PREVALENCE,BARRIERS AND FACILITATORS OFCERVICAL CANCER SCREENING AMONG WOMEN ATTENDING GYNAECOLOGY OUTPATIENT CLINICS IN NAIROBI COUNTY

A DESCRIPTIVE CROSS-SECTIONAL STUDY

PREVALENCE VS PROPORTION, DATA NOT ANALYSED ACCORDING TO OBJECTIVES, QUALITATIVE DATA???

Principal Investigator:

Dr. Mange Mwenda, MBCHB

H58/75223/2014

Department of Obstetrics and Gynaecology,

University of Nairobi.

A Research dissertation submitted in partial fulfilment of a Masters in Obstetrics and Gynaecology, School of Medicine, Department of Obstetrics and Gynaecology, College of Health Sciences, University of Nairobi.

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DECLARATION

This is to declare that this dissertation is my original work, carried out with the guidance of my supervisors, and references made to work done by others' have been indicated.

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

Dr. Mange Mwenda

H58/75223/2014

Senior House Officer

Department of Obstetrics and Gynaecology,

University of Nairobi.

CERTIFICATE OF SUPERVISION

This dissertation has been presented with our full approval as supervisors:

Signature:…… **Date**:……

Professor, James Machoki M'Imunya

Associate Professor, Department of Obstetrics and Gynaecology

Consultant, Obstetrician and Gynaecologist,

Principal, College of Health Scincies,,

University of Nairobi.

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

Dr. Obimbo Moses Madadi, PhD

Senior lecturer, Department of Human Anatomy,

Consultant, Obstetrician and Gynaecologist

University of Nairobi.

Signature:……..... **Date**:……

Dr. Anne Naipanoi Pulei,

Lecturer, Department of Human Anatomy,

Consultant, Obstetrician and Gynaecologist,

University of Nairobi.

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DEDICATION

This work is dedicated to my parents, Mr &Mrs Mwenda Thiribi, my wife, Anneclaire Muthoni Njogu Mange, and my son, Jaha Tulatia Mange.

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LIST OF ABBREVIATIONS

AIDS – Acquired Immunodeficiency Syndrome

ANC – Antenatal Clinic

ASR – Age-Standardized Ratio

CDC – Centre for Disease Control

CIN – Cervical Intraepithelial Neoplasia

GOPC – Gynaecology Out-Patient Clinic

HPV – Human Papilloma Virus

HRC – High Risk Clinic

KDHS – Kenya Demographic Health Survey

KNH – Kenyatta National Hospital

LEEP - Loop Electrosurgical Excision Procedure

LLETZ – Large Loop Excision of the Transformation Zone

SPSS - Statistical Package for the Social Sciences

VIA – Visual Inspection under Acetic acid

VILI – Visual Inspection under Lugol's Iodine

WHO – World Health Organization

UoN – University of Nairobi

DEFINITION OF TERMS

Cervical cancer – a type of cancer that originates in the cells lining the cervix.

Pap smear–A method of cervical screening used to detect potentially precancerous and cancerous processes in the cervix.

Premalignant lesions–morphologically atypical tissue which appears abnormal under microscopic examination, and in which cancer is more likely to occur than in its apparently normal counterpart.

Missed Opportunities–any contact with a health service that did not result in an eligible woman receiving the needed screening services.

Cryotherapy–A procedure used to destroy tissue of both benign and malignant lesions by the freezing and re-thawing process.

Colposcopy–A medical diagnostic procedure to examine an illuminated, magnified view of the cervix and the tissues of the vagina and vulva.

Ablation– removal or excision, especially by cutting with a laser or electrocautery.

Conisation–removal or excision of a cone-shaped sample of tissue from the mucous membrane of the cervix.

Palliative care– reducing the severity of; denoting the alleviation of symptoms without curing the underlying disease.

Primary prevention– a program of activities directed at improving general well-being while also involving specific protection for selected diseases.

Secondary prevention– a level of preventive medicine that focuses on early diagnosis, use of referral services, and rapid initiation of treatment to stop the progress of disease processes or a handicapping disability.

Trachelectomy – surgical removal of the uterine cervix.

Hysterectomy– surgical removal of the uterus.

ABSTRACT

Background

Cervical cancer is the second most common cancer and the leading cause of cancer deaths among women in Nairobi. Screening of this cancer facilitates early detection, prompt treatment and consequently reduces mortality. Although 76% of women in the general population in Nairobi have heard of cervical cancer, only 14 % have had a cervical cancer screening exam.This study sought to explore the utilization of screening servicesand the barriers leading to this discrepancy in uptake. No studies focusing on the gynaecology clinics had been done before.

Objective

To determine the prevalence, barriers and facilitators ofcervical cancer screening in selected gynaecology outpatient clinics in Nairobi County.

Methodology

This was a descriptivecross-sectional study that was conducted at the Kenyatta National Hospital, Mbagathi District Hospital and Mama Lucy County Referral Hospital in Nairobi County. The study included 220 women aged 21 to 65 years who were attendingselectedgynaecologyclinics, as well as three key informants per clinic randomly chosen from the clinical staff. Recruitment was done through multistage sampling and an interviewer-administered structured questionnaire used to collect data.

Results

The overall prevalence of cervical cancer screening was 39.6%. Mama Lucy was highest at 41.7%, Kenyatta at 40.3% and Mbagathi lowest at 32.0%.The main cervical cancer screening barriers reported by patients included fear of unfavourable results (51.8%), lack of awareness (48.2%) and fear of the procedure (26.4%). Provider barriers mainly included unavailability of screening materials and equipment, shortage of staff and long waiting periods before getting results. The main facilitators to screening were a recommendation by a health care worker, a family history of cervical cancer and being HIV positive.

Conclusion

The prevalence of cervical cancer screening is low inthe selected gynaecology clinics in Nairobi County. There is an urgent need to provide health education about cervical cancer by health facilities as well as remove the barriers hindering access and provision of cervical screening services.

CHAPTER ONE

INTRODUCTION AND LITERATURE REVIEW

1.1 INTRODUCTION

Cervical cancer is the fourth most common cancer in women, and the seventh overall globally, with a large majority (85%) of the global burden occurring in low and middle-income countries(1). There were 528,000 new cases of cervical cancer and 266,000 deaths from the disease in 2012(2). Nearly 90% of these deaths occurred in low and middle-income countries(2).

Cervical cancer is the most frequent cancer in women in Sub-Saharan Africa(3) withEastern Africa leading in both incidence and mortality rates(4). The estimated annual number of new cervical cancer cases in Kenya is 5,250 while the annual number of deaths due to cervical cancer is 3,286(5). In 2012, it was projected, by the year 2025 the number of new cervical cancer cases annually would reach 4,261(6). These projections have already been surpassed.

Cancer of the cervix is the only gynaecological malignancy for which a screening modality is widely accepted and recommended for all women(7). Screening can detect very early changes that, if left untreated, could lead to invasive cervical disease over the course of ten to fifteen years. This provides a rare opportunity to treat these premalignant lesions before the disease progresses. Cervical cancer screening has been shown to reduce incidence and mortality rates of cervical cancer by more than 70%(8).

There is a wide variation in the level of effective coverage of cervical cancer screening across countries, from over 80% in Austria and Luxembourg to 1% or less in Bangladesh, Ethiopia, and Myanmar. Coverage of cervical cancer screening in developing countries is on average 19% compared to 63% in developed countries(9). In 2010, cervical screening coverage in Kenya was at 3.2% for all women, with only 4.0% and 2.6% of urban and rural women screened, respectively(10).

Organizing screening programs in developing countries, where the burden of cervical cancer is the greatest,has remained a challenge. There are many obstacles to cervical cancer screening in resource-poor countries, generally attributed to a lack of infrastructure and resources – technical,

medical, and financial – and a lack of awareness and education about cervical cancer among women and health-care providers(8). Moreover, in Africa, there are competing health care needs such as HIV/AIDS, infectious diseases such as malaria, tuberculosis, and high infant and maternal mortality rates(11). In addition, there are not many trained clinicians and there is a lack of adequate laboratory supplies, personnel and treatment facilities.

1.2 LITERATURE REVIEW

1.2.1 Epidemiology of Cervical cancer

Cervical cancer accounted for 3.2% of all new cancer cases and 3.2% of all cancer deathsworldwide in both sexes across all ages in 2018(12). There is a large difference in incidence and mortality rates between developed and developing countries. The age-standardized incidence and mortality rates were 9.0 and 3.2 per 100,000 women respectively in the developed world in 2008. In contrast, in the same year, in the developing countries, the age-standardized incidence and mortality rates were 17.8 and 9.8 per 100,000 women respectively(13).

This difference in incidence in developed and developing countries is also illustrated in the relative rates of cervical cancer as follows; International estimates of the number of diagnoses in 2018 of cervical cancer were 569,847. Of these diagnoses, 76.2% were in Africa and Asia(12). The cumulative risks of developing cervical cancer and of cervical cancer mortality worldwide by age 75 years were: developed countries (0.9 percent incidence/0.3 percent mortality) and developing countries (1.9 percent incidence/1.1 percent mortality)(13).

Cervical cancer is the leading cause of cancer deaths in women in Sub-Saharan Africa(14). African estimates indicate that every year 78,897 women are diagnosed with cervical cancer and 61,671 womendie from the disease(15). It ranks as the second most frequent cancer among women between 15 and 44 years of age in Africa after breast cancer(16).

Kenya ranked 16th in the countries with the top 20 highest incidence rates of cervical cancer globally in 2012. Sixteen of these countries are Sub-Saharan countries(17). The age-standardized incidence rate of cervical cancer in Kenya is 40.1 per 100,000 women(1).

Cervical cancer is the second most common cancer among women of reproductive age in Nairobi (with an ASR of 46.1 per 100,000) and is the leading cause of cancer deaths in women according to a study published in 2015(18). This is a dire situation since it is a preventable condition, the incidence of which can be reduced by more than 70% through the use of a properly designed cervical screening programs as seen in the developed world(8). It is unfortunate that although three-quarters (76%) of women in Nairobi County have heard of cervical cancer, only 14% have had a cervical cancer screening exam(19). Among women who had an exam, 62% had a pap smear, 32% had visual inspection, and 1 percent had both screening tests(19).

1.2.2 Cervical cancer and disease progression

The majority of sexually active people will experience HPV infection at some point in life, with estimates of lifetime risk of approximately 80% for any oncogenic type(20). Fewer than 10% of these infections are persistent, and only a few persistent infections progress to cervical intraepithelial neoplasia (CIN) grade 2 or 3(21). CIN2/3 is considered a precursor of cervical cancer and is treated when detected, even though the possibility of regression to a normal state exists(22).

Whereas CIN2/3 typically develops within a few years of infection with HPV(23), progression to invasive carcinoma is generally thought to require much more time. It takes 15 to 20 years for cervical cancer to develop in women with normal immune systems. It can take only 5 to 10 years in women with weakened immune systems, such as those with untreated HIV infection(24).
This is diagrammatically represented in figure 1 below.

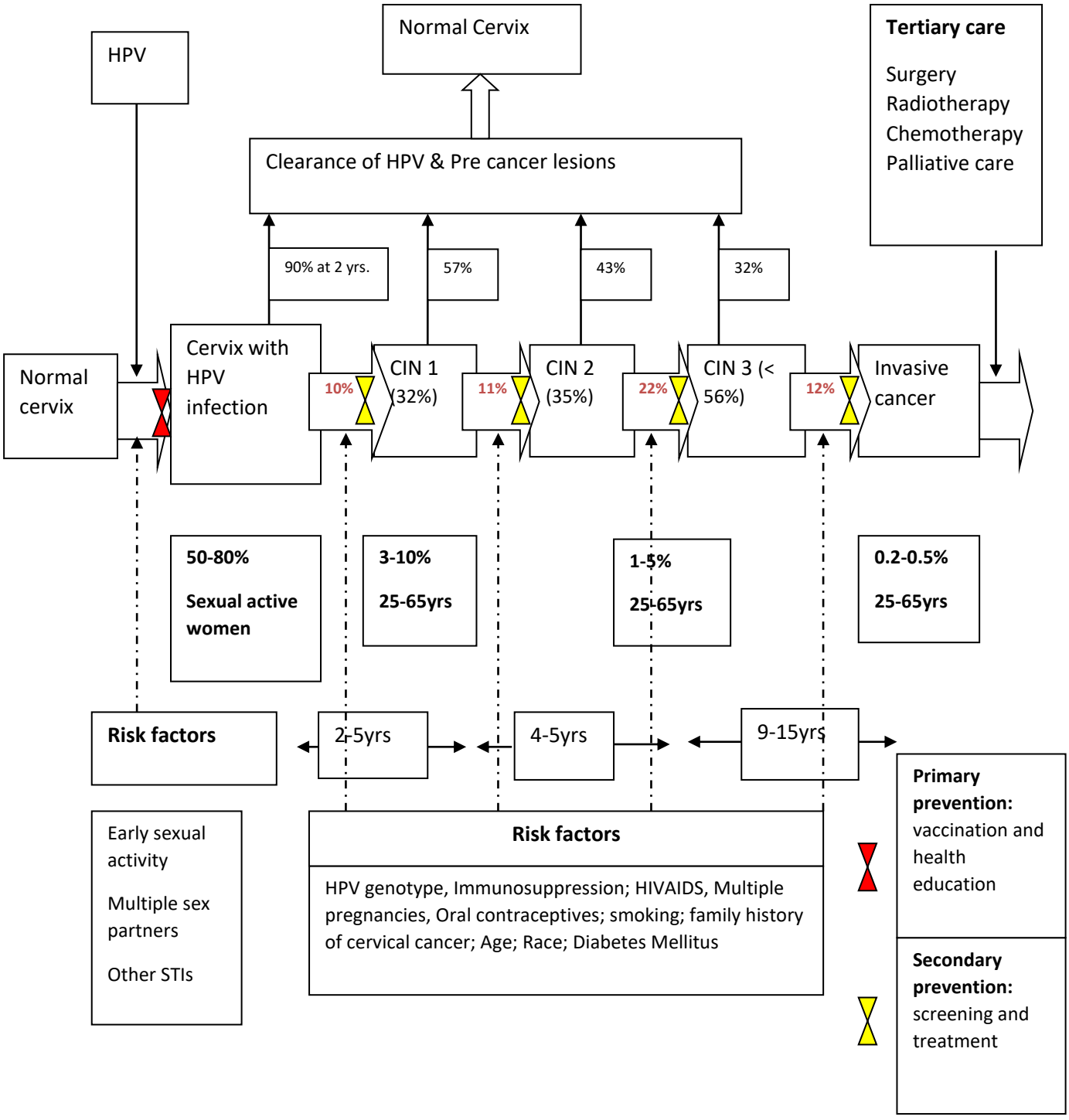

Figure 1: Disease progression of cervical cancer

1.2.3 Clinical presentation of patients with cervical cancer

Early cervical cancer is frequently asymptomatic, emphasising the importance of screening. The patient may present with the following symptoms(25):

Early disease:

- Irregular or heavy vaginal bleeding
- Post-coital bleeding
- Vaginal discharge that may be watery, mucoid, or purulent and malodorous

Advanced disease may present with pelvic or lower back pain,bowel or urinary symptoms, such as, pressure-related complaints, haematuria, haematochezia, or vaginal passage of urine or stool among others.

The duration of symptoms is not proportionate to the stage of the disease. Visualization of the cervix upon speculum examination may reveal a normal appearance, a visible cervical lesion or a mass that may appear to replace the cervix entirely.

The tumour grows by extending along the epithelial surfaces, both squamous and glandular, upward to the endometrial cavity, throughout the vaginal epithelium, and laterally to the pelvic wall. It can invade the bladder and rectum directly, leading to constipation, haematuria, fistula, and ureteral obstruction, with or without hydroureter or hydronephrosis. The common sites for distant metastasis include extrapelvic lymph nodes, liver, lung, and bone(26).

1.2.4 Cervical cancer screening

Cervical cancer screening tests can find cervical cancer and precancer in the early stages when it can be treated and thus may reduce the number of deaths from cervical cancer. The most important risk factor for cervical cancer is infection with the human papillomavirus (HPV). There are over 100 different types of HPV; however, most types of HPV do not cause cancer.HPV types have been labelled as high or low-risk types for causing cervical cancer.Karani et al reported the most common HPV types in Kenya in 2010as follows; HPV 58 (10.5% of women), HPV 16 (7.7%), HPV 53 (6.7%), HPV 18 (4.6%), and HPV 6 (4.4%)(27).

HPV 58, 16 and 18 are known high risk strains while HPV 53 and 6 are low risk strains. The most common histological types are squamous cell carcinoma followed by adenocarcinoma.

There are several ways to screen for cervical cancer:

1) Cell cytology using a conventional Pap smear or liquid-based cytology. Studies that have compared the traditional Pap smear with liquid-based cytology do not prove one test to be more accurate than another(28).
2) HPV test: A human papillomavirus (HPV) test can be done along with a Pap test or as a separate test. Like a Pap test, the HPV test is done during a pelvic exam, using a small brush to collect a sample from the cervix. HPV tests do not test for all different types of HPV. They test for the strains of HPV that are the highest risk of causing cervical cancer such as HPV 16 and 18.
3) VIA/VILI: Naked-eye visual inspection of the uterine cervix, after application of 5% acetic acid (VIA) and/or of Lugol's iodine (VILI), provides simple tests for the early detection of cervical precancerous lesions and early invasive cancer. The results of VIA and VILI are immediately available and do not require any laboratory support. The categorization of the results of VIA or VILI depends upon the colour changes observed on the cervix. Abnormal areas of the cervix tend to turn acetowhite on application of acetic acid and thick mustard yellow or saffron-coloured on application of iodine. This guides the selection of patients who may need further intervention.

1.2.5 Management of precancerous lesions of the cervix and cervical cancer

There are two general management approaches to CIN: expectant versus immediate treatment. Treatment methods used may include; ablative methods (e.g. cryotherapy or laser ablation) or excisional methods (e.g. cold knife [scalpel], laser, Loop Electrosurgical Excision Procedure [LEEP], Large Loop Excision of the Transformation Zone [LLETZ]). A systematic review of 28 randomized and controlled trials showed that, in general, these techniques were equally effective, averaging approximately a 90 percent cure rate(29).

The choice of ablation versus excision is based on many factors, such as severity of disease, morbidity, adverse effects, and cost-effectiveness. Most importantly, excision treatment is

required if there is suspected glandular or invasive squamous disease or if there is uncertainty whether the colposcopy and biopsy accurately diagnosed the intraepithelial neoplasia.

See-and-treat protocols are usually performed in an office setting, using excision procedure, in at-risk populations based upon findings at colposcopy. Rather than having the patient await biopsy results and make a return visit the patient is treated based on immediate findings. This approach is an attempt to lower the 20 to 40 percent loss-to-follow-up rate with the traditional multi-visit management of CIN(30). The see-and-treat approach appears to be most valuable in women with high-grade lesions in whom reliable follow-up is compromised and overtreatment is least likely(31).

The treatment options for invasive cervical cancer vary with the stage of the disease and desire to maintain fertility. For early invasive cancer, surgery is the treatment of choice. This may range from laser surgery, cryosurgery or cold knife conisation to trachelectomy and hysterectomy. In more advanced cases, chemoradiation, radiotherapy or chemotherapy may be used in combination with surgery or alone. In patients with disseminated disease, chemotherapy or radiation provides symptom palliation. The treatment of cervical cancer frequently requires a multidisciplinary approach. Involvement of a gynaecologic oncologist, radiation oncologist, and medical oncologist may be necessary.

1.2.6 Contributors towards missed opportunities in cervical cancer screening programs

Literature shows that there are a number of factors that contribute to the increased rate of missed opportunities for cervical cancer screening. These include a combination of patient factors, provider factors, practice factors and access barriers.

A 2014 report from the US Centre for Disease Control and Prevention (CDC) found that 8 million women who should be getting screening tests for cervical cancer were not getting them(32). In the developed world, out of the women who had never heard of or never had a Pap smear, the overall most frequently reported reason for not having a recent test done was procrastination or not believing it was necessary. This is in spite of nearly 80 percent of the study

population having reported contact with a medical practitioner in the past two years, while more than 90 percent had reported contact in the past five years(33).

A WHO report from low-middle income countries showed that some of the health system related elements that interfere with the development of successful cytology screening programs include; over-reliance upon maternal and child health services for screening, as women in their target group are generally too young, opportunistic rather than organized screening, low coverage of the target group and setting too low a threshold for referral for colposcopy, i.e. over-treating non-progressive disease leading to reduced cost-effectiveness(34). Other studies generally showed patient related contributory factors such as; lack of knowledge about the services available, cost of services, perceived poor quality of services, fears or embarrassment about seeking services, misperceptions about the need for and value of screening, and community and interpersonal barriers(35).

In a study in rural Uganda in 2016, of the 900 womenaged between 25 and 49 years, only 43 (4.8%) had ever been screened for cervical cancer. Among respondents who were screened, 21 (48.8%) did so because they had been requested by a health worker, 17 (39.5%) had certain signs and symptoms they associated with cervical cancer while 16 (37.2%) did it voluntarily to know their status(36).

A study on missed opportunities for cervical cancer screening in South Africa showed that; 100% of the patients seen at the medical, surgical, orthopaedic clinics and casualty were not asked about a cervical smear. Only 2.1% of the patients had ever personally requested a cervical smear from a doctor. A total of 52% of the patients who had cervical smears performed were not given follow-up appointments for their cervical smear results. 32.3% of the patients who had cervical smears performed did not get their cervical smear results. 78.3% of the patients were not given any information regarding when their next cervical smear was due and 10% of the patients who had cervical smears performed after the interview had some form of cervical intraepithelial neoplasia(37).

In Kenya in 2014, knowledge of cervical cancer and likelihood of having a screening exam were found to be lowest among young women age 15-19 (59 percent and 2 percent, respectively), rural women (71 percent and 11 percent), women in North Eastern (5 percent and less than 1 percent), women with no education (33 percent and 3 percent), and women in the lowest wealth quintile (49 percent and 4 percent)(19).

At KNH in 2012, a comparative cross-sectional study comparing information from patients with early disease and those with invasive cervical cancer concluded that education, exposure to knowledge on cervical cancer, social economic status, the type of health facility attended previously, health-seeking behaviour, fear of adverse outcome of cervical cancer screening and social support within the community greatly affected whether a patient had an early diagnosis of cervical cancer or not(38).

In another cross-sectional study in Vihiga (rural Kenya) in 2015, involving 380 women of reproductive age, 68.2% of respondents said that accessibility to health facility largely influenced the decision of taking up cervical cancer screening among women. On education and awareness, 36.4% respondents said that it influences the uptake of cervical cancer screening. On social factors such as religion, 51.4% said that this factor did not influence the uptake of cervical cancer. On affordability, 56.7% said they cannot afford the treatment expenses that come with the diagnosisof cervical cancer at an advanced stage(39).

Morema et al in Kisumu, Kenya in 2014, concluded that knowledge, a perception of higher susceptibility and attending child welfare clinic are key determinants of self-reported uptake of cervical screening. Increasing knowledge, enhancing health education and providing free services may increase uptake among women population in such settings(10).

The following are some of the factors that have most commonly been identified as barriers to cervical cancer screening:

1.2.6.1 Cost

Although wide-scale cervical cancer screening has helped to decrease the incidence of the disease in developed countries, this has come at a massive cost, which appears prohibitive for developing countries with low-resource settings(37). Cervical cancer prevention efforts around the world require multiple visits for screening, confirmatory diagnosis, treatment, and follow-up, compounding both financial and opportunity costs to women and contributing to high attrition rates. Cytologic screening requires an established laboratory, highly-trained cytotechnologists, and up to 3 visits for screening, evaluation of cytologic abnormal results, and treatment. In low-resource settings, such a strategy has proven difficult to implement and sustain(40).

Recently, a novel approach to cervical cancer prevention has been proposed that avoids the complex health infrastructure required by traditional approaches. This approach incorporates non–cytology-based screening methods such as human papillomavirus (HPV) DNA testing or visual inspection with acetic acid (VIA) followed by treatment using cryotherapy of all eligible women with positive test results(41). The screen-and-treat approaches described herein have advantages for low-resource settings because they are not cytology-based screening programs and they do not require colposcopy services, which overcome 2 of the greatest barriers to cervical cancer prevention(41).

1.2.6.2 Lack of information/education

In a study among college students in Ghana, women were unaware of local screening initiatives and only 7.9% were aware of the link between HPV and cervical cancer. The most prevalent barriers were lack of awareness that the purpose of pap screening is to diagnose cancer, concerns about what others may think, and lack of information about how to obtain screening services. Although women perceived the benefits of screening, only about half perceived themselves to be at risk(42).

Knowledge of cervical cancer and Pap smear tests is related to women's socioeconomic status. Knowledge is limited among women with low socioeconomic status (i.e. low incomes, primary education, and unskilled work). Reasons for limited knowledge includes cultural norms of secrecy, providers not informing the public, and policymakers' limited attention to cervical

cancer(43).In another study in Botswana women further stated that they are not given adequate information about cervical cancer and the importance of early detection. Comments such as 'No one tells us anything' and 'No one explains anything to us' were used by the majority of the respondents(43).

1.2.6.3 Long waiting times and turn around for services at the facilities

A weakness in many screening programs has been the link between screening and treatment, and especially ensuring access to treatment in a timely manner. Data clearly show that the longer the gap between the screening test, obtaining the test result, and obtaining treatment services, the more a program suffers from "loss to treatment"—women who screened positive but never returned for treatment, and who one day may find themselves suffering from invasive cervical cancer(44).

In Malaysia, while only 10 to 20% of people can afford health care from a private provider, an overall larger proportion of all health care personnel work in the public sector. In general, one has to be prepared to wait long hours in public hospitals and clinics, which could be a strong barrier for women with respect to attending cervical screening(45).

1.2.6.4 Lack of effective screening services

Although cytological screening is being carried out in some developing countries/regions, there are no organized programmes and the testing is often of poor quality and performed inadequately and inefficiently among the population. As a result, there has been a very limited impact on the incidence of cervical cancer, despite the large numbers of cytological smears taken in some countries such as Cuba and Mexico(46). Njiru et al, in 2016, found that the opportunistic screening approach, inexistence of a functional referral system, poor reporting, monitoring and supervision on visual screening were key screening challenges in Kenya(47)

Efforts to organize effective cervical cancer screening programmes in developing countries will have to find adequate financial resources, develop the infrastructure, train the needed manpower, and elaborate surveillance mechanisms for screening, investigating, treating, and follow-up of the targeted women(46).

Choosing a suitable screening test is only one aspect of a screening programme. A more fundamental and challenging issue is the organization of the programme in its totality. Whichever screening test is to be used, the challenges in organizing a screening programme are more or less the same(46).

1.2.6.5 Social and Cultural beliefs

In some settings the beliefs and attitudes towards prevention services are limiting, for example, women interviewed in Kenya reported that it is often problematic for a woman to go to a health clinic to be screened if she is "feeling healthy," as she must convince her partner to get money for transport when she is not visibly ill(48). Furthermore, results from the PAHO analysis of qualitative studies in Latin America and the Caribbean suggest that women generally do not distinguish among types of cancer affecting women's reproductive organs and, therefore, do not readily understand that cervical cancer is a preventable disease(48).

In many project settings, women sometimes erroneously believe that cervical screening tests also are used to detect STIs or HIV, and thus, may decide not to get screened. In South Africa, for instance, women often believe that a positive screening test means that they have AIDS(48). Women have reported that although some of their relatives had died from cervical cancer, the disease was kept secret from them because in their culture, 'anything that has to do with reproductive organs is a taboo subject.'(43).

1.2.6.6 Fear of unfavourable outcome

Women believe that cervical cancer is a serious disease because it is a cancer and hence fatal (50%), incurable (57%), and it may lead to hysterectomy (removal of a womb) (37%). Women who expressed that cervical cancer is fatal attributed its high mortality rate to its late discovery. For example, some woman said, 'By the time it is detected, you know you are going to die.' Other women believed that even if cervical cancer was detected early, 'it could not be cured by any means.'(43).

1.2.6.7 Lack of access to facilities

Access to healthcare services is critical to good health, yet rural residents face a variety of access barriers. A 1993 National Academies report, Access to Healthcare in America, defined access 'as the timely use of personal health services to achieve the best possible health outcomes'(49). The inequitable situation in resource-poor countries, where gender, age, socio-economic status and geographical location intertwine with poor and ineffective health systems to create serious challenges in accessing healthcare(50).

Primary healthcare facilities, where preventative healthcare such as cervical screening should be located, are limited, under-resourced and over-burdened in most developing countries. Most low-resource countries have very limited cancer diagnostic, treatment and palliative care services. A contributing factor to limited access to healthcare in poor countries is the urban/rural bias, which is extreme in sub-Saharan Africa(11). While 87% of the region's urban population has access to health services, more than 50% of the people in most sub-Saharan Africa countries live more than 10 km from the nearest primary care centre(11).

1.2.6.8 Poor conditions at the facilities

Conditions at the facility determine women's satisfaction with the services they receive. Frequent equipment stock-outs or malfunctions mean that women are unable to receive their scheduled screening or treatment, and they may be unable or unwilling to return for another visit(35). Staff overwork and lack of training can result in incompetence and unfriendliness, and some women report that the facilities or equipment appear unclean(35).

2.0 PROBLEM STATEMENT AND JUSTIFICATION

Since its introduction in the 1950s, cervical cancer screening has been considered one of the great success stories in cancer prevention in the developed countries, leading to a dramatic decrease in what used to be the top cause of cancer deaths in women(51). In contrast, cervical cancer remains largely uncontrolled in high-risk developing countries because of ineffective or no screening.

According to the WHO, the incidence of cervical cancer is about four times greater in the developing world than elsewhere. Cervical cancer screening has been simplified with the introduction of visual inspection as a screening method. VIA/VILI test is easy to perform, is low cost and requires minimum resources. This has still not improved the screening rates as previously anticipated. This raises the question as to why, despite the availability of screening centres, women fail to seek cervical cancer screening services.

The estimated number of cervical cancer cases in Kenya each year is still very high. It has been reported that there are 10 to 15 new cases of cervical cancer in Nairobi alone each week(18). Despite the magnitude of the problem and the fact that it is easily preventable, the cervical cancer screening coverage in Kenya for all women 18 to 69 years of age is only 3.2%(6).

This study therefore aimed to determine the prevalence, barriers and facilitators of cervical cancer screening for patients attending gynaecology outpatient clinics in Nairobi County. This would help in identifying the gaps contributing to the low uptake of cervical screening services and thus improve our probability of attaining the targets set in the National Cervical Cancer Prevention Strategic Plan (2012 -2015), of achieving at least 70% coverage. The information would also assist in providing a clear strategy in relation to the reduction of the number of cervical cancer-related deaths in the country.

3.0 STUDY QUESTION

3.1 Study question

What is the prevalence, barriers and facilitators ofcervical cancer screening in the selectedgynaecology outpatient clinics in Nairobi County, Kenya?

4.0 CONCEPTUAL FRAMEWORK

4.1 Conceptual framework diagram

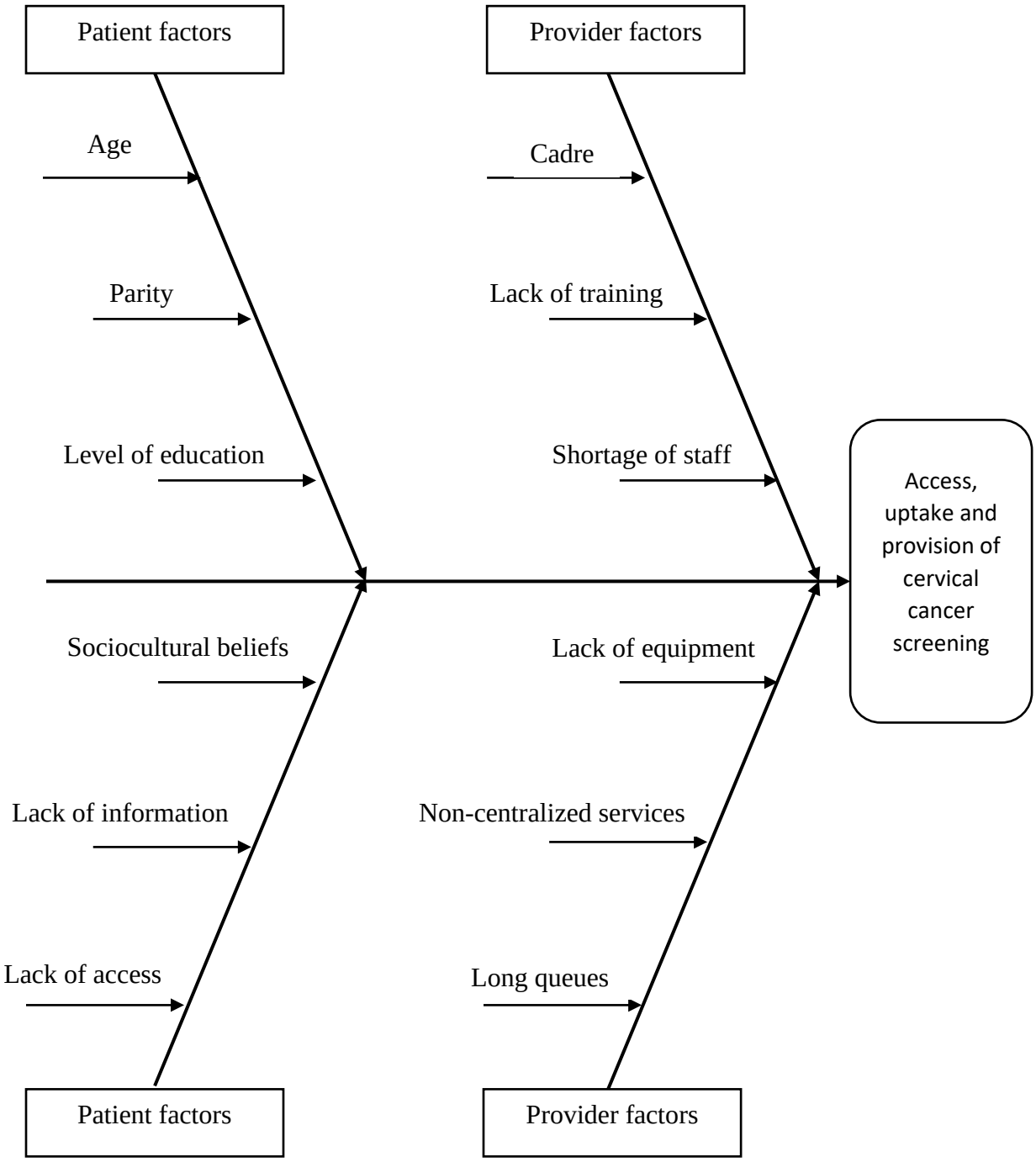

Figure 2: Conceptual framework diagram

4.2 Conceptual framework narrative

There are various independent variables that determine the uptake of cervical cancer screening services. These may be provider or patient initiated barriers or facilitators of cervical screening. The utilization of screening services may be dependent on these factors which may either lead to increased or decreases prevalence rates of screening. The following was hypothesized at the beginning of the study:

Lack of information

Women's knowledge of cervical cancer and the importance of screeningmay affect utilization of cervical cancer screening services. It may be a major hindrance in providing screening services in Nairobi.

Level of education

A woman's level of education may affect her understanding and decisions based on the information provided about cervical screening. She may also have less access to information.

Lack of access

Distance from a screening facility may hinder the ability to access screening services whether a lady is seeking services or not. This may even apply in an urban setting due to variables such as transportation costs.

Sociocultural beliefs

The beliefs about cervical cancer and cervical screening have been noted to be widely varied. This depends on one's circle of influence. They may be as a result of lack of information from the right sources or may simply be deeply rooted beliefs that are difficult to change.

Provider-related barriers

Lack of training, shortage of staff, non-centralized services and lack of equipment are all variables that heavily rely on hospital administration, local and central government. Without the support of these bodies, screening may be impossible or only accessible to a privileged few.

5.0 OBJECTIVES

5.1 Broad objective

To determine the prevalence, barriers and facilitators of cervical cancer screening in selected gynaecology outpatient clinics in Nairobi County from June to October 2018.

5.2 Specific objective

1) To determine the prevalence of cervical cancer screening in the selectedgynaecology outpatient clinics in Nairobi County.
2) To determine the patient and provider-related barriers to cervical cancer screening in the selectedgynaecology outpatient clinics in Nairobi County.
3) To determine the patient and provider-relatedfacilitators of cervical cancer screening in the selectedgynaecology outpatient clinics in Nairobi County.

CHAPTER TWO
MATERIAL AND METHODS

1. Introduction

This section covers the research design and methodology, including sampling method, study population, data collection, data analysis and ethical considerations.

2. Study design

The study adopted a descriptivecross-sectional study design using a structured questionnaire that was administered through personal interviewing of the patients and health care workers in the various departments of interest. Cross-sectional studies are generalizable because they are representative of given populations, quick and cheap as there is no follow up and fewer resources are required to run the study(52). They are the best suited in determining the prevalence and are useful in identifying associations that can then be more rigorously studied using a cohort study or randomized controlled study(52).

3. Study site

The study site was the gynaecology outpatient clinics at the Kenyatta National Hospital, Mama Lucy Kibaki County Referral Hospital and Mbagathi District Hospital. All three are government hospitals in Nairobi County. The county is the capital city of Kenya. It has a population of 3,078,180 of whom 49.2% are female. There are 2,100,926 people between the age of 15 and 64 years(53). There are 4 public hospitals in the county and 78 health centres as well as numerous private hospitals and clinics.

The Kenyatta National Hospital (KNH) is the oldest and largest hospital in Kenya. It is a public, tertiary, referral hospital for the Ministry of Health. It is also the teaching hospital of the University of Nairobi, College of Health Sciences. The hospital is located in Upper Hill area in Nairobi, the capital and largest city of Kenya. KNH was founded as the Native Civil hospital, in 1901 with a bed capacity of 40. In 1952 it was renamed the King George VI Hospital and later renamed Kenyatta National Hospital following independence. It currently has a bed capacity if 1,800. However, due to congestion, the patient numbers can rise as high as 3,000. The gynaecology outpatient clinics are run from Tuesday to Thursday every week at clinic 18 with

approximately 70 patients seen every week. The department of reproductive health also provides screening and family planning services among other services at clinic 66 from Monday to Friday. Approximately 90 patients are seen here every week. Pap smears and visual inspection screening services are available here.

Mbagathi District Hospital is situated in Kibra area of Nairobi County. It was built in the 1950s as "Infectious Diseases Hospital" (IDH) under the then "King George VI Hospital," currently Kenyatta National Hospital to offer health care services, mainly for infectious diseases which required isolation. In the year 1995, it was transformed into an autonomous District Hospital for Nairobi. It has a bed capacity of 250 bedsoffering specialized services for both outpatient and in-patient cases.The gynaecology outpatient clinics run every Friday with approximately 40 patients seen every month. The department of reproductive health provides screening services through their gynaecology outpatient and family planning clinics. Only visual inspection is available here.

Mama Lucy Kibaki Hospital is a government county referral hospital serving the residents of Nairobi's populous Eastland's area. The institution was established in 2011 but officially opened in 2013 and is located in Embakasi division. It was built to reduce the pressure on the Kenyatta National Hospital which was previously serving the Nairobi area residents. The hospital has a bed capacity of 112 offering specialized services for both outpatient and in-patient cases. Mama Lucy runs 2 clinics per week, whereby the GOPC and HRC are combined and they attend to an average of 45 gynaecology patients every week. The department of reproductive health provides screening services through their family planning clinic. Only visual inspection is available here.

The three health facilities generally use the same criteria for cervical cancer screening. They screen clients prior to IUCD insertion and those who have been referred from other clinics or hospitals by other health care workers sometimes based on their symptoms, other times based on the various protocols the clinicians may be following. There are also clients who walk in and request for screening services.

Table 1: Characteristics of the selected gynaecology outpatient clinics

	Mbagathi Hospital	**Mama Lucy Hospital**	**KNH Clinic 18**	**KNH Clinic 66**
Screening method available	VIA/VILI Only	VIA/VILI Only	Pap smear Only	VIA/VILI & Pap Smear
Approximate number of patients seen in GOPC per week	30	45	74	92
Approximate number of screening tests done per month	10	16	41	Pap Smear: 89 VIA/VILLI: 150
Ability to screen patients in the same room the patient is seen	None, performed in FP room	None, performed in FP room	Yes	Yes
Cost in Kenya Shillings	100	200	1,100	VIA/VILI: 500 Pap Smear: 1,100

4.Study population

These were women aged 21 to 65 years attending gynaecology outpatient clinics at the Kenyatta National Hospital, Mbagathi District hospital and Mama Lucy Kibaki County Referral Hospital. The choice of this age range was based on the following reasons: 1. Out of the main screening protocols available, the earliest current recommended age to start cervical cancer screening is 21 years(54). 2. The age of 65 years has been chosen because most women who have exceeded this age and have a history of adequate screening with negative results are not likely to develop cervical cancer(54). Three key informants were also randomly selected from the clinical staff involved in screening in each clinic.

5. Selection and enrolment of study participants

5.1 Inclusion criteria

Women aged 21 years to 65 years.

Women who had given written consent to participate in the study.

5.2 Exclusion criteria

Women with already diagnosed cervical cancer.

Women referred from other facilities due to suspicion of cervical pathology.

6.Sample size calculation

Fisher formula was used to determine the sample size as follows:

$$N=\frac{z^2_{1-\alpha/2} \times p(1-p)}{d^2}$$ (Fisher's et al., 1998)

N=Minimum sample size.

***α*=**Level of significance (**0.05**)

$Z_{1-\alpha/2}$= Standard normal deviate at 95%, confidence interval (**1.96**)

P= Proportion in the target population with a specific characteristic (**46.8%** = prevalence of missed opportunities in a South African study by DS Mphatsoe & MK Pather)(37)

d=Absolute precision (Error margin), (**0.05**).

Therefore $N=1.96^2 \times (0.468)(0.532)/0.05^2$

N = 197

The minimum required sample size is **197.** However, allowing for an average of **10%** non-response the sample size was adjusted upwards to **220.**

7. Sampling method and recruitment

A total sample of 220 patients as calculated in section 6.6 above was selected from the three sampling units in the assigned hospitals; the sampling unit was therefore the individual clinic providing gynaecology outpatient services. Sampling was done proportionately according to the average number of patients normally seen at the various clinics. Multi-stage sampling technique was used.

Stage 1

Purposive selection of the study sites to cater for the heterogeneous population accessing these services at these sites.

Stage 2

Stratification of the facilities based on the average number of patients reviewed in the reproductive health provision units per annum as follows:

KNH = 3,120

Mama Lucy Hospital = 726

Mbagathi Hospital = 482

(DHIS Kenya, 2016)

Stage 3

Allocation of the study participants was based on the weighted averages as in Table 2 below.

Table 2: Allocation of the study participants based on weighted averages

Facility	**Number of patients**	**Sample size = x/x+y+z*220**
KNH	3120	159
Mama Lucy Hospital	716	36
Mbagathi District Hospital	482	25

Stage 4

Random sampling of the actual number of participants based on the number of clinic days per week using random sample tables. This was estimated to take 3 months.

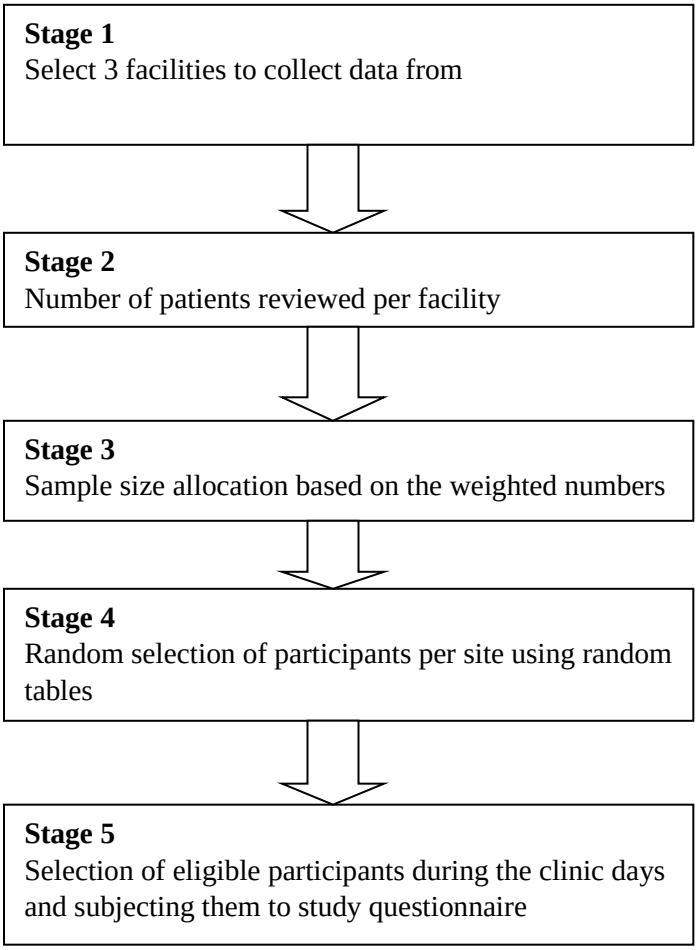

Figure 3: Flow chart showingthe sampling process

8. Data collection

A structured questionnaire (annexe 2 and 3), was used to collect data. Data on patient and provider factors was collected from the patients and key informants among the health care workers. Once collected, the data was entered in to excel computer software and transcribed into Stata software version 15 for cleaning and analysis.

9. Data management and analysis

Quantitative data from questionnaires was checked daily for completeness and coded for appropriate computer entry. Equivalent responses were pooled to arrange the response in different categories. Data was entered into Stata Statistical Software, Release 15, for data cleaning and analysis. The study utilized univariate, bivariate and multivariate analysis.

In univariate analysis, frequency distributions showed the distribution of the study population by background characteristics such as age, parity and socioeconomic status; this was represented in forms of means, medians and standard deviations around the mean. In bivariate analysis, cross-tabulations were used to measure the association between the factors influencing utilization of cervical cancer screening services and uptake of cervical cancer screening services. Chi-square values were used to test the significance of the association for categorical data while students T-test were used to test the association between outcome variables and continuous independent variables. The results were then presented using tables, graphs, pie charts and figures. A p-value of 0.05 was taken to be statistically significant.

10. Data Variables

The study assessed the following domains: demographics, personal and family history of cervical cancer and cervical cancer screening, knowledge about cervical cancer screening, and potential barriers and facilitators to cervical cancer screening.

Demographic variables included age, county/country of origin, religion, marital status, education, income, occupation and parity. Patients were then asked about their history of screening and experiences they had encountered at the facilities. Key informants among the health care workers assisted with provider related data. Examples of outcome variables for barriers to cervical screening included cost, lack of access to facilities, poor condition of facilities, lack of information among others, while those for facilitators included, recommendation by a health care worker, availability of screening equipment, a family history of cervical cancer among others.

11. Ethical considerations

Permission was sought from the KNH / UoN Ethics Research Committee to carry out this study as part of the UoN thesis dissertation. Copies of this protocol, the informed consent form as well as any modifications that arose were presented to this committee for written approval prior to commencing the study. Permission was obtained from the three hospital administrations and informed, written consent obtained from the participants before the study commenced.

All information was handled with uttermost confidentiality throughout the tenure of the study, held in trust by the investigator, research assistants and the study institution. A password protected computer with access by the primary investigator and research assistant was used. The participants were given study identification numbers and no information concerning the study participants was released to an unauthorized third party without the prior written approval of the study institution or the Ethics Research Committee.

All patient information and identifiers were delinked from the collected data before sending to the data analyst. The study findings were presented to the University of Nairobi, Department of Obstetrics and Gynaecology as part of the requirement of the Master of Medicine course.

12.Study limitations

Study participants may have had recall bias when filling the questionnaire. This is because they were required to remember their medical history and social history in regards to cervical cancer screening and risk factors. This may have been especially difficult for the older participants.

There may have been selection bias due to the special population used, that is, those seeking health services at the GOPC. They may have been more likely to seek screening services and thus may not represent the general population

There was no standardized protocol for cervical cancer screening in the facilities chosen. This meant that it was difficult to satisfactorily compare the adherence to the internationally expected screening timelines as the patients were following varied recommendations.

CHAPTER THREE

RESULTS

1.Sociodemographic characteristics

A total of 220 women who met the study criteria were recruited in the study. This was conducted between the months of June and October 2018. The participants comprised of 25 women from Mbagathi District Hospital (11.4 %), 36 women from Mama Lucy County Referral Hospital (16.4 %) and 159 women from Kenyatta National Hospital (72.3 %). The baseline socio-demographics were similar across the three sites.

The median age of the study participants was 38 years at Mama Lucy hospital while that of KNH and Mbagathi was 33 years with a mean age of 36.1, 35.3 and 34.7 years respectively. Majority of the patients were in their 20's and 30's with 75.0% of the women aged 40 years and below.

More than 68.0% of all the participants were married while single ladies ranged from as low as 11.1% in Mama Lucy to 26.4% in KNH. Although 96.0% of all the women had an income of less than Ksh 50,000, the majority of the participants had a monthly income of between Ksh 10,000 and 50,000. Most were businesswomen by occupation.

Most of the participants had only read either up to primary or secondary school. Of note is that there were almost no participants with no formal education,. Mama Lucy had the most women who had read up to secondary school at 52.8%. This was a predominantly Christian population with more than 94.0% of all participants being of Christian background.

Table 3: Sociodemographic characteristics of women attending the selected gynaecology outpatient clinics

Sociodemographic Characteristics	**Mbagathi n=25 (%)**	**Mama Lucy n=36 (%)**	**KNH n=159 (%)**	**P value**
Age				
Mean (standard deviation)	34.7 (8.8)	36.1 (9.6)	35.3 (10.0)	
Median (interquartile range)	33.0 (12.0)	**38.0 (17.5)**	33.0 (12.0)	0.612
Marital status				**0.007**
Divorced/Separated	3 (12.0%)	3 (8.3%)	8 (5.0%)	
Married	**17(68.0%)**	**26 (72.2%)**	**109 (68.6%)**	
Single	5 (20.0%)	4 (11.1%)	42 (26.4%)	
Widowed	0 (0.0%)	3 (8.3%)	0 (0.0%)	
Occupation				0.583
Business woman	**10 (40.0%)**	**17 (47.2%)**	**72 (45.3%)**	
Formal with salary	6 (24.0%)	5 (13.9%)	32 (20.1%)	
Informal with wages	3 (12.0%)	3 (8.3%)	10 (6.3%)	
Unemployed	6 (24.0%)	11 (30.6%)	45 (28.3%)	
Income				0.924
0	6 (24.0%)	11 (30.6%)	45 (28.3%)	
<10,000	7 (28.0%)	10 (27.8%)	42 (26.4%)	
10-50,000	**11(44.0%)**	**14 (38.9%)**	**68 (42.8%)**	
50-100,000	1(4.0%)	1 (2.8%)	2 (1.3%)	
>100,000	0(0.0%)	0(0.0%)	2 (1.3%)	
Level of Education				0.090
Cert/Dip	5 (20.0%)	4 (11.1%)	44 (27.7%)	
DEG/PG	4 (16.0%)	3 (8.3%)	14 (8.8%)	
No formal education	1 (4.0%)	0 (0.0%)	2 (1.3%)	
Primary	**10 (40.0%)**	10 (27.8%)	**50 (31.5%)**	
Secondary	5 (20.0%)	**19 (52.8%)**	49 (30.8%)	

The Fisher's exact test was used to check whether the sociodemographic characteristics are statistically significantly different across the different groups. The p-value has been reported above and the level of significance was<0.05.

2. Prevalence of cervical cancer screening

Out of a sample of 220 women, only 87 had ever been tested for cervical cancer before the date of the interview while 133 women had never been tested. This gives an overall prevalence of 39.6% for cervical cancer screening. Mama Lucy had the highest number of women who had ever been screened at 41.7% while Mbagathi had the lowest at 32.0%.

Table 4: Prevalence of cervical cancer screening

Ever been tested for Cervical Cancer	**Mbagathi n=25**	**Mama Lucy n=36**	**KNH n=159**	P value
Yes	8 (32.0%)	**15 (41.7%)**	64 (40.3%)	0.706
No	17 (68.0%)	21 (58.3%)	95 (59.8%)	

Prevalence of cervical cancer screening was not found to be statistically significantly different across the three facilities both when all three were compared or when any two were compared with each other. When Mbagathi was compared to KNH, P value was = 0.432, Mbagathi compared to Mama Lucy, P value = 0.444 and Mama Lucy compared to KNH, P value = 0.876.

Out those who had ever been screened before, the youngest age at commencing screening was at 18 years while the oldest commenced at 63 years. The mean age at which the participants were first screened was 33.8 years (Standard Deviation= 8.8) and the median was 33.0 years (interquartile range 12.5).

Though slightly more than half (50.6%) of the women who had been screened had only been screened once in their lives, as shown in figure 4 below, 64.0% had been screened at least once in the last 12 months and only 15.3% had been tested more than 3 years prior to the date of the interview.

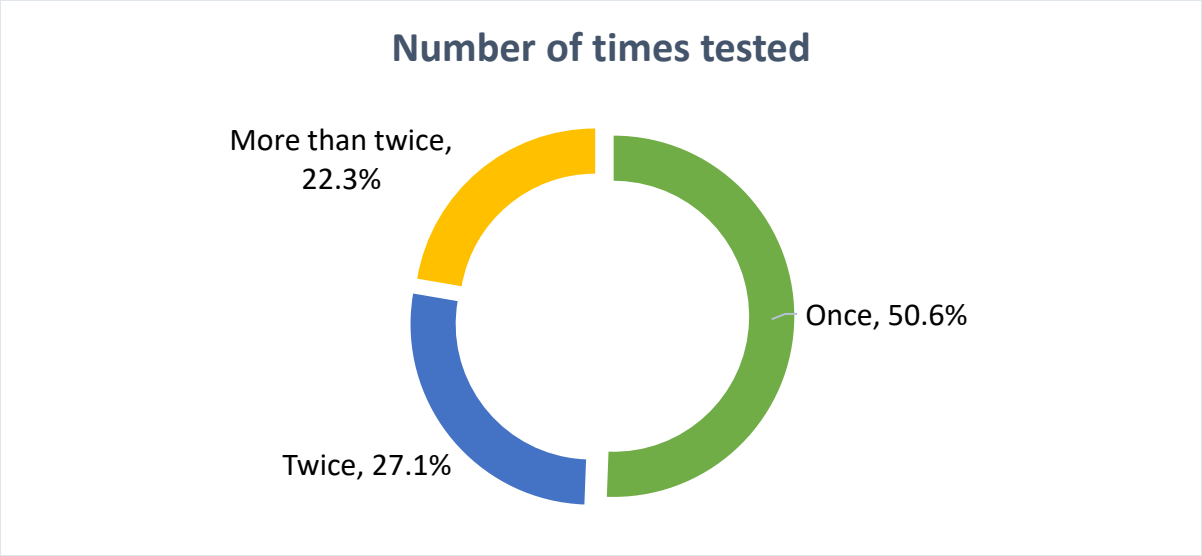

Figure 4: Pie chart on the number of times the participants had been screened before

Out of all the women who had previously been screened, 58 had been done for pap smears, 18 visual inspection, 10 didn't know what test had been done and 1 had done a HPV test.

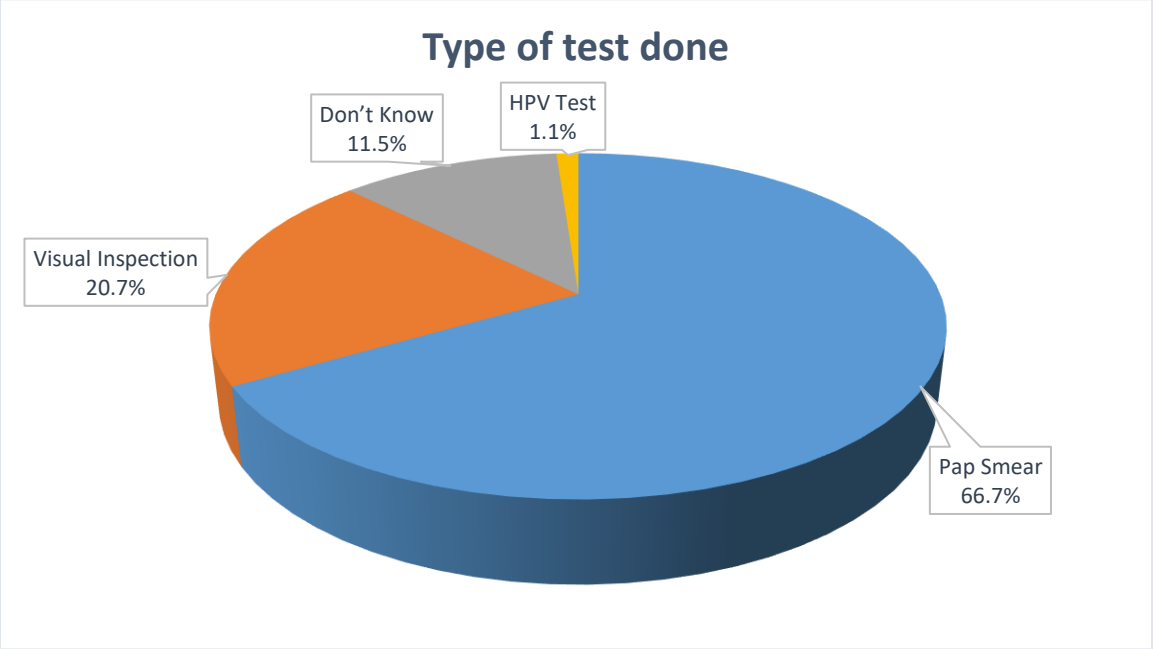

Figure 5: Pie chart on the type of screening test done

Majority of the participants (93.2%) reported no family history of cervical cancer in their extended families. The youngest reported age of sexual debut was 13 years and the oldest 31

years. The mean age of sexual debut was 20.1 years (Standard deviation 3.6) and median of 20 years (Interquartile range of 4). Eleven patients were not willing to disclose or could not remember their age at sexual debut while eight reported no prior sexual activity. Thirteen women out of the total sample of women reported being HIV positive. Out of these women, 10 (76.9%) had been screened for cervical cancer by the time of the study and only 3 (23.1%) had never been screened.

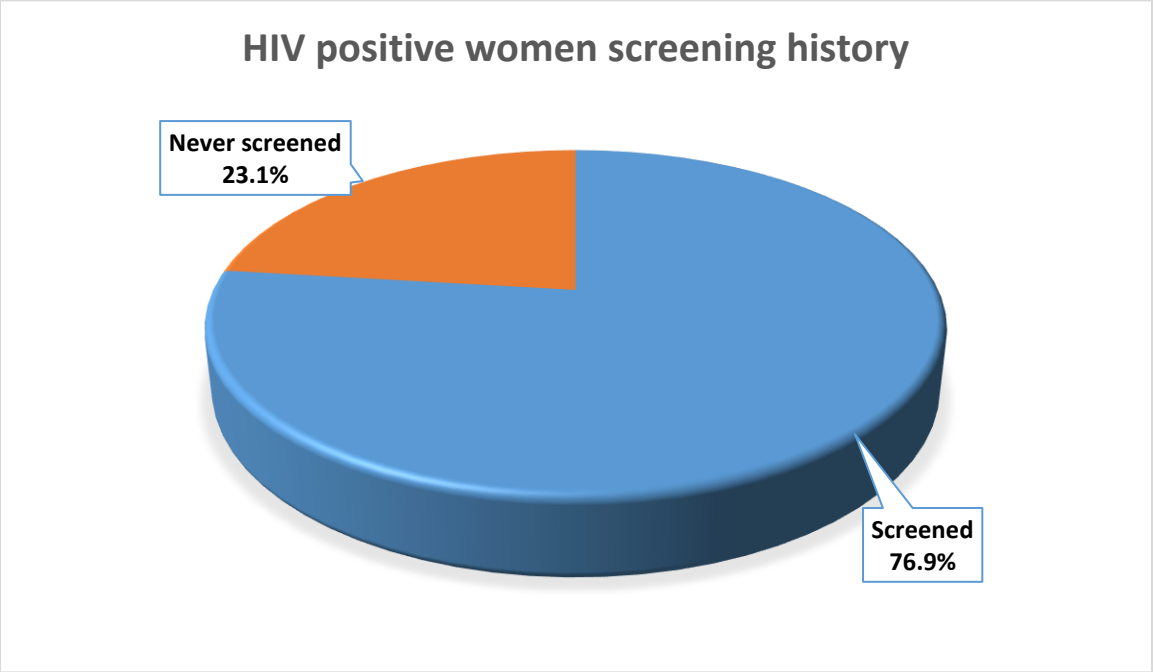

Figure 6: Pie chart on screening history of HIV positive women

3. Barriers to cervical cancer screening

Most patients (51.8%) reported fear of unfavourable results as the main reason they believe most women do not go for screening. This was closely followed by a lack of awareness (48.2%) and fear of the procedure or pain (26.4%). Figure 7 below shows the barriers mentioned by the respondents and the percentage of respondents who mentioned a particular barrier. Respondents were free to mention more than one barrier.

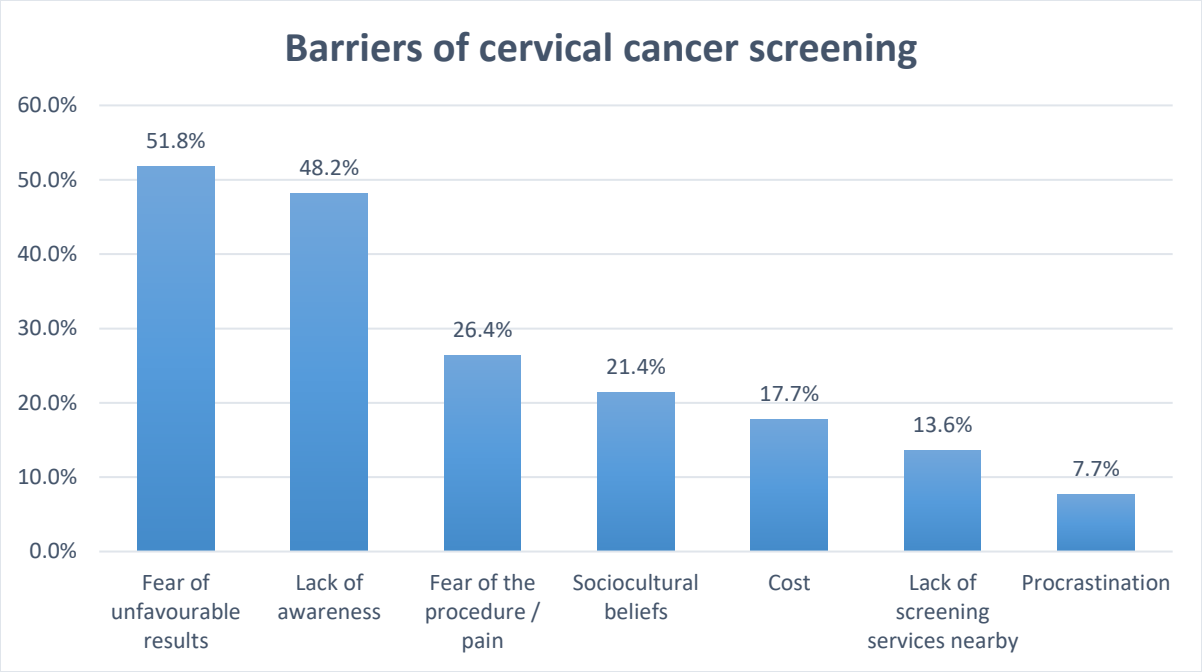

Figure 7: Bar graph on the barriers of cervical cancer screening as reported by the women attending the selected gynaecology outpatient clinics

Many of the above barriers can be related to missed opportunities for counselling patients about cervical cancer by health care staff. This is illustrated as follows; All the participants recruited for the study had attended the clinic at least once, with 50.0% having attended only once, 35.0% between 2 and 4 times and 33.0% having attended 5 times or more. Despite this, only 22.7% had ever been recommended to go for cervical cancer screening during any of their clinic visits. When those screened before were asked whether they were advised on when to return for testing next, 44 (50.6%) reported they were appropriately advised while 43 (49.4%) reported they were not informed. It is important to note that there was no standardised written screening protocol was being followed in any of the facilities.

Out of the 87 participants who had been screened before, many were not necessarily screened at the same facility they attended their clinics. When the patients were asked where they last received screening services, 20 (23.0%) reported to have been screened at KNH, 4 (4.6%) had been screened at Mama Lucy hospital and the remaining 63 (72.4%) were screened at other health facilities. Mbagathi Hospital had not screened any of the participants of this study by the

time of the study. They reported that they had lacked the necessary screening equipment for most of the year.

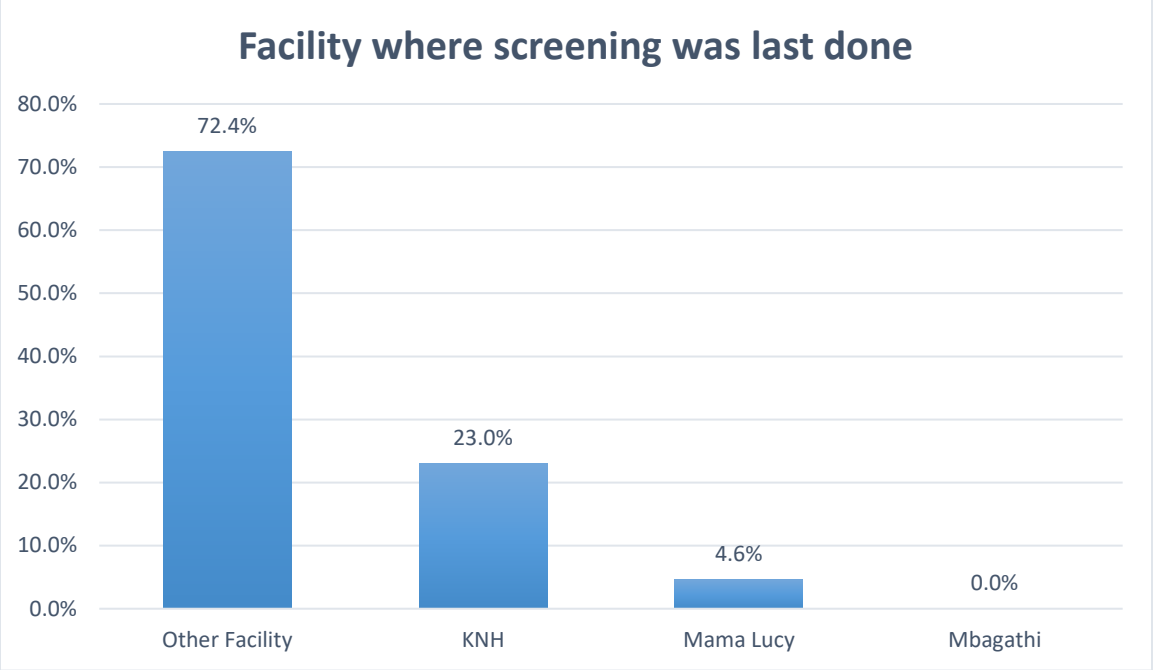

Figure 8: Bar graph showing the facilities where the participants were last screened

3a. Knowledge on cervical cancer screening

A total of 197 (89.6%) women had heard of cervical cancer screening before, while only 23 (10.5%) reported having never heard of the practice. This is a fairly significant number of women who had never heard of the screening service. Out of those who had heard of cervical cancer screening before, themajority had either been initially informed in a hospital/clinic setting (30.5%) or had received the information from television, radio or poster advertisements (32.0%).

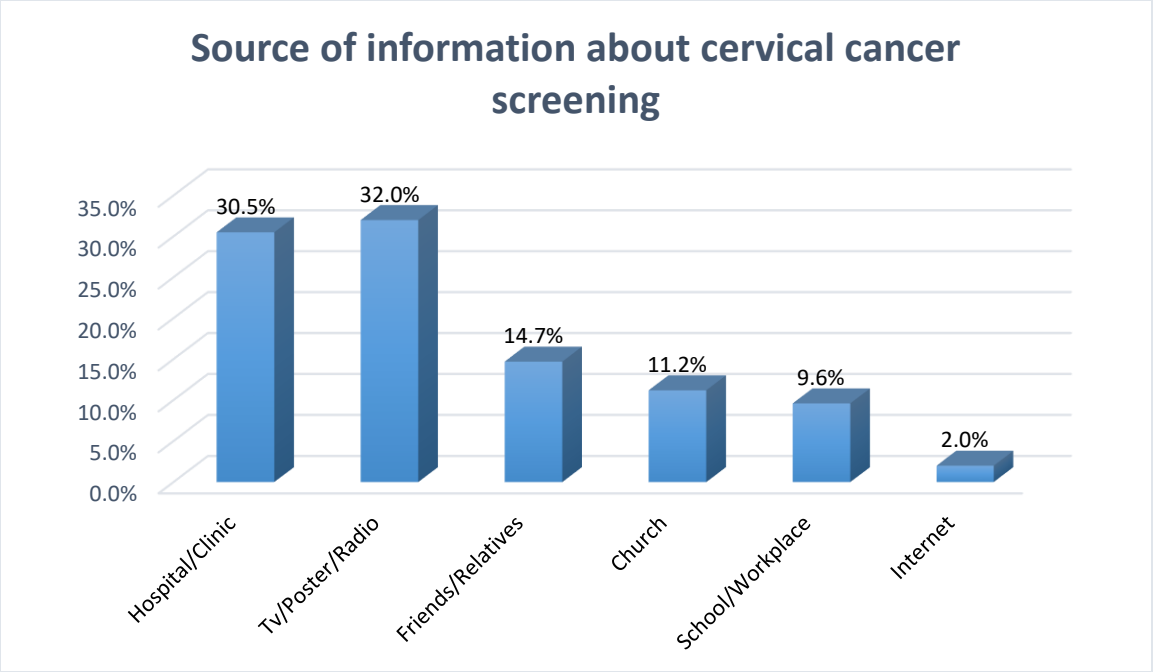

Figure 9: Bar graph showing the source of information of the study participants about cervical cancer screening

When the participants were asked why they thought cervical cancer screening was done, those who answered appropriately i.e. to check for cervical cancer or early changes of the disease were 171 (77.7%). The remaining 49 (22.3%) women mainly reported, checking for infections as the reason why screening was done or didn't know. It was noted that 64.1% of the women thought the disease was preventable, 8.6% thought it was not preventable and 27.3% didn't know whether it was preventable or not.

A majority of the participants had an idea on the various frequencies of cervical cancer screening test with 39.1% reporting it should be done at least once annually, 6.4% every 3 years, 0.9% every 5 years, 37.3% didn't know while 16.4% reported a duration of more than 5 years.Although a response of 5 years and below was considered as an accurate response due to the varied methods of screening used, 53.6% of the respondents either didn't know or thought screening should be done after more than 5 years.

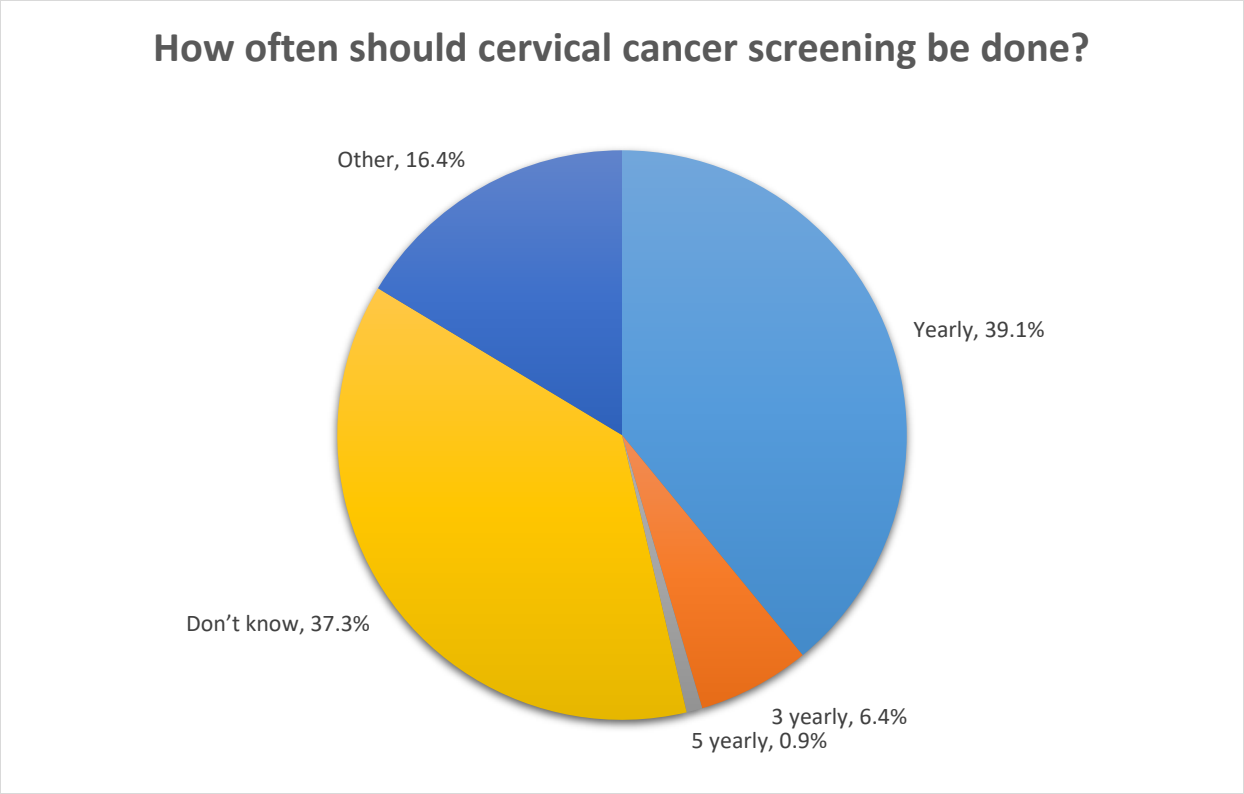

Figure 10: Pie chart on the knowledge of the frequency of cervical cancer screening

3b.Challenges faced by patients when seeking screening services

A total of 19 (8.6%) women reported to have gone to a hospital for cervical cancer screening and had been sent back without being screened for various reasons. This included personal reasons such as per vaginal bleeding or infection and fear of the procedure and provider reasons such as materials being out of stock as shown inTable 5 below. 15.8% of this group reported having been turned away from KNH, another 15.8% from Mama Lucy, 5.3% from Mbagathi and 57.9% from other facilities.

Table 5: Challenges faced when seeking cervical cancer screening services at the various screening facilities

Challenge faced	**No. of patients, n=19 (%)**
Patient related	
Fear of the procedure	3 (15.8%)
Infection / Bleeding	1 (5.3%)
Provider related (as reported by the patients)	
The materials were out of stock/ clinician not available	6 (31.6%)
The queue was too long	4 (21.1%)
It was time to close the clinic	3 (15.8%)
Charges too high	2 (10.5%)

For those who attempted and failed, only 8 (42.1%) were advised on when to return while 11 (57.9%) went home without any counselling on future screening.

There was a general sense of dissatisfaction when it came to counselling about cervical cancer screening by hospital staff as 152 (69.1%) women seen, felt that the hospital staff did not share enough information with them about cervical cancer in any of their clinic visits.

3c.Challenges experienced by the health service providers

At Mbagathi hospital the challenges reported by the key informants included, lack of the necessary equipment and materials such as Lugol's Iodine which had been out of stock for six months prior to the time of the interview. They reported that there were also very few trained personnel.

At Mama Lucy hospital, only 3 IUCD insertion packs/speculums were available per day limiting the number of clients who could be attended to per day. The family planning room was shared for both screening purposes and running the family planning clinic. There was limited space for both services to sufficiently run concurrently. There was only one nurse available per clinic for both services. In addition, there were no disposable speculums, the bed was not adjustable and there was no examination light hence forcing the staff to use their phones torches.

At Kenyatta National hospital, the challenges facing the two clinics were almost similar. The unavailability of the required supplies,for example, Pap smear kits had been out of stock for three weeks prior to the time of the interview. There was also a long delay in getting the Pap smear results and patients had to wait for up to a month to get their results.

A description of the equipment and materials available for performing the various screening exams is provided in annex 7.

4.Facilitators of cervical cancer screening

Table 6 below summarises the association between various factors and cervial cancer screening.

Note: Chi square test of association was used and the level of significance was < 0.05.

Table 6: Bivariate analysis of the factors influencing cervical cancer screening

Variable	**Ever Been tested for cervical cancer**		**P value**
	Yes (n)	No (n)	
HIV Status			
Negative	76	126	0.006
Positive	10	3	
Education Level			
Primary	35	35	0.051
Secondary	31	42	
Certificate/ Diploma	16	37	
Degree/Postgraduate	5	16	
Family History of Cancer			
Yes	10	5	0.029
No	77	128	
Knows why Cervical Cancer screening is done			
Yes	77	94	0.002
No	10	39	
Number of times Recommended by health worker			
At least once	31	19	0.001
Nil	56	114	
Knowledge on whether cancer is preventable			
Yes	49	92	0.049
No	14	5	
Don't Know	24	36	
Income level			
0	20	42	0.655
<10,000	26	33	
10-50,000	38	55	
50-100,000	2	2	
100,000	1	1	

The study participants who were HIV positive were more likely to be screened for cervical cancer (P values = 0.006). This was also the case for those who had been recommended by a

healthcare worker at least once to go for screening (P-value = 0.001) as well as those who had a family history of cervical cancer (P-value = 0.029).

A greater proportion of those who gave the correct answer as to why screening was done had ever been screened compared to those who didn't know why screening was done (P-value = 0.002). Similarly, those who knew that cervical cancer is preventable were more likely to have ever been screened (P-value = 0.049)

There was neither an association between level of education and having ever been tested for cervical cancer (P-value = 0.051) nor was there and association between the level of income and cervical cancer screening (P-value = 0.655)

4a.Multivariable analysis

Binary logistic regression analysis was done. The odds ratio is reported below and the level of significance was < 0.05. Variables that were statistically significant as well as those that are usually associated with uptake of cervical cancer screening were selected for multivariate analysis.

Table 7: Multivariable analysis of the factors influencing cervical cancer screening

Variable	Odds ratio	95% Confidence Interval	P value
Age	**1.07**	1.03 - 1.11	0.000
Average income			
No income (Reference)			
<10,000	0.72	0.29-1.78	0.474
10-50,000	1.22	054-2.78	0.635
50-100,000	3.21	0.33-31.68	0.317
100,000	3.22	0.17-60.78	0.436
Level of education			
Primary (Reference)			
Certificate/Diploma	0.38	0.15 - 0.99	0.047
Degree/ Post graduate	0.28	0.07 -1.16	0.079
Secondary	0.77	0.36 - 1.66	0.503
HIV Status			
Negative(Reference)			
Positive	**7.57**	1.68- 34.07	0.008
Number of times recommended			
None (Reference)			
At least once	**2.76**	1.31 – 5.84	0.008
Family History of Cancer			
No(Reference)			
Yes	**4.37**	1.13- 16.83	0.032

Every additional increase in age by a year increased the odds of cervical cancer screening by 1.07%. The odds of cervical cancer screening were 7.6 times higher for those who were HIV positive, 2.8 times higher for those who were advised to screen by a health worker and 4.4 times higher for those who had a family history of cervical cancer compared to those who did not.

CHAPTER FOUR
DISCUSSION AND CONCLUSION

1.Discussion

The study population was homogenous across all three clinics and mainly comprised of young, married women of low socioeconomic status. Out of the 220 participants in this study, 39.6% had been screened for cervical cancer. The screening history was highest at Mama Lucy Kibaki Hospital at 41.7% and lowest at Mbagathi District Hospital at 32.0%.

These prevalence rates were slightly higher than in multiple recent studies done in Kenya. For example, Mbaka et al reported a prevalence of 23.1% at Mama Lucy Kibaki Hospital in 2018(55). This was a descriptive cross-sectional study, however it was carried out in the child welfare clinic and postnatal ward. The different study sites may explain the difference in prevalence as the study was done in the same hospital as this study and in the same year. A similar study in Naivasha District Hospital in 2016 reported a prevalence of 15.4%(56). This was also a cross-sectional descriptive study however carried out in the Family Planning clinic. Two other studies, onein Nyeri Provincial General Hospital in 2012(57) and another in Jaramogi Oginga OdingaHospital in 2014(58)also reported lower prevalence rates of 24.7% and 17.5% respectively. These were all similar studies, however, done in the Maternal Child Health Clinics, Family Planning Clinics or Post Natal Wards while this was the only study specifically carried out in the Gynaecology Outpatient Clinic.The only study done in a Gynaecology Clinic, also a descriptive cross-sectional study, had a prevalence of 84.3% in South Africa in 2008(59). This may further emphasize the expectation of high screening uptake rates in these specific clinics.

The results are also in keeping with studies done in low and middle-income countries which have shownsignificant variability in screening uptake. A study of 57 countries done in 2008 showed that coverage of cervical cancer screening was on average 19% in developing countries and 63% in the developed world. In low and middle-incomecountries, prevalence rates ranged from as low as 1% in Bangladesh to 73% in Brazil(60).

Despite this slight increase in the prevalence of cervical screening, the prevalence rateis still low in comparison to the targets set in the National Cervical Cancer Prevention Strategic Plan (2012 -

2015), of achieving at least 70% coverage. This was meant to be achieved by involving communities to build awareness and support, using low-cost screening and treatment approaches for pre-cancer and assuring appropriate management for overt cervical cancer patients within available resources.

The main patient related barriers reported to cervical cancer screening included; fear of unfavourable results, lack of awareness, fear of the procedure and sociocultural beliefs. Some of the sociocultural beliefs included the belief that once one is diagnosed with cervical cancer they will certainly die with no hope of a cure, testing is not important for those who are not sick and some women are not susceptible to cervical cancer for various reasons such as being married. This is comparable with studies done in Uganda(61), Nigeria(62) and Ghana(63), where participants mentioned lack of knowledge, fear of a positive result and fear of pain as their main barriers to cervical cancer screening. There was also a varied range of sociocultural beliefs reported in these studies.

Lack of awareness, mentioned by 41% of the women, was the second most mentioned barrier. This is despite the fact that 90% of the women reported having heard of cervical cancer screening, 77% answered correctly when asked why it was done and 64% knew it was preventable. This may be because most women did not believe they had all of the information they needed about the disease. However, on the other hand, awareness may not be a sufficient barrier on its own as shown by a study in Tanzania(64) where 85% of nurses working in a reproductive health unit had still never been screened.

Provider related barriers mainly included lack of materials and equipment used during screening, delay in getting pap smear results and shortage of staff. These barriers are similar to those documented by previous researches(65),(66). Lugol's iodine, Pap smear kits and speculums were the main equipment that were unavailable. This is despite the fact that some of these materials, such as Lugol's iodine, are easily available and affordable. It was noted that Pap smear results took a minimum of one month for all patients and for some it even took more than two months before knowing results. Pap smear was the most common test done at 68% of all tests. This can be reduced by embracing the use of VIA VILI as the results are received immediately.

The main facilitators were, arecommendation to screen by a health worker, increase in age, a positive family history of cervical cancer and being HIV positive. This is in keeping with previous studies(57),(59),(67). Despite the fact that all the patients had attended the clinic at least once, only 23.0% had ever been recommended by a health worker to go for screening while 49.0% of those who had been screened had not been advised on when to return. This may be a reason why majority of the patients (72.0%) were screened in facilities other than the three in the study. It may also be an area of improvement which may help us attain the targets set for national cervical cancer screening coverage.

Being HIV positive also increased the probability of being tested. This is comparable with two studies, one done in the HIV Comprehensive Care Clinic in KNH(67) which showed an increase in uptake from 21% to 46% and one in Nigeria(68) which found a significant increase from 9.7% to 79.8% after joining the CCC clinic. This may be because of the protocols set in these clinics which require regular screening of their patients.

There was no association between either the level of income or level of education and uptake cervical cancer screening services. Previous studies have differed in regard to the above relation. For example, a study in Ghana(69) showed that the more educated sought screening services more while there was no relation with the level of income. Another study in Venezuela(70) showed that low level of education was not a limitation to cervical cancer screening while one in Brazil(71) showed higher prevalence rates of cervical cancer screening failure in women with low education and low per capita income.

The above patient and provider related gaps in cervical cancer screening are glaringly visible and seemingly easy to overcome. The need to improve on policy in areas such as health education, budgeting for materials and equipment and hiring and training of staff cannot be overemphasized. This will go a long way in even surpassing the targets of coverage already set.

2.Conclusion

This study showed an overall cervical cancer screening prevalence rate of 39.55% with no significant difference in rates between the three facilities. Even though this may be higher than previous studies in various parts of the country and those of the general population in Nairobi, it still falls short of the targeted uptake rates of 70% in the country and is low when compared to the developed world.

The main patient related barriers were fear of unfavourable results, lack of awareness and fear of the cervical cancer screening procedure. This should not be the case as this are all patients attending reproductive health clinics and all the main barriers are related to women's health education.

The main provider related barriers were lack of adequate screening materials and equipment, shortage of staff and delay in patients getting their results. This are all factors related to administrative short falls and local government policies.

Facilitators to cervical cancer screening were, recommendation to seek screening services by a health worker, a family history of cervical cancer, increase in age and being HIV positive.

3.Recommendations

1. The hospital management and county government department of health need to provide simplified and regular educationon cervical cancer, availability of screening services and the importance of cervical screening to all women in Nairobi County.
2. The county government and partners need to budget for the necessary materials and equipment used in cervical cancer screening in all their facilities as well as the necessary human resource.
3. Hospital management teams need to include cervical screening targets in their hospital patient charters. In addition, they need to ensure all women regardless of symptoms are counselled about screening by the various clinicians they see during their hospital visits.
4. There is a need for a standardized cervical cancer screening guideline across all facilities in the county.

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ANNEXES

Annex 1: Questionnaire to patient

SECTION A: PATIENT BIO-DATA

1. Serial number.....
2. Date of birth _____/_____/_____ Age (yrs.) _____
3. Home county …… Citizenship……
4. Current place of residence……..... County……..
5. Marital status *(tick as appropriate)*

   Single ☐ Married ☐ Divorced ☐

   Widowed ☐ Living with partner ☐
6. Occupation *(tick as appropriate)*

   Formal with constant salary ☐ Informal with wages ☐

   Business woman ☐ Unemployed ☐
7. Average income per month *(tick as appropriate)*

   < 10,000 ☐ 10,000 – 50,000 ☐

   50,000 – 100,000 ☐ >100,000 ☐
8. Level of education completed *(tick as appropriate / don't tick if no formal education)*

   Primary ☐ Secondary ☐

   Certificate/Diploma ☐ Degree/Postgraduate ☐
9. Religion *(tick as appropriate)*

   Christian ☐ Muslim ☐

   Hindu ☐ Other ……
10. How many children do you have? (parity) _____

SECTION B: KNOWLEDGE ABOUT CERVICAL CANCER SCREENING

1. Have you ever heard of cancer of the cervix screening?

   Yes ☐ No ☐
2. Where did you first hear about cervical cancer screening?

   TV/Poster/Radio ☐ School ☐

   Friend/relative ☐ Internet ☐

   Workplace ☐ Church ☐

Hospital/Clinic (specify) _____ Other (specify) _____

3. Why is cervical cancer screening done to women?

   To check for cancer or early changes of cancer in the cervix ☐

   Don't Know ☐

   Other (specify) _____

4. How often are you recommended to go for cervical cancer screening?

   Yearly ☐ Every 3 years ☐

   Every 5 years ☐ Every 10 years ☐

5. Is cervical cancer preventable?

   Yes ☐ No ☐ Don't Know ☐

SECTION C: PERSONAL HISTORY

1. How many times have you attended this clinic? (including this visit) _____
2. How many clinics were you recommended to go for screening? _____
3. Do you have any chronic illnesses? (specify) _____
4. What was your age at first intercourse? _____
5. How many sexual partners have you had? _____
6. Do you know your HIV status?

   Don't know ☐ Positive ☐

   Negative ☐ Not willing to reveal ☐

7. Do you have a family member who has had cervical cancer?

   Yes ☐ No ☐

   If yes, what was their outcome _____

8. Have you ever been tested for cervical cancer?

   Yes ☐ No ☐

(If you answered NO, skip to question 16, if you answered YES, proceed to the next question)

9. At what age did you first get tested? _____
10. How many times have you been tested? _____
11. Where were you last tested for cervical cancer?

    Kenyatta National Hospital ☐ Mama Lucy Kibaki Hospital ☐

Mbagathi District Hospital ☐ Other facility ☐

12. When was the last time that you were tested? _____

13. What type of test did you do?

Visual Inspection ☐ Cell sample / Pap smear ☐

HPV test ☐ Don't Know ☐

14. What were the results?

Negative ☐ Positive but treated and now negative ☐

Pending ☐ Did not get my results ☐

Kindly specify why you did not get your results? _____

15. During your last test, when were you advised to return for your next test?

After 1 year ☐ After 3 years ☐

After 5 years ☐ I was not informed I am meant to test again ☐

(For those who answered YES/NO in question 8)

16. Have you ever attempted to get tested and failed?

Yes ☐ No ☐

(If NO, skip to question 20)

17. Where did you attempt and fail to get tested?

Kenyatta National Hospital ☐ Mama Lucy Kibaki Hospital ☐

Mbagathi District Hospital ☐ Other facility (specify) _____

18. What challenges did you face in your attempt to get tested?

The charges were too high ☐

The queue was too long ☐

The clinician was unavailable ☐

There testing materials were out of stock ☐

The clinician turned me away because of bleeding/infection ☐

It was time to close the clinic ☐

I went on a day when they were not testing (State why _____)

Other (specify) _____

19. Were you advised on when to return for cervical cancer screening?

Yes ☐ No ☐

20. Do you think the hospital staff have shared enough information about cervical cancer?

Yes ☐ No ☐

SECTION D: BELIEFS AND ATTITUDES

What do you think is/are the reason(s) why women do not go for testing?

Cost ☐

Lack of information/awareness ☐

Long queues/waiting time ☐

Lack of screening services nearby ☐

Fear of unfavourable results ☐

Fear of pain ☐

Poor condition of the facilities ☐

Screening is not necessary if there are no symptoms ☐

Embarrassment ☐

Procrastination ☐

Social/Cultural beliefs ☐

(Example _____)

Others _____

_____

_____

Annex 2: Questionnaire to health care staff attending to the patient

1. Serial Number …….
2. Cadre

   Nursing Officer ☐ Clinical Officer ☐

   Medical Officer ☐ Consultant ☐
3. Age (years) _____
4. Number of years of practice _____
5. Approximately how many patients do you see per clinic? _____
6. Roughly how many screening tests do you in a month?

   Pap smear _____

   VIA/VILLI _____

   HPV test _____
7. What criteria/protocol for screening of cervical cancer are you using to choose the women without symptoms to send for screening?

   WHO ☐

   ACOG ☐

   RCOG ☐

   Other (specify) _____
8. What methods of cervical cancer screening are available in your facility?

   VIA/VILI ☐

   Cell cytology ☐

   HPV test ☐
9. Which method of cervical cancer screening are you most comfortable using?

   VIA/VILI ☐

   Cell cytology ☐

   HPV test ☐
10. What are the challenges met in administering these methods?

    Lack of equipment/materials needed ☐

    Queues are too long ☐

    Patients do not agree/fear to get tested ☐

    Others _____

11. Are you able to perform cervical cancer screening in the same room you see the patient?
    _____ If no why? _____
    _____
12. How long does the patient take to know her results
    _____

Annex 3: Facility related barriers questionnaire (Description by the interviewer)

1. Name of facility _____
2. What tests does this facility do _____
3. How may were done the day of the interview / screening

   VIA/VILI _____

   Pap smear _____

   HPV test _____
4. How many patients were seen on the day of the interview _____
5. If VIA/VILI, list the equipment available for this procedure at the time of the visit in the room where it is done. (Tick as appropriate)

   Examination table with foot supports ☐

   Cover sheet/drape to cover each woman/patient, if available ☐

   Bivalve speculum ☐

   Good light source ☐

   Examination gloves ☐

   3%–5% acetic acid (white table vinegar) ☐

   Cotton swabs ☐

   0.5% chlorine solution ☐

   Report form for the results ☐

   Lugol's iodine (VILI only) ☐

6. If pap smear, list the equipment available for this procedure at the time of the visit in the room where it is done.

   Examination table with foot supports ☐

   Cover sheet/drape to cover each woman/patient, if available ☐

   Bivalve speculum ☐

   Good light source ☐

   Examination gloves ☐

   Cervical spatula and cytobrush. ☐

   Liquid-based cytology container or glass slide and fixative. ☐

7. Is there a pathologist in the hospital

   Yes ☐

   No ☐

8. Describe the flow of screening in the hospital, from when the patient agrees to screening to when the patient receives her result.

Annex 4: Participant information and consent form for enrolment in the study (English)

Title of Study: PREVALENCE AND BARRIERS OF CERVICAL CANCER SCREENING AMONG WOMEN ATTENDING REPRODUCTIVE HEALTH CLINICS IN NAIROBI COUNTY

Principal Investigator\and institutional affiliation: Dr Mange Mwenda, University of Nairobi.
Supervisors and institutional affiliation: Professor James Machoki M'Imunya, University of Nairobi; Dr Moses Madadi Obimbo, University of Nairobi; Dr Anne Naipanoi Pulei, University of Nairobi.

Introduction:

I would like to tell you about a study being conducted by the above listed researcher. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be a participant in the study. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide to be in the study or not. This process is called 'informed consent'. Once you understand and agree to be in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in a medical research:

(i) Your decision to participate is entirely voluntary

(ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal

(iii) Refusal to participate in the research will not affect the services you are entitled to in this health facility or other facilities. We will give you a copy of this form for your records.

May I continue? YES / NO

This study has approval by The Kenyatta National Hospital-University of Nairobi Ethics and Research Committee protocol No. _____

WHAT IS THIS STUDY ABOUT?

The researchers listed above are interviewing women still in their reproductive age who visit the gynaecology outpatient clinics. The purpose of the interview is to find out whether they have been tested for cervical cancer and if not, the reasons why. Participants in this research study will be asked questions about their history of testing, experiences and outcomes in relation to cervical cancer testing. Participants will also have the choice to undergo a cervical cancer screening test. There will be approximately four hundred participants in this study randomly chosen. We are asking for your consent to consider participating in this study.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to participate in this study, the following things will happen:

You will be interviewed by a trained interviewer in a private area where you feel comfortable answering questions. The interview will last approximately fifteen minutes. The interview will cover topics such as your reason for coming to hospital, what you know about cervical cancer and your history of cervical cancer testing.

After the interview has finished, you may opt to undergo voluntary screening or not at your on convenience and cost.

We will ask for a telephone number where we can contact you if necessary. If you agree to provide your contact information, it will be used only by people working for this study and will never be shared with others. The reasons why we may need to contact you include: to answer any questions you may have or to clarify or follow up on any information you may have given.

ARE THERE ANY RISKS, HARMS DISCOMFORTS ASSOCIATED WITH THIS STUDY?

Medical research has the potential to introduce psychological, social, emotional and physical risks. Effort should always be put in place to minimize the risks. One potential risk of being in the study is loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify you in a password-protected computer database and will keep all of our paper records in a locked file cabinet. However, no system of protecting your confidentiality can be absolutely secure, so it is still possible that someone could find out you were in this study and could find out information about you.

Also, answering questions in the interview may be uncomfortable for you. If there are any questions you do not want to answer, you can skip them. You have the right to refuse the interview or any questions asked during the interview.

It may be embarrassing for you to have a cervical cancer screening test. We will do everything we can to ensure that this is done in private. Furthermore, all study staff and interviewers are professionals with special training in these examinations/interviews. Also, screening may be stressful.

You may feel some discomfort when the device for aiding with visualization is inserted. In case of an injury, illness or complications related to this study, contact the study staff right away at the number provided at the end of this document. The study staff will treat you for minor conditions or refer you when necessary.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

You may benefit by receiving free counselling and health information about cervical cancer. We will refer you to a hospital for care and support where necessary. Also, the information you provide will help us better understand the reasons why testing is not done as expected. This information is a contribution to science and public health.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

Being in the study will not cost you any money.

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have further questions or concerns about participating in this study, please call or send a text message to the study staff at the number provided at the bottom of this page. For more information about your rights as a research participant you may contact the secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee Telephone No. 2726300 Ext. 44102 email uonknh_erc@uonbi.ac.ke.

The study staff will pay you back for your charges to these numbers if the call is for study-related communication.

WHAT ARE YOUR OTHER CHOICES?

Your decision to participate in research is voluntary. You are free to decline participation in the study and you can withdraw from the study at any time without injustice or loss of any benefits.

CONSENT FORM (STATEMENT OF CONSENT)

Participant's statement

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with a study counsellor. I have had my questions answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdraw any time. I freely agree to participate in this research study.

I understand that all efforts will be made to keep information regarding my personal identity confidential.

By signing this consent form, I have not given up any of the legal rights that I have as a participant in a research study.

I agree to participate in this research study: Yes No

I agree to provide contact information for follow-up: Yes No

Participant printed name: _____

Participant signature / Thumb stamp _____ Date _____

Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has willingly and freely given his/her consent.

Researcher's Name: _____ Date: _____

Signature _____

Role in the study: _____ [i.e. study staff who explained informed consent form.]

For more information contact _____ at _____ from _____ to _____

Annex 5: Fomu ya ushirikiano wa ushiriki wa utafiti (Kiswahili)

Kitabu cha Utafiti: KUENEA NA VIZUIZI VYA UCHUNGUZI WA SARATANI YA KIZAZI KATIKA WAMAMA WANAOHUDURIA KLINIKI ZA WAMAMA KATIKA COUNTY YA NAIROBI

Nambari ya kujifunza ya Mshiriki;

Taarifa ya Mpelelezi:

Mtafiti Mkuu: Dkt Mange Mwenda

Taasisi: Chuo Kikuu cha Nairobi

Idara: Ugonjwa wa uzazi na uzazi

Usajili hakuna: H58 /75223/2014

Mawasiliano: 0722-249-444

Mradi huu wa utafiti unafanywa kama sehemu ya mahitaji ya tuzo ya shahada ya bwana. Wasimamizi; Profesa James Machoki M'Imunya, Profesa wa Obstetrics na Gynaecology, Chuo Kikuu cha Nairobi; Dkt. Moses Madadi Obimbo, Mhadhiri katika Chuo Kikuu cha Nairob; Dkt. Anne Naipanoi Pulei, Mhadhiri katika Chuo Kikuu cha Nairobi.

Utangulizi:

Ninawaalika kushiriki katika utafiti huu wa utafiti. Fomu hii ya idhini inalenga kukupa maelezo kuhusu utafiti ambao utakusaidia kufanya uamuzi kuhusu kushiriki katika utafiti au la. Wamama wanaugua zaidi kwa sababu ya Saratani ya kizazi. Ugonjwa huu ukona matibabu ukipatikana mapema. Ili kupatikana mapema lazima wamama wapitie uchunguzi kila wakati. Utafiti huu utatusaidia kujua kama wamama wanapitishwa kwa uchunguzi au la, na kwa nini wale hawapitii kwa uchunguzi hawapitii?

Kushiriki kwa hiari

Ushiriki wako katika utafiti huu wa utafiti ni hiari. Mshiriki yeyote anayetaka kujiondoa kwenye utafiti atakuwa huru kufanya hivyo kwa hatua yoyote bila kuadhibiwa au kudhulumiwa. Ushiriki wako utahusisha kujibu maswali kuhusiana na wewe na uchunguzi wa saratani ya kizazi.

Hatari:
Hakuna hatari mfupi au ya muda mrefu inayohusishwa na ushiriki katika utafiti huu.

Faida za Uwezekano:
Washiriki watafaidika kwa kupata ushauri kuhusu saratani ya kizazi.

Ulinzi wa Usiri
Ni wale tu waliohusika katika utafiti wataruhusiwa kufikia data yoyote iliyokusanywa. Utambulisho wa mshiriki wa kweli hautafunuliwa katika uchambuzi wa data au katika gazeti lolote linalozotolewa na utafiti huu. Nambari zao za pekee za coded zitatumika. Sampuli iliyotumiwa itatumika tu kwa uchunguzi ulioelezwa katika utafiti.

Maelezo ya Mawasiliano
Tafadhali wasiliana na Dk Mange Mwenda juu ya 0722-249-444 ikiwa una maswali au wasiwasi kuhusu utafiti. Ikiwa kuna maswali yoyote kuhusu haki zako kama somo la utafiti unaweza kuwasiliana na KNH-UON Kamati ya Maadili na Utafiti juu ya 02726300.

Ruhusa kwa Mshiriki:
Nimesoma fomu hii ya idhini, kuelewa kikamilifu, alipewa nafasi ya kuuliza maswali na uhakika wa siri. Mimi kwa hiari kutoa ridhaa yangu ya kushiriki katika utafiti huu.
Jina ya mshiriki _____ Tarehe: _____
Saini _____

Mtu anafanya mchakato wa idhini:
Nimetoa habari zinazohitajika na kuhakikisha kuwa mshiriki ameelewa utafiti kama ilivyoelezwa katika fomu hii ya idhini.
Jina _____ Tarehe: _____
Saini _____

ASANTE

Annex 6: KNH-UON Ethics and Research Committee approval

UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
Tel:(254-020) 2726300 Ext 44355

KENYATTA NATIONAL HOSPITAL APPROVED 09 MAY 2018 KNH/UoN-ERC P.O. Box 20723-00202 NRB.

KNH-UON ERC
Email: uonknh_erc@uonbi.ac.ke
Website: http://www.erc.uonbi.ac.ke
Facebook: https://www.facebook.com/uonknh.erc
Twitter: @UONKNH_ERC https://twitter.com/UONKNH_ERC

KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/168

May 9, 2018

Dr. Mange Mwenda
Reg. No.H58/75223/2014
Dept. of Obs/Gynae
School of Medicine
College of Health Sciences
University of Nairobi

Dear Dr. Mwenda

RESEARCH PROPOSAL – PREVALENCE AND BARRIERS OF CERVICAL CANCER SCREENING AMONG WOMEN ATTENDING REPRODUCTIVE HEALTH CLINICS IN NAIROBI COUNTY – A COMPARATIVE CROSS-SECTIONAL STUDY (P762/12/2017)

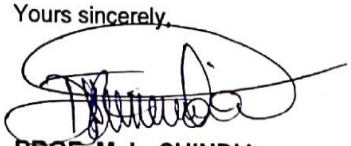
This is to inform you that the KNH- UoN Ethics & Research Committee (KNH- UoN ERC) has reviewed and **approved** your above research proposal. The approval period is from 9th May 2018 – 8th May 2019.

This approval is subject to compliance with the following requirements:

a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH-UoN ERC before implementation.
c) Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
e) 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*).
f) Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

For more details consult the KNH- UoN ERC website **http://www.erc.uonbi.ac.ke**

Yours sincerely,



PROF. M. L. CHINDIA
SECRETARY, KNH-UoN ERC

c.c. The Principal, College of Health Sciences, UoN
The Deputy Director, CS, KNH
The Chairperson, KNH-UON ERC
The Assistant Director, Health Information, KNH
The Dean, School of Medicine,UoN
The Chair, Dept. of Obs/Gynae,UoN
Supervisors: Prof. J.M.Machoki, Dr. M.M. Obimbo, Dr.A.N.Pulei

Annex 7. Facility screening services available at the time of the study

VIA VILI equipment available for screening at the time of the study

VIA VILI EQUIPMENT AVAILABLE	MBAGATHI HOSPITAL	MAMA LUCY HOSPITAL	KNH Clinic 66
Examination table with foot supports	**No**	Yes	Yes
Bivalve speculum	Yes	Yes	Yes
Good light source	Yes	**No**	Yes
Examination gloves	Yes	Yes	Yes
3-5% Acetic Acid	Yes	Yes	Yes
Cotton swabs	Yes	Yes	Yes
0.5% Chlorine solution	Yes	Yes	Yes
Results reporting form	**No**	No	Yes
Lugols iodine	**No**	Yes	Yes

Pap smear equipment available for screening at the time of the study

PAP SMEAR EQUIPMENT AVAILABLE	KNH Clinic 66	KNH Clinic 18
Examination table with foot supports	Yes	Yes
Cover sheet/drape	Yes	Yes
Bivalve speculum	Yes	Yes
Good light source	Yes	Yes
Examination gloves	Yes	Yes
Pap smear kit	**No**	**No**
Liquid-based cytology kit	**No**	**No**