiambu County and is situated on the eastern part of Kiambu County covering an area of 326.60 Sq. Km. The sub-county has over 120,793 people (County government of Kiambu, 2016). Currently, the sub-county has five (5) wards which comprise of Murera, Juja, Theta, Witeithie, and Kalimoni. Juja sub-county neighbours other sub-counties such as Gatundu North, Githunguri, Kiambu Township, Ruiru, Gatundu South, and Thika (Kiambu County Government, 2017). It has two Level 3 health facilities (Gachororo Health Centre and Juja Farm Health Centre) under the County Government of Kiambu. The sub-county has other hospitals that are privately owned such as Kalimoni Medical Clinic. Services offered at these health centres include immunization, health promotion activities, nursing and medical services and screening.

3.5 The study population

Target population refers to the group that the study intends to generalize the study results or theoretical population (Asiamah *et al.* 2017). In this case, target population is all women in their reproductive age (18-49 years). Study population refers to the real sampling frame where a sample is drawn. The study population consisted of women aged 18 to 49 years in Juja Sub-County who passed inclusion and exclusion criteria.

3.5.1 Inclusion criteria

Females aged 18 to 49 years were included in the sample. Besides, women who were pregnant or with at least one child and residents of selected area for the past twelve months were also included in the sample.

3.5.2 Exclusion criteria

The sample excluded females who were extremely frail or sick to participate in the survey because they lacked the energy to participate in the research.

3.6 Sampling techniques and sample size determination

3.6.1 Sampling techniques

The study adopted multi-stage sampling to select the respondents and the location of study. Firstly, purposive sampling was applied to choose Kiambu County because the county has one of the highest cases of cervical cancer (Awich, 2019). Secondly, the researcher used simple random sampling to choose one sub-county out of twelve in Kiambu County. Simple random sampling was utilized because it offered all the sub-counties within Kiambu County an equal chance to be chosen or form part of the study. Specifically, names of the all sub-counties were written in a paper, folded and then one piece was selected. At this point, Juja sub-county was selected. Thirdly, the researcher used the same procedure to select three out of five wards in Juja sub-county. Specially, names of the all wards were written in a paper, folded and then three pieces were selected. The three selected wards included Witeithie, Murera, and Juja Ward. Fourthly, one estate or village was sampled in each of the three wards via simple random sampling, whereby names of the all estates were written in a paper, folded and then one piece was selected. Fifthly, to sample the households, the investigator utilized systematic sampling starting from the administrative offices in the selected estates or villages. Through systematic

sampling, the research assistants selected every tenth household from the administrative centre. One study respondents per household was selected until the entire sample size was attained.

Table 0.1: Sampling Frame for wards and households (Kiambu County, 2014)

Sampled Wards	Population	% of Population	No. of Households
Juja Ward	34,414	45.0	190
Murera Ward	15,429	21.0	89
Witeithie Ward	24,979	34.0	143
Total	73,470	100	422

3.6.2 Sample size determination

Sample size was determined using Fisher *et al.*, (1998) formula at 95 per cent level of confidence. The researcher applied the assumption that the fraction of population with preferred characteristics was unidentified. Therefore, in Juja Sub-county, 50% was used as the fraction of people with preferred prevention practices

$$\text{Fisher } et al. (1998) n = \frac{Z^2 P(q)}{d^2}$$

$$Z = 1.96, d = 0.05, P = 0.5, q = 1 - p (1 - 0.14) = 0.86$$

$$n = \frac{1.96 \times 1.96 \times 0.5(1-0.5)}{0.05 \times 0.05}$$

$$(0.9604) / 0.0025$$

$$n = 384$$

10% of the desired sample size (38) was added to compensate for non-response.

Therefore, the total number of women recruited for the study was 422.

Sample size = 422 women

3.7 Data collection instruments

3.7.1 Questionnaires

The principal researcher and research assistants administered questionnaires to the study participants to collect quantitative information. Questionnaire included questions on demographic information, knowledge level, and barriers to cervical cancer screening were determined using open-ended and closed-ended questions. The questionnaire had four sessions which included socio-demographic (session A), cervical cancer prevention practices (session B), knowledge level of cervical cancer risk factors (session C) and perceived barriers (session D).

3.7.2 Key Informant Interview (KII) Guide

The Key Informant Interview was constructed to gather vital information from key health officials especially nurses working in the screening centres in the health facilities. The core goal of the exercise was to collect data that could enhance quantifiable information. The KIIs provided a chance for ample enquiry about the intervention in the utilization of cervical cancer screening programmes.

3.7.3 Focus Group Discussions (FGDs)

The researcher used Focus Group Discussions comprising 8-12 women selected from the study population. The researcher conducted three FGDs with an aim of gathering insights on the knowledge level of the risk factors, screening and perceived barriers to screening that other tools were limited to collect. The FGDs included women who were 18-49 years from the study population who met the inclusion criteria.

3.8 Pre-test study

Pre-test study refers to a small scale study organized to test different elements of the methods that are intended for the main research (Karadag *et al.*, 2014). Prior to the

main study, the investigator initiated a pre-test. The main goal of this study was to gain sufficient knowledge on the proposed procedures and methods of study. Precisely, Gitaru ward which is situated in Kabete sub-county was selected for the pre-testing. The exercise involved sample size of twelve women who were selected from the target population and the exercise helped to assess the proposed data collection methods and instruments, appropriateness (validity and reliability) of the process.

3.8.1 Validity

Validity refers to the magnitude at which study instrument attain what there are aimed to accomplish (Karadag *et al.*, 2014). The pre-test provided an opportunity to assess the validity of the research instruments. The principal researcher used the validity to recognize unclear or vague areas in the data collection tools. Further, the researcher identified irrelevant questions. The research tools were also updated and revised to meet the research objectives. The researcher ensured that validity of research tools were achieved by guaranteeing that there was no leading or emotive question and that the content of the tools reflected the aims and purpose of the study

3.8.2 Reliability

Reliability explains the ability of the study tools to considerably and consistently gather data after repeated use (Mertens 2014). The investigator assessed the consistency of the research tools after the pilot study particularly through the test-retest approach. Therefore, the researcher administered the research instruments to a fraction of respondents on two instances and tabulated their scores. Researcher also supervised the research assistants and prior to commencement of study the research assistants were trained. The supervisors reviewed the research tools before and after the pre-testing.

3.9 Data collection techniques

The principal researcher collected both quantitative and qualitative data. Precisely, quantitative data was assembled through the questionnaires. The researcher and researcher assistants moved to selected households and administered questionnaires to sampled research participants. The researcher prepared guide for Key informants interviews (KIIs) and focus group discussions (FGDs) helped the researcher to collect qualitative data. For the KIIs, the researcher planned with nurses from the department of cervical cancer screening in Gachororo Health Centre on the date, time and meeting point. The interviews took 20-30 minutes. The researcher collected data by taking notes and recordings of the interviews. For the FGDs, a total of thirty research respondents who were selected from thirty households were involved. Three FGDs were conducted each having 8-12 research respondents. The principal researcher organized the discussion forum with the selected participants where the day and meeting place were agreed upon. The FGDs meetings were held in the Deliverance Church hall in Juja town and in Gachororo Health centre compound. During the discussion, the researcher took notes and recordings of important points of conversations.

3.10 Data analysis

The researcher started the process of analysing data by reading the collected information. Later data was cleaned, coded and transferred to MS Excel spread sheet. Subsequently, data was transferred to Statistical Package for Social Sciences (SPSS) version 20.0. The researcher completed both inferential and descriptive statistics. In this regard, descriptive statistics such as mean, median, and percentages were analysed. The findings were presented in pie charts and bar graphs. Moreover, Chi square test was used to determine the significance level between dependent and

independent variables at 95% confidence level. Inferential statistics including binary logistic regression helped to compute the determinants of participating in cervical cancer screening. Odds ratio (OR) was used to predict screening behaviours at 95% confidence interval. Thematic analysis helped to process the qualitative data. Firstly data was cleaned; coded and emerging themes were presented based on the research objectives. Recorded audio data was first transcribed into words, coded and emerging themes were presented into research objectives.

3.11 Logistical and Ethical considerations

The investigator sought necessary research approvals from Kenyatta University and the Ministry of Education. The researcher obtained the ethical clearance certificate from the Kenyatta University Ethical Review Committee (serial number PKU/936/I993). Moreover, the researcher applied and collected the research permit from the National Council for Science and Technology (Permit No: NACOSTI/P/18/20693/27224). Similarly, the researcher applied for research authorization from Office of Kiambu County Commissioner (Ref. No. ED. 12 (A)/1/VOL II/53), Ministry of Education and Kiambu County Department of Health. The informed consent was obtained from the participants before the interviews or answering the questions. Moreover, the researcher protected the confidentiality, privacy, or anonymity of the respondents.

CHAPTER FOUR: RESULTS

4.1 Introduction

The chapter presents the findings of this study which are organized in different subheading based on the specific objectives including socio-demographic characteristics, knowledge level of the risk factors, prevention practices and perceived barriers to cervical cancer screening.

4.2 Social-demographic characteristics of the study participants

Socio-demographic characteristics of the participants of the survey are presented in Table 4.1. Most of the study participants were aged 30-34 years (26.1%, n=110), while majority are married (45.1%, n=191). Most of the participants (54.0%, n=228) had tertiary education. Moreover, 55.5% (n=234) of participants were unemployed while most participants (25.1%, n=106) earned a monthly income of between Ksh 30,000-39,999. The majority of the participants (55.5%, n=208) resided in urban areas.

Table 0.1: Socio-demographic characteristics of respondents

Characteristics	Category	Frequency (n=422)	Proportion (100%)
Age	15-19 years	7	1.7
	20-24 years	33	7.8
	25-29 years	84	19.9
	30-34 years	110	26.1
	35-39 years	95	22.5
	40-44 years	82	19.4
	45-49 years	11	2.6
Marital Status	Single	149	35.3
	Married	191	45.3
	Widowed	42	10.0
	Divorced	40	9.4
Level of Education	None	11	2.6
	Primary	55	13.0
	Secondary	128	30.4
	Tertiary	228	54.0
Work Status	Employed	188	44.5
	Unemployed	234	55.5
Household monthly income	0-9,999	40	9.5
	10,000-19,999	71	16.8
	20,000-29,999	94	22.3
	30,000-39,999	106	25.1
	40,000-49,999	63	14.9
	Over 50,000	48	11.4
Residence	Rural	214	50.7
	Urban	208	49.3

4.3 Knowledge level of risk factors for cervical cancer

The knowledge of risk factors for the disease was determined using the correctness of the response. Table 4.5 indicated that correct answers for knowledge ranged from 19.0 per cent to 47.4 per cent. A minority of study participants (19.0%) knew that protracted use of oral pills and numerous sexual partners were linked with cervical cancer. Conversely, 47.4 per cent of women knew that smoking increases the risk for the disease. The average knowledge score of risk factors for the disease was 2.23

(95% CI: 2.09, 2.37) out of the possible score of 6. From the FGDs, none of the interviewees could name the risk factors of the cervical cancer.

In FGD 1, a participant stated *“I do not know the risk factors of cervical cancer but what I know is that the disease may occur by any chance without any trigger.”*

In FGD 2, one of the participant recounted *“I have not information on the risk factors of cervical cancer but I think family history could be a source of cancers.”*

Table 0.2: Knowledge of risk factors for cervical cancer

Risk factors	Correct Answer	Frequency (n)	Proportion (%)
Multiple sexual partners increase risk?	Yes	80	19.0%
Smoking a risk factor?	Yes	200	47.4%
HIV/AIDS raise risk of disease?	Yes	104	23.5%
Early sexual debut increases risk of disease?	Yes	96	24.6%
Cancer history in family?	Yes	80	22.7%
Use of contraceptives a risk factor?	Yes	99	19.0%

4.3.1 Weighted knowledge level of risk factors

Table 4.6 demonstrate the weighted knowledge of risk factors. Each correct response was awarded 5 marks while no correct response was awarded zero marks, hence the respondents who scored 6 correct responses has 30 marks and respondents who had zero correct response were awarded zero marks. About 45.9 per cent (n=194) of the study participants did not know any of the risk factors for the disease. Only 3 respondents (0.7 per cent) could identify all the six correct responses.

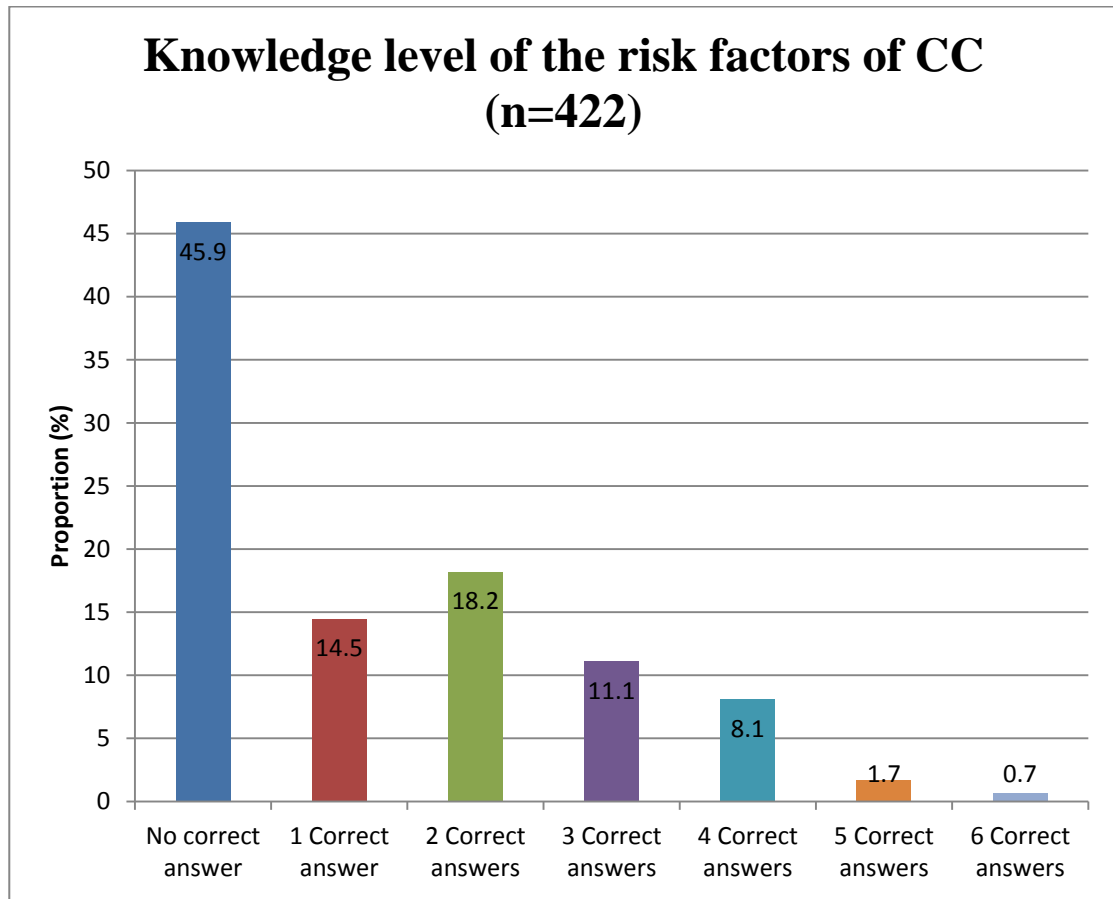


Figure 0.1: Weighted Knowledge of risk factors for cervical cancer

4.3.2 The relationship between weighted knowledge level of risk factor for cervical cancer and screening

Table 4.7 presented the results of Chi square test to measure the relationship between weighted knowledge level of risk factors and screening. Each correct response was awarded 5 marks. There is significant statistical difference between knowledge level of risk factors and screening $P = 0.017$, Chi Square (χ^2) (6) = 15.52. The largest fraction (2/3; 66.7%) of those who gave 6 correct responses or scored 30/30 on risk factors for cervical cancer, were screened. This fraction was higher as compared to those who scored 25 (1/7; 14.8%), scored 20 (7/33; 21.2%), scored 15 (10/47; 21.3%), scored 10 (17/77; 22.1%) and scored zero (20/194; 10.3%).

Table 0.3: Relationship between knowledge level of risk factors and screening

Knowledge level	Screening for Cervical Cancer		Chi-square	P value
	Screened (%)*	(n) Unscreened (n) (%)		
Scores	n=71	n=351		
0	20 (28.2)	174 (49.6)	$\chi^2=15.52$ df = 6	0.017*
5	14 (19.7)	47 (13.4)		
10	17 (23.9)	60 (17.1)		
15	10 (14.1)	37 (10.5)		
20	7 (9.9)	26 (7.4)		
25	1 (1.4)	6 (1.7)		
30	2 (2.8)	1 (0.3)		

(*Figures in parenthesis indicate the proportion of the respondents in % **P-value is statistically significant (<0.05) df = degree of freedom)

4.3.3 Predictors of cervical cancer screening status

From table 4.8, binary logistic regression indicated that study participants who had least level of knowledge of risk factors for cancer of the cervix were more likely to indicate not having been screened. The odds ratio indicated that persons with lowest level of knowledge were 17 times more likely to be unscreened (OR; 17.40: 95%CI: 1.510, 200.6), $P = 0.022$ as compared to those with highest knowledge level. Therefore, the data indicated that knowing the risk factors of the disease is a critical predictor of recording having participated in cervical screening.

Table 0.4: Knowledge level of risk factors and screening

Characteristics	Odds Ratio (OR)	95% CI		P value
		Lower	Upper	
Knowledge level (scores)				
0	17.40	1.510	200.6	0.022*
5	6.714	0.566	79.66	0.131
10	7.059	0.603	82.63	0.119
15	7.400	0.607	82.63	0.117
20	7.429	0.585	94.32	0.122
25	12.00	0.489	294.57	0.128
30	1			

4.4 Practices towards screening for cervical cancer

4.4.1 Awareness of screening for cervical cancer

Figure 4.1 summarizes the reactions of research participants on whether they had awareness on cervical cancer screening. Most of the respondents 88.9% (n=375) indicated that they were aware of cervical cancer screening while 11.1% (n=47) highlighted that they were unaware of cervical cancer screening. In addition, most of the respondents were able to correctly describe what cervical cancer disease is and the parts of the body that it affects. In the FGDs, the majority of the people reported that they had heard of screening for cervical cancer. In FGD1, a participant stated as follows *“I know cervical cancer screening is technique used to check whether a woman has cervical cancer.”*

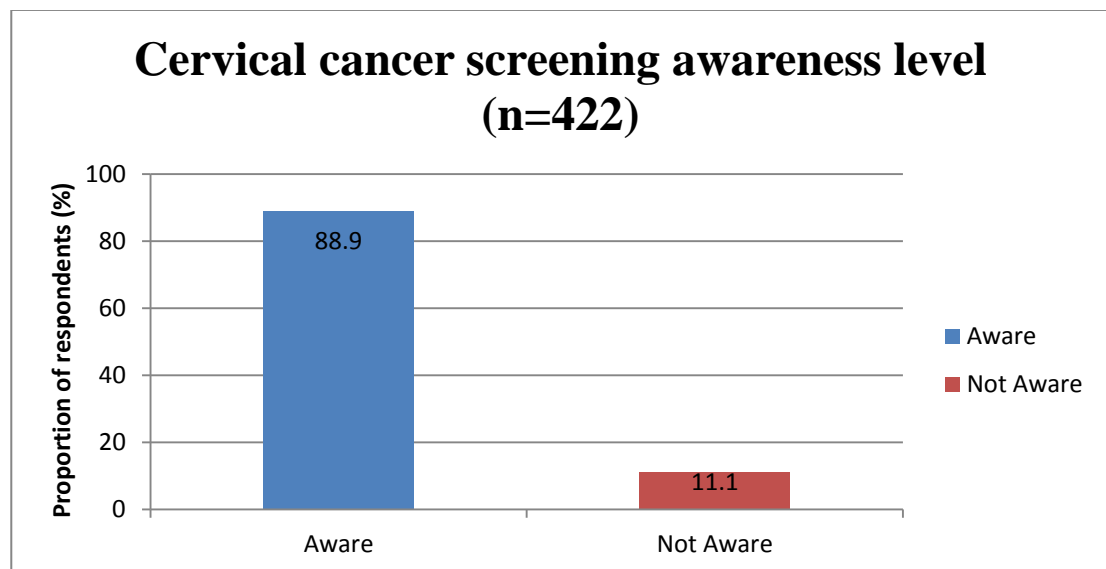


Figure 0.2: Cervical cancer screening awareness

4.4.2 Cervical cancer screening

Figure 4.2 highlights the responses of participants on whether they had been screened for the disease. Notably, 83.2% (n=351) stated that they have never been screened for the disease while only 16.8% (n=71) had been screened for the disease.

In the FGD 3, one participants stated that she had undergone screening in the past one month

“Last month, I visited a hospital in Thika town and I was informed that cervical cancer screening was being offered at the facility. When I was asked by the nurse if I could be screened, I accepted and I was screened.”

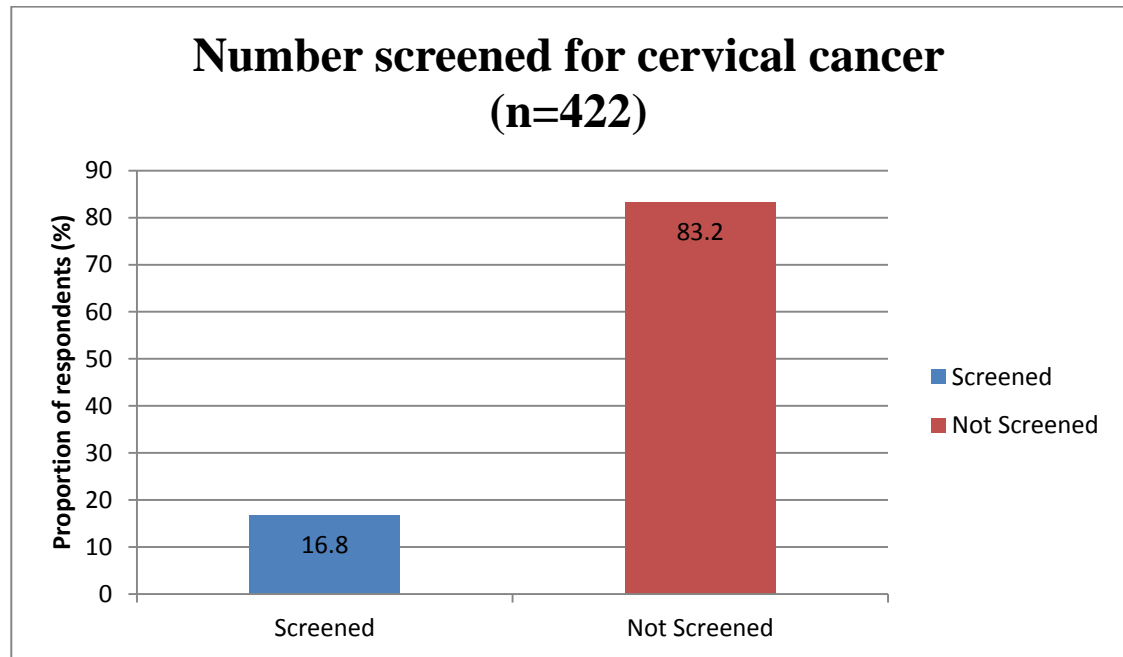


Figure 0.3: Cervical Cancer Screening Status

4.4.3 Frequency of cervical cancer screening

Figure 4.3 shows how often the respondents participated in cervical cancer screening (n=71). The figure shows that most of the people who were screened for the disease in the past three years (45.0%, n=32) while 25.4% (n=18), 19.7% (n=14), and 9.9% (n=7) were screened in the past two years, over four years ago, and past one year, respectively.

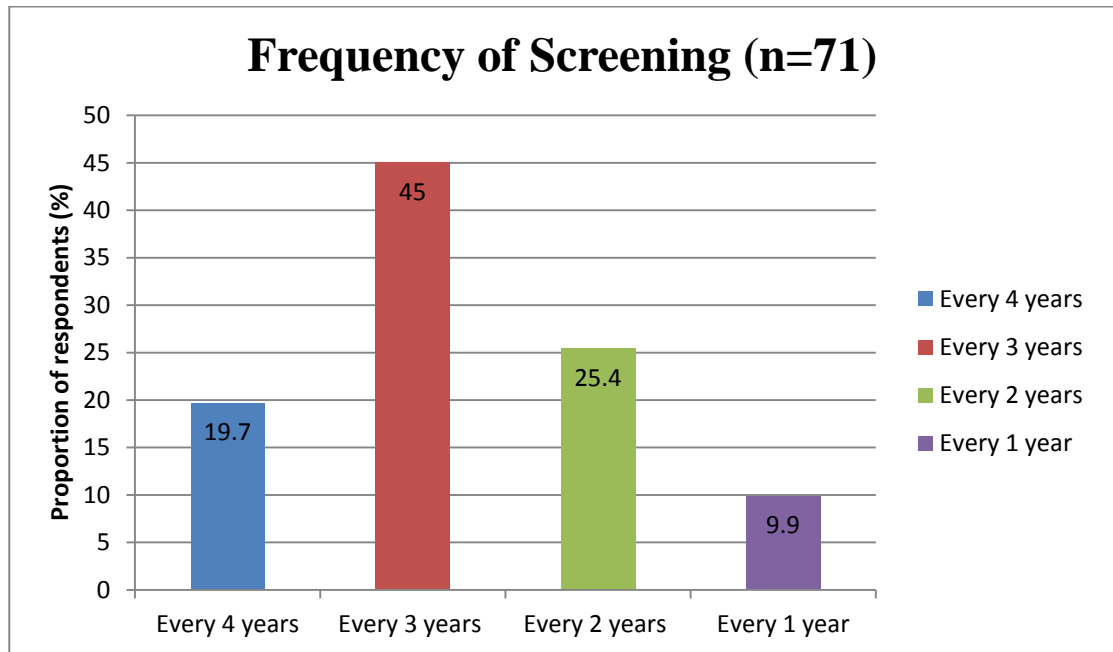


Figure 0.4: Frequency of screening

4.4.4 Importance of having a cancer of the cervix screen

The responses of participants on the importance of having a cancer of the cervix screen are presented on Figure 4.4. Most of the study respondents (46.4%, n=196) noted that the screen is “important” while the least number of respondents 2.4 per cent (n=10) indicated that it was not important at all. FGD1, a participant described the importance of screening as it helps to reduce progression to cancer.

“....I know screening is very important because when somebody is screened and found to have cancer at early stage it can be effectively managed...One of my neighbours was diagnosed with the disease when it had not progressed and it was successfully treated, hence screening is a good thing”

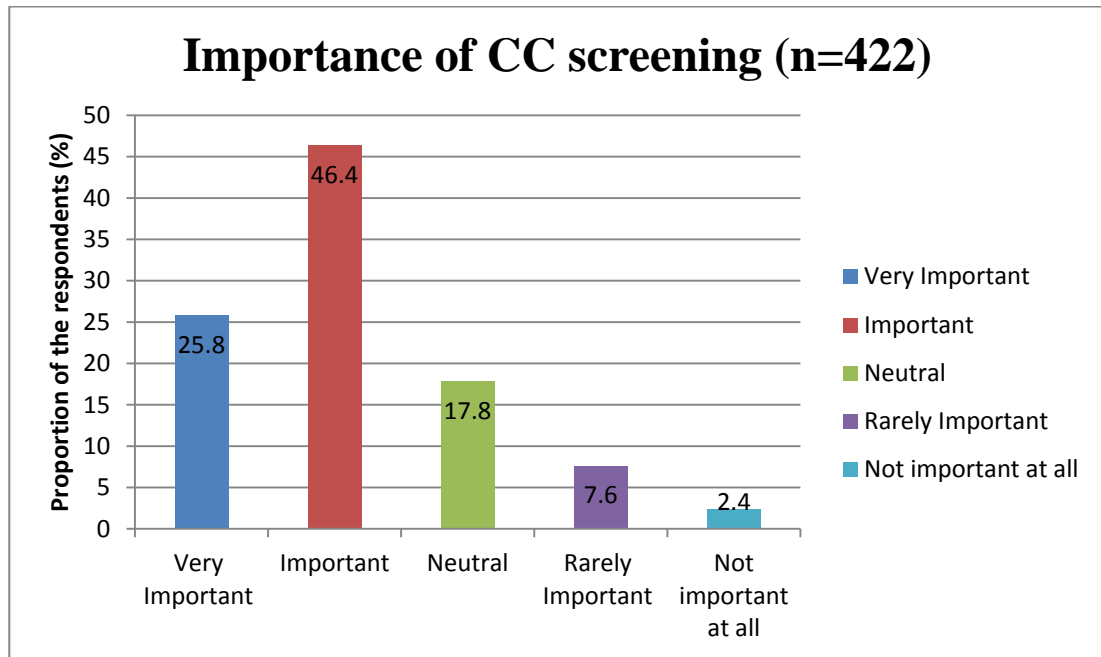


Figure 0.5: Importance of cervical cancer screening

4.4.5 Relationship between cervical cancer screening and awareness

From the table 4.2, only 71 (16.8%) of the respondents were screened. Of the unscreened 304 (86.6%) were aware of screening. There was statistically significant difference between awareness of screening and participating in cervical cancer screening $\chi^2=10.699$, $P=0.001$.

Table 0.5: Cervical cancer awareness and screening

	Screening Status for Cervical Cancer			
	Screened(n)(%)*	Unscreened (n)(%)	Total	P value
Awareness				
Aware	71 (16.8)	304 (86.6*)	375 (88.9%)	$\chi^2=10.699$
Not aware	0 (0.0)	47 (13.4*)	47 (11.1%)	P<0.001**
Total	71(16.8%)	351(83.2%)	422 (100%)	

(*Figures in parenthesis indicate the proportion of the respondents in % **P-value is statistically significant (<0.05)

4.4.6 Relationship between screening and socio-demographic characteristics

Table 4.3 indicated that higher screening rates were observed in persons in 40-44 years (29.6%), married (53.5%), with tertiary education (80.3%), employed (50.7%) and with household income of over Ksh. 50,000 (26.8%). There was a significant difference between educational level and being screened for disease ($\chi^2 = 90.014$, $P < 0.001^{**}$). Likewise, there was a significant difference between household income and being screened for the disease ($\chi^2 = 33.58$, $P < 0.001^{**}$). However, no statistically difference was observed between being screened and other socio-demographic factors such as religion, work status, residence, age and marital status.

Table 0.6: Relationship between the screening and socio-demographic characteristics

Characteristics	Screening Status		Chi-square	P-value
	Screened n (%)*	Unscreened n (%)*		
No. of participants	n=71	n=351		
Age			$\chi^2=3.829$ df = 6	0.700
15-19 years	1 (1.4)	6 (1.7)		
20-24 years	6 (8.5)	27 (7.7)		
25-29 years	12 (16.9)	72 (20.5)		
30-34 years	15 (21.1)	86 (24.5)		
35-39 years	15 (21.1)	80 (22.8)		
40-44 years	21 (29.6)	70 (19.9)		
45-49 years	1 (1.4)	10 (2.8)		
Marital Status			$\chi^2=2.726$ df = 3	0.436
Single	20 (28.2)	129 (36.8)		
Married	38 (53.5)	153 (43.6)		
Widowed	6 (8.5)	36 (10.3)		
Divorced	7 (9.9)	33 (9.4)		
Education Level			$\chi^2=29.57$ df = 3	<0.001**
None	3 (4.2)	8 (2.3)		
Primary	7 (9.9)	48 (13.7)		
Secondary	4 (5.6)	124 (35.3)		
Tertiary	57 (80.3)	171 (48.7)		
Work Status			$\chi^2=1.309$ df = 1	0.253
Employed	36 (50.7)	152 (43.3)		
Unemployed	35 (49.3)	199 (56.7)		
Household Income			$\chi^2=33.58$ df = 5	<0.001**
0-9,999	7 (9.9)	33 (9.4)		
10,000-19,999	3 (4.2)	68 (19.4)		
20,000-29,999	12 (16.9)	82 (23.4)		
30,000-39,999	13 (18.3)	94 (26.8)		
40,000-49,999	17 (23.9)	45 (12.8)		
Over 50,000	19 (26.8)	29 (8.3)		
Residence			$\chi^2=1.087$ df = 1	0.297
Rural	32 (45.1)	182 (51.9)		
Urban	39 (54.9)	169 (48.1)		

(*Figures in parenthesis indicate the proportion of the respondents in % **P-value is statistically significant (<0.05) df = degree of freedom)

4.4.7 Ratings on importance of screening and cervical cancer screening

Table 4.4 demonstrated higher screening rates (71.8%) among persons who rated cervical cancer as ‘very important’ followed by 19.7 per cent among those who rated it as ‘important’. The lowest screening rates (1.4%) were observed among those who rated screening as ‘not important at all’. There was significant statistical

difference between rating on importance of screening and undergoing screening χ^2 (4)=95.41, $P<0.001$.

Table 0.7: Association between the cervical cancer screening status and rating of importance of screening

Characteristics	Screening Status		n	Chi-square	P-value
	Screened (n) (%) [*]	Unscreened (%)			
No. of participants	71	351			
Importance of Screening				$\chi^2=95.41$ df = 4	<0.001**
Very Important	51 (71.8)	58 (16.5)			
Important	14 (19.7)	182 (51.9)			
Neutral	2 (2.8)	73 (20.8)			
Rarely important	3 (4.2)	29 (8.3)			
Not important at all	1 (1.4)	9 (2.6)			

(*Figures in parenthesis indicate the proportion of the respondents in % **P-value is statistically significant (<0.05) df = degree of freedom)

4.5 Perceived barriers to cervical cancer Screening

Table 4.9 summarizes the answers on perceived barriers to cervical cancer screening. The responses were categorized as high or low perceived barriers. Most participants disagreed that cervical cancer was not painful (35.1%, n=148), majority (34.8%, n=147) disagreed that cervical cancer screening is not embarrassing, majority (41.5%, n=175) disagreed that they knew where to go for screening, and highest number (34.6%, n=146) partner resistance was not a barrier to screening. However, most of the respondents (33.6%, n=142) agreed that attitude of healthcare workers discourages screening and majority (40.3%, n=170) strongly stated that lack of information about cervical cancer was highly perceived a barrier to screening. During the interview, the key informants stated that fear/embarrassment was a key concern raised by patients regarding utilization of screening.

Table 0.8: Perceived barriers to cervical cancer screening

Statement	1		2		3		4		5	
	N	%	N	%	N	%	N	%	N	%
Cervical cancer screening is painful	71	16.8	148	35.1	34	8.1	93	22.0	76	18.0
Cervical cancer screening is embarrassing	65	15.4	147	34.5	92	21.3	79	18.7	39	9.2
I do not know where to go for cervical cancer screening	87	20.6	175	41.5	76	18.0	34	8.1	50	11.8
My partner resist cervical cancer screening	10 5	24.5	146	34.5	37	8.8	83	19.7	51	12.1
Attitude of healthcare workers discourages attendance of cervical cancer screening	45	10.7	83	19.7	31	7.3	142	33.6	121	28.7
I lack adequate information on cervical cancer screening	42	10.0	54	12.8	13	3.1	143	33.9	170	40.3

(Strongly Disagree-1, Disagree-2, Neutral-3, Agree-4, and Strongly Agree-5)

4.5.1 Descriptive statistics on perceived barriers of cervical cancer

The descriptive statistics analysed the mean and standard deviation of the responses. The highest mean of 3.82; standard deviation of 1.82 was observed in the statement “I lack adequate information on cervical cancer screening” while the statement “I do not know where to go for cervical cancer screening” had the lowest mean of 2.49, standard deviation of 1.24.

Table 0.9 Descriptive statistics on perceived barriers of cervical cancer

Statement	n	Mean	Std. deviation
Cervical cancer screening is painful	422	2.89	1.399
Cervical cancer screening is embarrassing	422	2.72	1.202
I do not know where to go for cervical cancer screening	422	2.49	1.24
My partner resist cervical cancer screening	422	2.59	1.364
Attitude of healthcare workers discourages attendance of cervical cancer screening	422	3.50	1.364
I lack adequate information on cervical cancer screening	422	3.82	1.346

During the interviews conducted using KII Guides, the participants weighed in the barriers of screening in their hospitals. One participant noted *“Although screening services is offered without payments in health facilities in Juja Sub-County, extra costs such as transport may promote low rates of screening among women in lower income levels.”*

In the FGD 1, one of the participants reported that embarrassments and fear is a major barrier to screening *“I fear cervical cancer screening because I feel embarrassed to go through the procedures because it involves checking my genitalia hence I am not comfortable to engage.”*

Again, perceived painful experience emerged as a hindrance to cervical cancer screening in FGD 1. One participant recounted *“When I went for cervical cancer screening for the very first time, I experienced discomfort and pain that I had not expected to experience. From that time I have never returned because I did not like the experience.”*

In addition, lack of information also emerged as a major barrier that affects screening of cervical cancer. In the FGD 2, a participant stated that lack of adequate

information about the disease and its risk factors could lead to non-participation in the screening program. *“Lack of sufficient information about risk factors to the disease is a major hindrance to participating in cervical screening. I have not been screened because I do not know where to go for screening or what is required of me.”*

In FGD 3 a participant added that; *“I do not participate in screening because I lack information about cervical cancer which means that they do not know if they are exposed or not”*

Not knowing where to go for screening was identified as a barrier to screening. In FGD 3, one of the participant reported that *“I have not been screened because I do not know where to go for screening or what is required of me.”*

In the Key Informants Interview, one of the participants noted that some people fail to participant in screening because of “fear” that the process is uncomfortable. Again, another one stated that many women do not undergo screening because they believe they are not at risk of cervical cancer.

“Some people tell me that they fear to go for screening because the screening process is uncomfortable to them while some would complain of pain. Last week one of my patient confessed to me that she avoids screening because of personal embarrassment which is linked to discomfort and shyness in cervical screening since the process involves own genitalia and collection of vaginal swab”

Another one added *“Some of the women disregard screening arguing that they are not at risk of cervical cancer”*

4.5.1 Association between perceived barriers and screening status

Table 4.10 summarizes 2-tailed Independent Sample T-test analysis. The results indicated that there is strong statistically significant difference between perceived

embarrassment in screening and participating in cervical cancer screening t-value (df=420) = -8.394, $P < 0.001$. There was no statistically significant difference between other perceived barriers and participation in cervical cancer screening.

Table 0.10: Association between perceived barriers and screening status

Perceived Barriers	Screening for Cervical Cancer			
	Screened (Mean \pm SD)	Unscreened (Mean \pm SD)	T-test value	P value
No. of participants	n=71	n=351		
CC screening is painful	2.94 \pm 1.482	2.88 \pm 1.384	0.332 df=420	$P=0.740$
CC screening is embarrassing	1.70 \pm 0.916	2.92 \pm 1.149	-8.394 df=420	$P < 0.001^*$
Not knowing where to go for screening	2.23 \pm 1.209	2.54 \pm 1.241	1.982 df=420	$P=0.058$
Partner resistance	2.62 \pm 1.209	2.59 \pm 1.351	0.073 df=420	$P=0.942$
Attitudes of H. Workers	3.75 \pm 1.349	3.45 \pm 1.364	1.673 df=420	$P=0.095$
Lack of information about CC	4.06 \pm 1.170	3.77 \pm 1.376	1.642 df=420	$P=0.101$

(2-tailed Independent Samples t-test analysis **P-value is statistically significant (< 0.05) df = degree of freedom)

4.6 Test of Hypothesis

Based on this report, the null hypothesis was rejected because there is statistically significant difference between knowledge level of risk factors and perceived barriers to cervical cancer screening. The chi square test on knowledge level of risk factors for cervical cancer and utilization of cervical cancer screening was chi Square (χ^2) (6) = 15.52, $P=0.017$. Therefore, first null hypothesis was rejected which stated that there was no significant difference between knowledge levels of risk factors and cervical cancer screening. Perceived barriers such as feeling embarrassed indicated that a significant difference between perceived barriers and cervical cancer

screening T-test (t-value) (420) = -8.394, $P < 0.001$. Therefore, second null hypothesis was rejected, which stated that there is no significant difference between perceived barriers towards utilization of cervical cancer services and cervical cancer screening.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter has three sections comprised of discussion, conclusion and recommendations. Each section is composed of sub-sections which are based on the specific objectives of the study.

5.2 Discussion

5.2.1 Knowledge level of risk factors for cancer of cervix

Understanding the risk factors for disease such as cancer is an important step towards taking appropriate preventative measures. People who had higher knowledge level about the disease are able to take best lifestyle choices and enhance their health. The respondents had a mean knowledge score of 2.23 out of 6 which is suggestive of low knowledge level of risk factors for cancer of the cervix. The findings pointed out that 54.1% could state at least one risk factor for the disease which is similar to a study in Ethiopia by Mitiku & Tefera (2016) which showed that 41.9 per cent could state at least one risk factor of the disease. The highest number of respondents, (47.4%) could correctly identify that smoking is a risk factor. The findings are similar to a study conducted in Togo by Moore & Driver (2014), which indicated that 48.5 per cent had correct knowledge that smoking is a factor that increases risk for the disease. Only a few respondents could correctly identify the risk factors such numerous sexual partners, use of oral contraceptives, early sex debut, HIV and AIDS, and family history as risk factors contrary to Mitiku & Tefera, (2016) study. The difference could be attributed by the fact that Mitiku & Tefera study was conducted among women with higher academic qualifications. The

findings are also similar to a study by Kivistik *et al.*, (2011) which found the respondents have low knowledge level of cervical cancer risk factors.

5.2.2 Women's practices towards cervical cancer screening

The findings of the study indicated lower level of screening for the disease at 16.8 per cent. Screening rate is close to the findings in Kisumu, Kenya by Morema *et al.*, (2017) and nationally by Nyangasi *et al.*, (2018), who reported a screening of 17.5% and 16.4%, respectively. The rate of screening is slightly higher as compared to a 2014 KDHS report which was 14% (KNBS *et al.*, 2014). The difference between previous study (17.5%) and current study (16.8%) could be linked to the point that the past study was hospital-based as opposed to community-based study. Kumar & Tanya (2014) and this study also pointed to the fact that in spite of most people being aware of cervical cancer screening, only a small proportion participated in screening. Precisely, 86.6% of the respondents were never screened in spite of being aware of cervical cancer screening. The results of this study is consistent with a research by Ifemelumma *et al.*, (2019) which noted that most of the study participants knew about the existence of screening the disease but only a few of them utilized it. Women who were educated and those with highest monthly income were significantly linked to higher screening rate of the disease which is consistent with Nyangasi *et al.*, (2018) study.

5.2.3 Perceived Barriers to cervical cancer screening

The majority of respondents had low perceived barriers on pain, not knowing where to go for screening, and partner resistance towards screening for the disease. The outcomes of this study are comparable to findings by Afsah, (2017), which indicated that perceived barriers such as painful or unpleasant experience during screening, not knowing where to go for screening and partner opposition are not rated highly as

barrier to screening. Similarly, a study by Afsah, (2017) revealed that partner resistance and painful experiences do not hinder study participants from engaging in cervical screen. However, most of the respondents believed that perceived barriers such as embarrassment, attitudes of health workers and lack of evidence act as a hindrance to cervical cancer screening. There was significant statistical difference between persons who perceived screening as embarrassing and utilizing the cervical cancer screening services. The results of this study are comparable to outcomes by Chang *et al.*, (2017) which indicated that perceived embarrassment was a significant barrier in seeking screening of the cervix in health care centres. Marlow *et al.*, (2015) found out that emotional barriers such as embarrassment and fear were attributed to lower cervical screening for some ethnic groups. Therefore, women are more likely to demonstrate emotional barriers tend to postpone health-seeking for cervical cancer signs and symptoms.

5.3 Conclusion

5.3.1 Knowledge level of risk factors for cervical cancer

There is a gap in terms of knowledge level of risk factors for cervical cancer. Therefore, when the population do not understand the risk factors they less likely to take appropriate steps to prevent the disease. Besides, inaccurate knowledge about the risk factors of a disease can affect screening behaviour contributing to underutilization of screening programmes.

5.3.2 Women's prevention practices towards screening of the cervix

On the basis of the results of this study, it is concluded that examination of cervical cancer screening practices has detected gaps in terms of utilization of screening services. It is widely known fact that early screening of cervical cancer is the foundation of control and prevention of this type of cancer. Therefore, it means

more persons in the population do not know their cervical cancer status which is a hindrance to control of the disease.

5.3.3 Perceived barriers to cervical cancer screening

Most of women indicated various high perceived barriers such as lack of information of the disease, embarrassment and attitude of health workers which potentially act as a hindrance to screening for cancer of the cervix. Even when people have the information about cancer screening, their perceived barriers hinder them from undergoing screening.

5.4 Recommendations

5.4.1 Programmatic recommendations from the study

The Kiambu County government and stakeholders should implement policies which would help increase the knowledge level of risk factors for the disease and encourage utilization of cervical cancer screening. Although the health facilities normally conduct health education to women who visited health facilities, County Government of Kiambu and stakeholders should implement mass health education throughout the county.

The national government and County government of Kiambu should enact policies which can increase the level of screening for cancer of the cervix. To deal with low level of screening in rural areas, the county government should introduce screening programs in rural areas because it will help to eliminate the additional expense such as transport costs.

The County Government of Kiambu and stakeholders should ensure that the perceived embarrassment can be addressed by increasing accessibility of self-test kits and introducing media campaigns and peer-to-peer education.

5.4.2 Recommendations for further research

Further studies should be conducted to determine whether perceived susceptibility of an individual has an effect on the rate of screening. The study should focus on whether psychosocial variables influence health seeking behaviours.

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APPENDICES

Appendix 1: Informed Consent Form for Household Survey

Introduction

My name is Paul Maina Ndung'u, a Master of Public Health student at Kenyatta University, Department of Community Health. I would like to invite you to participate in a study "Cervical cancer prevention practices among women of reproductive age in Kiambu County". The purpose is to collect information and find out the knowledge level of risk factors for cervical cancer among women of reproductive age in Kiambu County, the proportion of women of reproductive age at risk of cervical cancer, and the prevention practices for cervical cancer among women of reproductive age in Kiambu County. This information will help in making valid recommendations that can be used to inform various stakeholders such as County Ministry of Health in order to improve the health promotion strategies to the public.

Procedures to be followed

Participation in this study will involve answering some questions to be able to understand the various factors that may influence prevention practices of cervical cancer among women at risk of the disease. I request you to be a participant in my study, because your home is located within the areas of the study. Your house is chosen randomly from all the households in the area. I will include around 422 households in this study. If you agree to participate, you will answer or fill in a questionnaire with questions regarding the above topic. Participation in this study is voluntary and you may decline to respond to any question that you feel unsuitable to you. In addition, you may withdraw from the interview at any time you wish.

Discomfort and Risks

I am aware that you could be uncomfortable answering some of the questions in the questionnaire. Therefore, you may refuse to answer these questions if you choose.

The interview will take about 20-30 minutes.

Benefits

If you participate in this study, you will be able to learn about the cervical cancer prevention practices among women of reproductive age in Kiambu County.

Reward

This interview is voluntary and no incentives whatsoever will be provided to the respondents

Privacy, anonymity and confidentiality

I will not require you to write your name, address or phone number on any part of the questionnaire. This research is for academic purposes and any findings will never be traced back to you. No name will appear or be mentioned during presentations made on the findings regarding this research.

Contact information

If you have any questions regarding this study, you may contact Prof. Alloys Orago (0722483827) and Dr. Judy Mugo (0720671286) or Kenyatta University Ethical Review Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke, ercku2008@gmail.com. Should you need more information you can contact me on 0717083514

Participant's Statement

The above statement regarding my involvement in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that the

information will be kept in privacy and I can withdraw from the study at any time. I understand the benefits of the study and that no incentive will be given.

Please, fill the following sub-section (**If Yes, proceed to Q1, if No; withdraw session by thanking the participant**):

Yes, I have agreed to participate: _____

Signature

Date

No, I have declined to participate: _____

Signature

Date

Researcher's statement

I, the undersigned, have explained to the participant in the language s/he understands the procedure to be followed in the study and the risk and the benefits involved.

Name

Interview

Signature or Thumbprint Date

Appendix 2: Questionnaire

SECTION A: DEMOGRAPHIC INFORMATION	
1	What is your age ? (Tick as appropriate) a. Below 20 years old [1] b. 20-24 years old [2] c. 25-29 years old [3] d. 30-34 years old [4] e. 35-39 years old [5] f. 40-44 years old [6] g. 45-49 years old [7]
2	Marital status (Tick) a. Single [1] b. Married [2] c. Widowed [3] d. Divorced [4]
3	What is your religion ? a. Roman Catholic [1] b. Protestants [2] c. Muslim [3] d. Other (specify) [4]
4	Highest educational level attained. a. None [1] b. Primary [2] c. Secondary [3] d. TVET/college [4] e. Bachelor's degree [5] f. Master's degree [6] e. Others (specify)..... [7]
5	What is your current work status a. Employed [1] b. Unemployed [2]
6	What is your monthly household income ? a) 0-9,999 [1] b) 10,000-19,999 [2] c) 20,000-29,999 [3] d) 30,000-39,999 [4] e) 40,000-49,999 [5] f) 50,000-above [6]
7	What type of residential status do you live? a. Rural [1] b. Urban [2]
SECTION C: PREVENTION PRACTICES TOWARDS CERVICAL CANCER SCREENING	
	Have you EVER HEARD OF cervical cancer screening? a. Yes b. No

	Have you ever been screened for cervical cancer <i>[If “No” skip question 17]</i>						
	a. Yes b. No						
	If “Yes” in Question above, how often do you get screened?						
	a. Every 4 years b. Every 3 years c. Every 2 years d. Every 1 year						
	How would you rate the importance of regular cervical cancer screening						
	a. Very Important b. Important c. Neutral d. Rarely important e. Not important at all						
	SECTION C: KNOWLEDGE LEVEL OF RISK FACTORS FOR CERVICAL CANCER AMONG WOMEN OF REPRODUCTIVE AGE This Section is concerned with assessing the level of knowledge of the risk factors for cervical cancer among women of reproductive age in Juja Sub-County. Please mark (x) in the box which best describes your agreement or disagreement on each of the following statements. The choices given are: True or False						
	Statement	Yes/True		No/False			
9	Multiple sexual partners increases the risk of CC						
10	Smoking increases the risk of cervical cancer						
11	Having weak immune system increases risk of cervical cancer						
12	Having sexual intercourse at an early age increases the risk for cervical cancer						
13	Having a family history increase risk of Cervical cancer						
14	Long-term use of oral pills increase chances of cervical cancer						
	SECTION D: PERCEIVED BARRIERS TO CERVICAL CANCER SCREENING This Section is concerned with examining the perceived barriers to cervical cancer screening among women of reproductive age in Kiambu County. Please mark (x) in the box which best describes your agreement or disagreement on each of the following statements. The choices given are: Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree						
	Statement	Strongly Disagree[1]	Disagree[2]	Not sure[3]	Agree[4]	Strongly Agree[5]	
21	Cervical cancer screening is						

	painful						
22	Doing Cervical cancer screening is embarrassing						
23	Not knowing where to go is the reason for not screening						
24	Partner resisting cervical cancer screening						
26	Attitudes of health workers discourages cervical cancer screening						
27	Lack of information is also a barrier to CC screening						

Appendix 3: Focussed Group Discussion (FGD)

1. Describe what you know about cervical cancer
2. Have you ever heard of screening for cervical cancer?
3. Have you ever-heard of human papillomavirus?
4. Do you know HPV is the causative agent of cervical cancer?
5. What are the risk factors for cervical cancer?
6. Do you know having multiple sex partners can increase the risk of cervical cancer?

Appendix 4: Key Informants Interview Guide

1. Which are some of the common concerns raised by your patients regarding utilization of cervical cancer screening programs?
2. What are the effects of under screening of cervical cancer?
3. Do you think awareness creation on the risk factors of cervical can enhance screening?
4. What kinds of cervical cancer screening methods do you use in your health facility?
5. Are you aware of the HPV and how it is transmitted?
6. Does your health facility use/implement health education to mothers?

END OF SURVEY

THANK YOU

Appendix 5: KU-ERC Approval



KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE

Fax: 8711242/8711575

Email: kuerc.chairman@ku.ac.ke

kuerc.secretary@ku.ac.ke

Website: www.ku.ac.ke

P. O. Box 43844,

Nairobi, 00100

Tel: 8710901/12

Our Ref: KU/ERC/ APPROVAL/VOL.1 (238)

Date: 21st November, 2018

Paul Maina Ndung'u
P.O Box 43844-00100
NAIROBI

Dear Paul ,

APPLICATION NUMBER: PKU/936/1993 "CERVICAL CANCER PREVENTION PRACTICES AMONG WOMEN OF REPRODUCTIVE AGE IN KIAMBU COUNTY, KENYA"

1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic "**Cervical Cancer Prevention Practices Among Women Of Reproductive Age In Kiambu County, Kenya**" received on 30th October, 2018 and discussed on 20th November, 2018

2. APPLICANT

Paul Maina Ndung'u

SITE

Kiambu County

3. DECISION

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines and **APPROVED** that the research may proceed for a period of ONE year from 20th November, 2018.

Permit No : NACOSTI/P/18/20693/27224

Date Of Issue : 11th December,2018

Fee Recieved :Ksh 1000

research in Kiambu County

PREVENTION PRACTICES AMONG

KIAMBU COUNTY, KENYA

for the period ending:

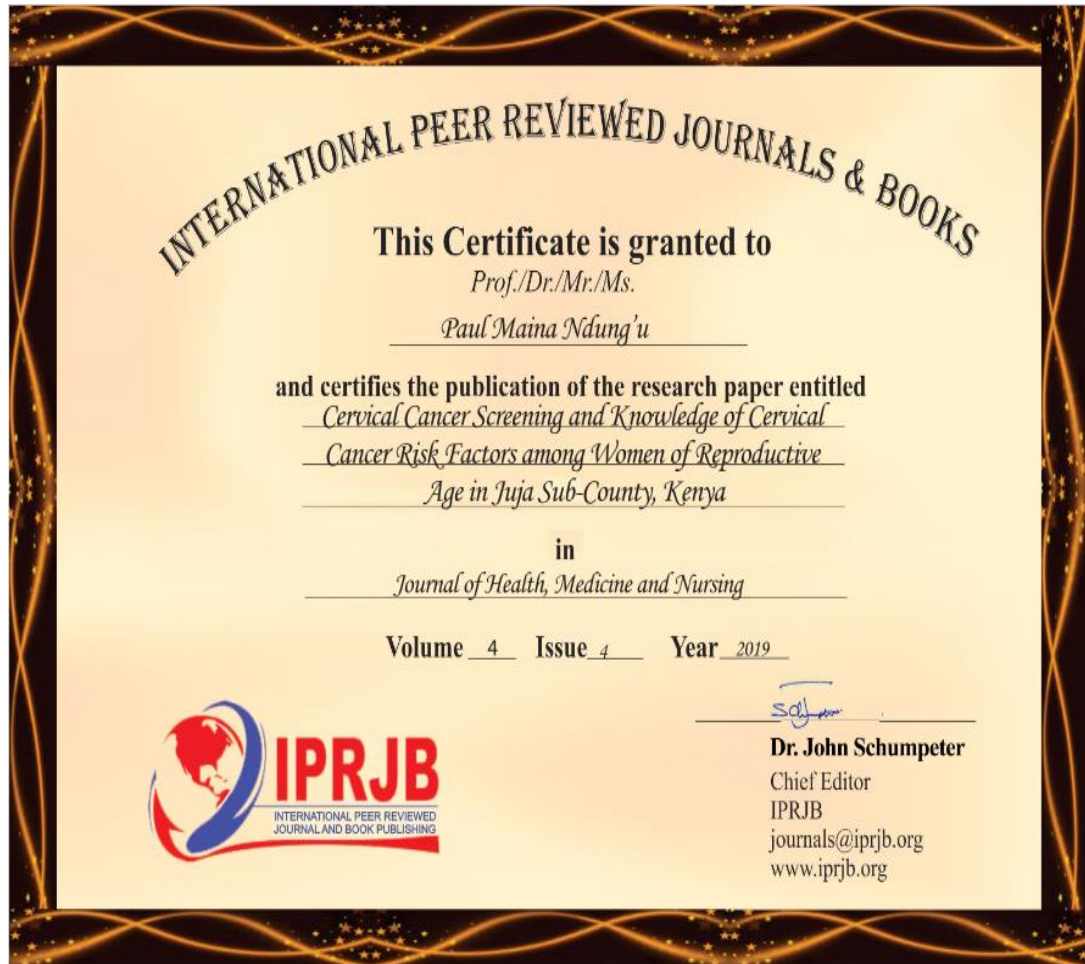
10th December, 2019

**Applicant's
Signature**

Director General
National Commission for Science,
Technology & Innovation



Appendix 7: Map of Kenya showing Kiambu County and Juja Sub-County

Appendix 8: Publication Certificate

Appendix 9: Research Authorization



OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT
COUNTY COMMISSIONER, KIAMBU

Telephone: 066-2022709
Fax: 066-2022644
E-mail: countycommkiambu@yahoo.com
When replying please quote

P.O. Box 32-00900
KIAMBU

Ref. No: **ED.12 (A)/1/VOL II/53**

12th December, 2018

✓ Paul Maina Ndungu
Kenyatta University
P.O. Box 43844 00100
NAIROBI

RESEARCH AUTHORIZATION

Reference is made to National Commission for Science, Technology and Innovation letter Ref No. **NACOSTI/P/18/20693/27224** of **11th December, 2018**.

You have been authorized to conduct research on "***Cervical cancer prevention practices among Women of reproductive age in Kiambu County, Kenya***". The data collection will be carried out in ***Kiambu County*** for a period ending **10th December, 2019**.

You are requested to share your findings with the County Education Office upon completion of your research.


Alice M. Nyathoko
For: County Commissioner
KIAMBU COUNTY

Cc County Director of Education
KIAMBU COUNTY

National Commission for Science, Technology and Innovation
P.O. Box 30623-00100
NAIROBI

All Deputy County Commissioners (*For information and record purposes*)
KIAMBU COUNTY

Appendix 10: KU Graduate School Research Authorization



KENYATTA UNIVERSITY GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Our Ref: Q57/CTY/PT/37573/16

DATE: 29th October, 2018

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

**RE: RESEARCH AUTHORIZATION FOR MR. PAUL MAINA NDUNGU – REG.
NO. Q57/CTY/PT/37573/16**

I write to introduce Mr. Paul Maina Ndungu who is a Postgraduate Student of this University. He is registered for M.P.H. degree programme in the **Department of Community Health & Epidemiology**.

Mr. Ndung'u intends to conduct research for a M.P.H. thesis Proposal entitled, **"Cervical Cancer Prevention Practices among Women of Reproductive Age in Kiambu County, Kenya."**

Any assistance given will be highly appreciated.

Yours faithfully,



PROF. PAUL OKEMO
DEAN, GRADUATE SCHOOL