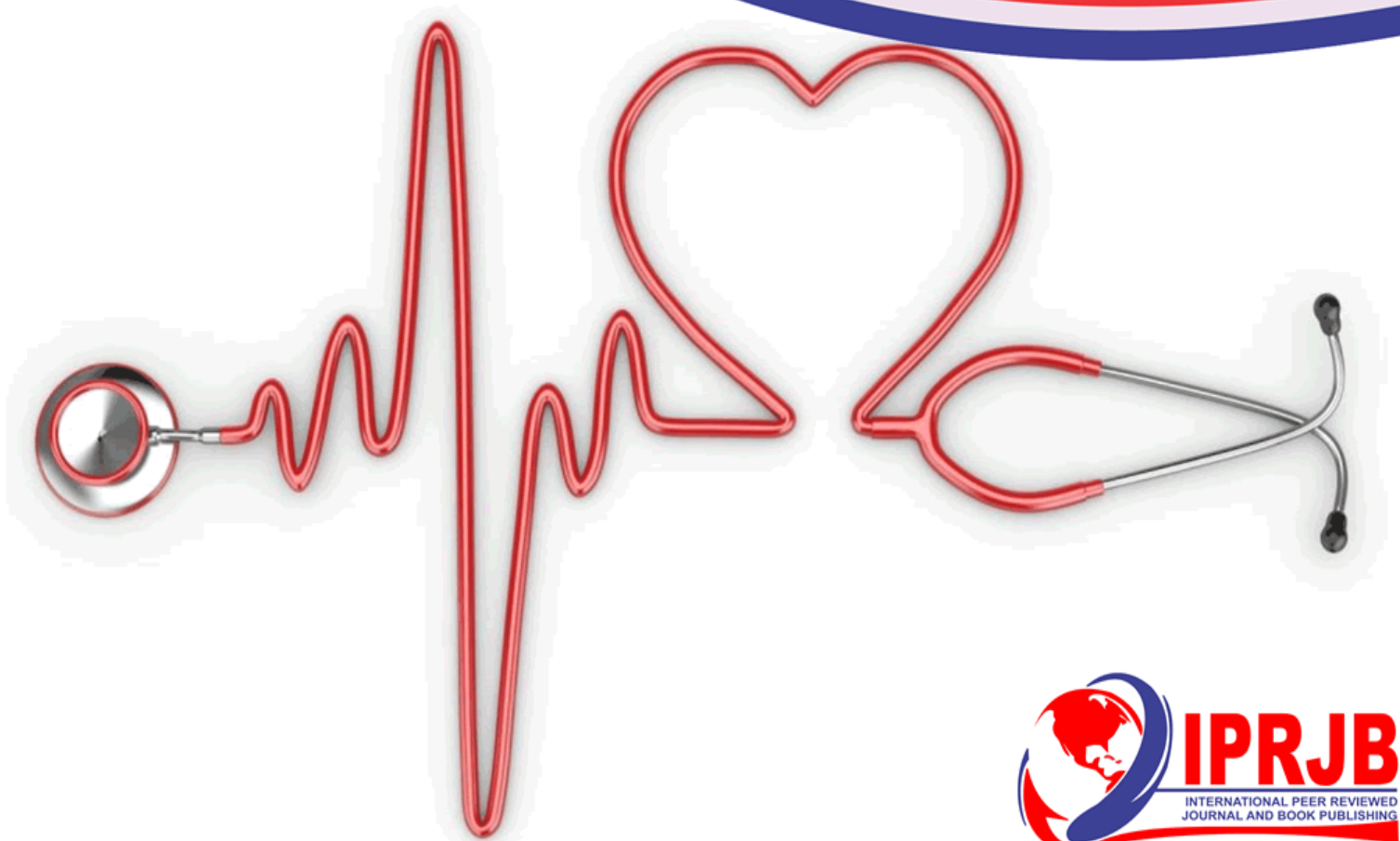


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## **KNOWLEDGE, ATTITUDE AND PRACTICES IN CERVICAL CANCER SCREENING IN KAKAMEGA COUNTY, KENYA**

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Kipmerewo



## KNOWLEDGE, ATTITUDE AND PRACTICES IN CERVICAL CANCER SCREENING IN KAKAMEGA COUNTY, KENYA

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### Abstract

**Purpose:** Early cervical cancer screening (CCS) and treatment is effective method of controlling the disease, however its uptake is poor. Women only screen for cervical cancer when they experience symptoms or when advised by healthcare workers. Main objective of the study was to assess knowledge, attitude and practices of cervical cancer screening among women in Kakamega County.

**Methodology:** The target population was 208,905 women of reproductive age residing in Kakamega County. This was a quantitative research approach utilizing descriptive study design. An interviewer administered questionnaire was used to collect data. Multi-stage sampling was used to select 872 women aged 25-49 from 16 community units of Kakamega County. Participants were assured of confidentiality, voluntary participation and freedom to exit the study at any point. Descriptive statistics were used to analyze knowledge and attitude levels towards cervical cancer screening. Logistic regression along with odds ratios at 95% confidence intervals was used to analyze factors affecting uptake of screening.

**Findings:** Majority (81%) of participants had heard of cervical cancer screening mainly from media and Health Care workers. Only 16 % and 13% had good knowledge about signs of and risk factors of cervical cancer respectively. More than 78% had positive attitude towards cervical cancer screening. Less than 22% of participants had been screened for cervical cancer previously. Uptake of cervical cancer screening was low, and there was poor knowledge on aspects of cervical cancer. Poor to average knowledge is not sufficient to enable women make decisive actions on CCS.

**Unique Contribution to Theory, Practice and Policy:** Women should be encouraged to seek for more information about CCS through the various sources of media available to them. Healthcare providers need to be empowered further on delivering key information about CCS. The Ministry of Health should consider and strengthen alternative sources of information on CCS by use of Community Health Volunteers to complement health care providers. The government should further initiate a monitoring and evaluation program to track trends of factors barring uptake of CCS. A qualitative research need to be conducted to establish deeper factors associated with poor knowledge and uptake of CCS despite positive attitude.

**Key words:** Attitudes, Cervical cancer, Knowledge, Screening, Kakamega

## INTRODUCTION

Cervical cancer (CC) is a common cancer among women in most low- and middle-income countries (LMICs) (Arbyn *et al.*, 2019). In Africa, there were 117,316 new cases of cervical cancer and 76,745 deaths that occurred in 2020. In Eastern Africa, 54 560 new cases and 36 497 deaths occurred during the same period. Age standardized incidence and mortality rates for cervical cancer in Eastern Africa is 40.1 and 28.6 per 100,000 respectively, the highest globally (GLOBOCAN, 2020). It is the second most common cause of cancer mortalities among women in Kenya (IARC HPV Information Centre, 2018). It is currently estimated that up to 5250 women in Kenya are diagnosed with cervical cancer annually out of which 3286 die from the disease (Ministry of Health, 2018).

In Kakamega County, the uptake of cervical cancer screening has remained low. According to hospital-based reports, only 2.8% of women were screened in 2020. Cervical cancer (CC) is of huge public health concern globally and in sub-Saharan Africa (SSA) including Kenya. It is the second most common cancer to breast cancer globally among women aged between 15 and 49 years (World Health organization, 2014). If it is detected earlier through screening, it can be monitored and treated without use of invasive procedures. The main cause of cervical cancer is the sexually acquired Human Papilloma Virus (HPV) infection (Louie *et al.*, 2009). Other factors contributing to cervical cancer development are age at first sexual intercourse, lifetime number of sexual partners, history of sexually transmitted infections, and other characteristics of sexual activity, smoking, parity, use of oral contraceptives, tobacco smoking, immunosuppression and poor nutrition (American Cancer Society, 2014; International Agency for Research on Cancer, IARC, 2013).

There is however limited data on cervical cancer screening in Kakamega county and nationally in Kenya. Data extracted from the Kakamega County District Health Information System-II, (DHIS-II) for example show that only 7868 (2.5%) women were screened for cervical cancer in 2018. This is not much different from the 3.7% (KNBS, 2019) of cervical cancer screening incidences reported nationally. It has been noted that this low uptake is attributable to women who only screen for CC when they experience signs and symptoms or when advised by Health Care Workers (HCW). Majority of CC patients are diagnosed at an advanced stage (Louie *et al.*, 2016). Efforts to address barriers and promote cervical cancer screening among Kenyan women have been partially effective. Interventional strategies have not been tailored to specific individual concerns about screening, despite evidence that there are multiple reasons for Kenyan women's reservations about CC screening (Morema *et al.* 2014; Ngugi, *et al.* 2012).

Cervical cancer prevention and early treatment is the hallmark in the control of the disease. However, screening coverage in Kenya remains at approximately 3% to 4% in urban areas and only 2.6% in rural areas (KDHS, 2014). Therefore, poor attendance to CCS is a major risk factor to the development and progression of cervical cancer (O'Brien *et al.*, 2010). However, many gaps exist in Kenya's cervical cancer screening and prevention efforts which can be addressed by a focused and consolidated programme focusing on knowledge, attitude and practice of women. This study therefore assessed knowledge, attitude and practice of cervical cancer screening among women aged 25 to 49 years in Kakamega County, Kenya.

### **Problem statement**

Despite the fact that CC can be treated if found early with Cervical Cancer Screening, it remains a severe public health danger to women in Kenya and especially in Kakamega County due to very poor uptake of CCC, at 3.2 percent (KDHS, 2014). The screening services in the County are often sporadic. Women only test for Cervical Cancer when they notice signs and symptoms or are recommended to do so by healthcare professionals. Due to this, majority of Cervical Cancer patients are diagnosed after they have progressed to an advanced stage. Different groups of women have been investigated in the past to assess routine screening knowledge and practice, and while some have indicated a reasonable degree of knowledge, compared to the uniqueness of the community, very few, if any, have reported a high level of practice (Adamu *et al.*, 2012). Even among health-care workers, routine Cervical Cancer Screening is not practiced. The main reasons for the lethargic uptake of CCS has been poor knowledge and attitude towards CCS. It has been suggested that all women should be informed about CCS. Efforts to overcome barriers and promote cervical cancer screening among Kenyan women have only been partially successful because strategies have not been tailored to address specific individual concerns about screening, despite evidence that there are multiple reasons for Kenyan women's reservations about screening (Ngugi, *et al.*, 2012). There is a dearth of population-based cancer registries hence information on cancer incidence in Kakamega County is limited. According to facility based data in Kakamega County, women learn about CCS from the media, healthcare staff when they visit health institutions for various reasons, and friends. However, there is limited population based data on the level of knowledge, attitude and uptake of cervical cancer screening among women in the County. Therefore, this study seeks to establish the knowledge, attitude and uptake of cervical cancer screening among women aged 25 to 49 years in Kakamega County

### **LITERATURE REVIEW**

According to the government's national strategy plan on cervical cancer prevention and control, which was released in 2010, the goal was to screen 30 percent and vaccinate 80 percent of eligible people by 2015 and 2018 respectively, as well as integrate cancer early detection and screening into existing health programs (National Guidelines for Cancer Management, Kenya. August, 2013). This remains unachieved. Cervical cancer screening services are available in a few approved public health facilities, as well as a few faith-based and private health institutions in the County.

Having heard of CC is a crucial factor of CC knowledge and, as a result, a predictor of CCS practice. According to the findings of a study conducted in Ethiopia (Tsegaye *et al.*, 2018), 56.8% of participants were aware of cervical cancer screening. Almost everybody in a Ugandan population-based cross-sectional survey (Ajambo *et al.*, 2017) had heard of cervical cancer. Women get to know about CCS through various means depending on the environment. These means of communication include healthcare workers during visitation to the health facilities or during outreach activities, print media, electronic media, and friends/family members or through lay health workers. The radio (media) and healthcare professionals have been found to be the main sources of information about CC in studies done in Uganda by Ajambo *et al.*, (2017) and Mukama *et al.*, (2017). However, in a study done in Botswana by Tapera *et al.*, (2017) on students, majority of participants got information from print media while minority of participants

heard from health care workers within health facilities. This was attributed to their occupation and low mean age of 21 years, hence their liking for the media (Tapera *et al.*, 2017). The source of information influences knowledge on CCS and uptake decisions among women.

A woman's level of knowledge is crucial. Women's screening decisions are more likely to be influenced favorably if they are knowledgeable on aspects of cervical cancer and screening and are aware of the risk factors for developing CC. In a study on awareness of Cervical Cancer and Human Papillomavirus among female students in an Ethiopian University, Tesfaye *et al.*, (2019) found that knowledge regarding cervical cancer and its causes was lacking hence affected CCS uptake. A study done in Botswana by Tapera *et al.*, (2017) on knowledge of risk factors for cervical cancer showed that the most common risk factors for developing CC known by women were early sexual debut and smoking. In a cross-sectional study on women's knowledge and attitudes about cervical cancer prevention in Eastern Uganda, Mukama *et al.* (2017) found that up to 85% of participants knew at least one symptom or indicator of cervical cancer. Contrary to this result, two other researches (Ajambo *et al.*, 2017 & Tesfaye *et al.*, 2019) found that participants in Uganda and Ethiopia had insufficient awareness about cervical cancer and its causes. According to Mahumud1 *et al.*, 2020, women's knowledge and use of CCS services is unequally distributed in Low- and Middle-Income Countries, with socioeconomically poor women in the majority of countries.

Attitude is also a factor influencing uptake of CCS. A positive attitude towards CCS is expected to increase uptake of CCS among women. In a study done by Tsegaye *et al.*, 2018 in Ethiopia, more than half of participants had a positive attitude towards CCS. Studies done by Tapera *et al.*, 2017 in Botswana and Ajambo *et al.*, 2017 in Uganda found that majority of participants felt at risk of developing cervical cancer. Similarly, in other studies done by Huchko *et al.*, (2015) & Ajambo *et al.*, (2017), in Uganda and western Kenya respectively, majority of participants who had ever heard of CCS felt at risk for CC although their specific knowledge was generally low.

Even though cancer screening is free in government health facilities, cervical cancer screening is low, between 3.2% and 20% in rural and urban areas respectively (Ministry of Health, 2018). This low uptake is linked to poor knowledge and a lack of adequate access, which includes insufficient screening services, diagnostic facilities, poorly structured referral facilities/systems, a lack of a comprehensive cancer surveillance system, and a lack of a population-based cancer registry (Elizabeth *et al.*, 2012). Studies done in Ethiopia and 18 other resource constrained countries by Tekle *et al.*, 2020 and Mahumud *et al.*, 2020 on uptake of CCS revealed that the uptake was very low. In Nigeria, Olubodun *et al.*, 2019 reported that only 0.7% had done a CCS test. Tapera *et al.*, 2017 attributes such low uptake of CCS to lack of perception of susceptibility to cancer and hence the lesser the likelihood of engaging in preventive behaviors. Further, low uptake is due to opportunistic CCS services practiced in LMIC (Tapera *et al.*, 2019; Black *et al.*, 2019 & Maseko *et al.*, 2015). Unfortunately, CCS services practiced in LMIC are opportunistic (Tapera *et al.*, 2019; Black *et al.*, 2019 & Maseko *et al.*, 2015). This study therefore seeks to establish the knowledge, attitude and uptake of cervical cancer screening among women aged 25 to 49 years in Kakamega County. This information is important in informing the government as a policy maker, researchers and service providers on the crucial strategies of increasing uptake of CCS and hence reduction of CC mortalities.

## Theoretical model

The Trans Theoretical Model (TTM) and the Health Belief Model (HBM), which have both been utilized successfully in promoting positive cancer screening behavior in similar situations, are the theoretical models that drove the development of this study (Interis *et al.*, 2015). The TTM evaluates a person's preparedness to change their behavior and offers suggestions to help them progress through the stages of change: pre-contemplation, contemplation, preparation, action, and maintenance. This is based on the fact that people respond to awareness-raising by adopting protective health practices/behaviors (Diclemente & Norcross, 1992). The HBM (Rosenstock *et al.*, 1988) helps identify barriers and facilitators to behavior change adoption, and it was employed in the study to stress the benefits of screening while decreasing hurdles. Both theories were used to show change of behavior at different stages in the presence of facilitating and barring factors. The outcome variable was cervical cancer screening, which was evidence of a Pap smear test, VIA/VILI test, or HPV test, as well as a written appointment for cervical cancer screening

## METHOD

*Study setting:* The study was conducted in Kakamega County, Kenya. The county covers a land surface area of approximately 3051km<sup>2</sup> with an estimated population of 1,843,320, comprising of 947,254 females (51.4%). Women aged 25 to 49 years constitute 208,905 (11.3%) (KNBS, 2019; Kakamega County Integrated Development Plan, 2013). The county's fertility rate is 5.6 which is above the national average of 4.6 (KDHS, 2014). It has twelve sub counties which includes Lurambi, Shinyalu, Malava, Lugari, Likuyani, Butere, Khwisero, Mumias East, Mumias West, Matungu, Navakholo and Ikolomani.

*Study design:* The design was a cluster randomized trial that evaluated the effectiveness of integrating Cervical Cancer Screening awareness in Community Health Strategy (CHS) within 16 community units of Kakamega County for 6 months duration, from September 2019 to February 2020.

*Study population:* A total of 208,905 women as per KNBS, (2019) were the target population.

*Inclusion criteria:* women aged 25 to 49 years residing in Kakamega County for more than 2 months at the time of study were included.

### *Sampling and Sample size estimation*

Multi stage cluster sampling was used. Community Units were chosen as clusters. Out of 12 sub counties, 8 were randomly sampled. A list of all CUs in the 8 sub counties were obtained from the head of community health strategy, County office. Two CUs were randomly selected from each of the 8 sub counties, totaling 16 CUs. In each sub county, one of the CU was randomly allocated to either intervention or control group by tossing a coin. A list of all the 10 villages per selected CU from each group was drawn. Thirty percent of Villages from each CU in both groups were selected by simple random sampling (Mugenda and Mugenda, 2013). Using the county community health strategy data, all the households registered by the CHS program for routine CHV follow up were used to map households in the selected CUs. Three villages were randomly selected from each of the sixteen CUs. In each village 18 households were randomly selected. Only one eligible woman in the selected household was enrolled in the respective

groups. A list of eligible female household members according to the predefined inclusion criteria was generated.

#### *Sample Size Determination*

Simple random sample size calculation using Hayes & Bennett, (1999) formula for cluster randomized trials was used to determine the appropriate sample size for detecting a difference between two groups; intervention group and control. A total 872 women were sampled.

#### *Survey Tool*

This study used a structured interviewer-administered questionnaire which assessed knowledge, attitude and practice of women on cervical cancer screening. It adopted a questionnaire developed and used in similar environmental conditions by University College London UCL, (2011) in the United Kingdom and informed by findings from previous cancer studies conducted in Kenya, (Morema *et al.*, 2014); (Ngugi, *et al.*, 2012); (Khozaim *et al.*, 2014). This survey instrument (the Cervical Cancer Awareness Measure, cervical CAM tool) was developed by the University College London, UCL Health Behavior Research Centre, in collaboration with the Department of Health Cancer Team and The Eve Appeal, with funding from The Eve Appeal. It forms part of the Cervical Cancer Awareness and Symptoms Initiative (CCASI). It is based on a generic Cancer Awareness Measure, (CAM) tool developed by Cancer Research UK, University College London, King's College London and Oxford University in 2007-08. It consisted of 83 questions spread out in four sections and lasted for 30 minutes. Section one sought information on participant's socio-demographic data including age, education level, residence, source of income, marital status and number of births. Section two assessed participants' knowledge on cervical cancer and screening including knowledge on signs and symptoms of cervical cancer, and knowledge on risk factors for developing cervical cancer. Questions in this section seeking information considered to be sensitive were asked last after section four. Data in this section was captured by use of 'yes'/'no'/'do not know' and 'strongly agree', 'agree', 'not sure', 'disagree' and 'strongly disagree' questions regarding cervical cancer knowledge, perception of personal risk, and screening acceptability. Section three had questions concerning access to screening services including whether participants were screened and why not, where they accessed the cervical cancer screening service, previous cervical cancer screening experiences and potential barriers to screening. Section four consisted of a set of 14 questions assessing attitude on cervical cancer screening.

*Data collection procedures:* The study participants were approached in their homes and requested to participate in the study. The interviewer administered questionnaires using CSEntry Application was used to collect data from women from their homes. The CSEntry is an application loaded on the phone. CSEntry app uses closed ended questions and provides the participant to choose the preferred option by clicking on the option. The information gathered is transferred directly on submission of the questionnaire to a central collating station and immediately analyzed. Information regarding sociodemographic data was sought first, then knowledge, attitude and lastly questions on practice. Questions considered to be sensitive to the participant were asked last.

### *Analysis*

The data was entered and analyzed with the help of SPSS software. *Awareness* of cervical cancer was assessed by one yes/no question asking participants if they had ever heard of cervical cancer. The *Knowledge* section was in two parts each with 11 questions. In the first part, participants were to respond to questions regarding signs of cervical cancer by answering 'yes', 'no' or 'not sure' to each question. In the second part, participants were to respond to 11 questions regarding risk factors for developing cervical cancer. Participants could either strongly disagree, disagree, be not sure, agree or strongly agree with the factors. Not sure was treated as agree. The knowledge score was calculated by adding all correct responses of items in each part, each item was assigned 1 for correct response and 0 for wrong response and then all items were included by applying an 11 points scale in each part. Modified Bloom's cut off points (Malhotra et al., 2017) were used for assessment of knowledge on signs and risk factors for developing cervical cancer. To assess attitude, Likert's scale with fourteen questions was used. The questions had responses that ranged from strongly agree (1), agree (2), not sure (3), disagree (4) and strongly disagree (5). The response scores were summed up and a total score was computed for each respondent. The mean was calculated and those who scored above the mean value had a positive attitude and the ones who scored less than the mean value had negative attitude towards screening for premalignant cervical cancer. *Screening acceptability* was measured by asking the participant; 'Have you been screened for cervical cancer before?' Data analysis was done using SPSS version 20.

### *Ethical consideration*

All study participants were informed about the study design, objectives, and follow-up protocol and they signed a written consent. The participant's identity remained anonymous and were assured of the information gathered would be used for research purposes only. Ethical approval was obtained from the Masinde Muliro University of Science and Technology Ethics Review Committee.

## **RESULTS**

### **Socio demographic characteristics of participants**

A total of 872 women were enrolled in the study after meeting the criteria and consenting to the study. Most participants were married or living together with their spouses (89%), had primary education as highest level of education (84%), were housewives (54%) and members of the African independent churches (64.5%). The mean number of children per woman was 4.0 (SD±2.2) (0 - 16). About 22.5% of participants were farmers. Over 80% of participants had stayed in the county for over 16 years, stayed less than 5 kilometers from the link health facility, and usually walked from their homes when accessing the link health facilities. Over 81% of participants had heard of CCS mainly from media and Health Care workers, HCW.



**Table 1: Socio demographic characteristics of participants at Kakamega County, Kenya**

Characteristics		Count (n)	Percent (%)
Age (years)	25-29	291	33.5
	30-34	199	22.5
	35-39	149	17
	40-44	135	15
	45-49	98	11
Marital status	Single/never married	30	3
	Married/living together	776	89
	Divorced/separated	23	2.5
	Widowed	43	4.5
Religion	Catholic	82	9.2
	Protestants	205	24
	African independent churches	565	64.5
	Muslim	17	2
Education level	Primary incomplete	375	43
	Primary complete	357	41
	Secondary complete	140	16
Occupation	House wife	475	54
	Small business	186	17
	Farmer	193	22.5
	Other	55	6.5
Number of births	No live births	21	2.5
	1-3 live births	375	43
	Over 3 live births	476	54.5
Mean number of births		4.0±2.2	
Length of stay in Kakamega	<15 years	146	17
	>16-30 years	726	83
Distance from home to health facility	5 or less kilometers	224	56
	More than 5 kilometers	176	44
Means of transport to access health facility	On foot	165	82
	Motor cycle	136	34
	Public van	101	25
Heard of cervical cancer	No	169	19
	Yes	703	81
Source of information	Media	340	48
	Friends	117	16.5
	HCW	234	33.5
	CHVs	12	2

### Knowledge level on signs of and risk factors for developing cervical cancer

Majority of participants had poor knowledge about both signs of Cervical Cancer (49.5%) and risk factors for developing CC (58%) with a mean knowledge score of 4.5 and 5.4 out of 11 respectively. Approximately 16 % (n=114) and 12.5% (n= 88) of participants had good knowledge about signs of and risk factors for cervical cancer respectively. The most known symptoms were; persistent vaginal discharge that smells unpleasant (58%), discomfort or pain during sex (53.5%), Vaginal bleeding after the menopause (57%) and Vaginal bleeding during or after sex (54%). The most known risk factors were; having many sexual partners (68%), Infection with Chlamydia (63%), starting to have sex before age 17, (61.5%), and long term use of contraceptive pill (59.5).

### Attitude towards cervical cancer screening

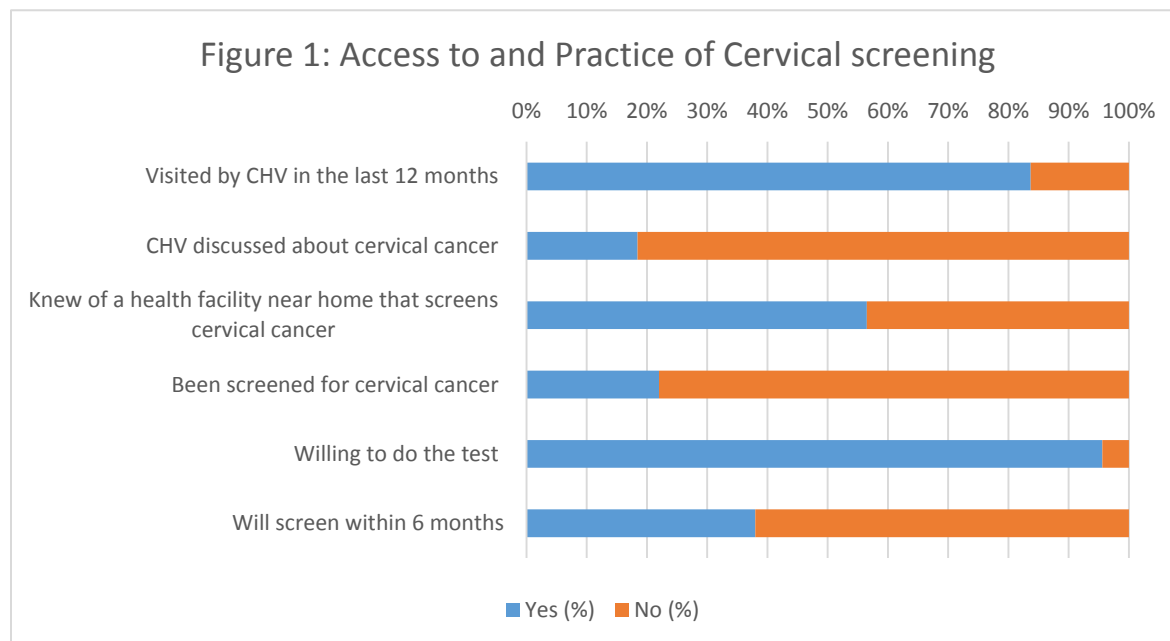
A high number (78%) of the participants had positive attitude towards CC screening with mean attitude score of 7. (Table 2)

**Table 2; Composite Knowledge and Attitude distribution among women, n = 703**

Attribute	Mean score (11)	Level	Number	Percentage (%)
Knowledge about signs of cervical cancer	4.5	Poor	345	49.5
		Moderate	244	34.5
		Good	114	16
Knowledge about risk factors for cervical cancer	5.4	Poor	408	58
		Moderate	207	29.5
		Good	88	12.5
Attitude towards cervical cancer screening	7.0	Positive	549	78
		Negative	154	22

### Access to and practice of cervical screening

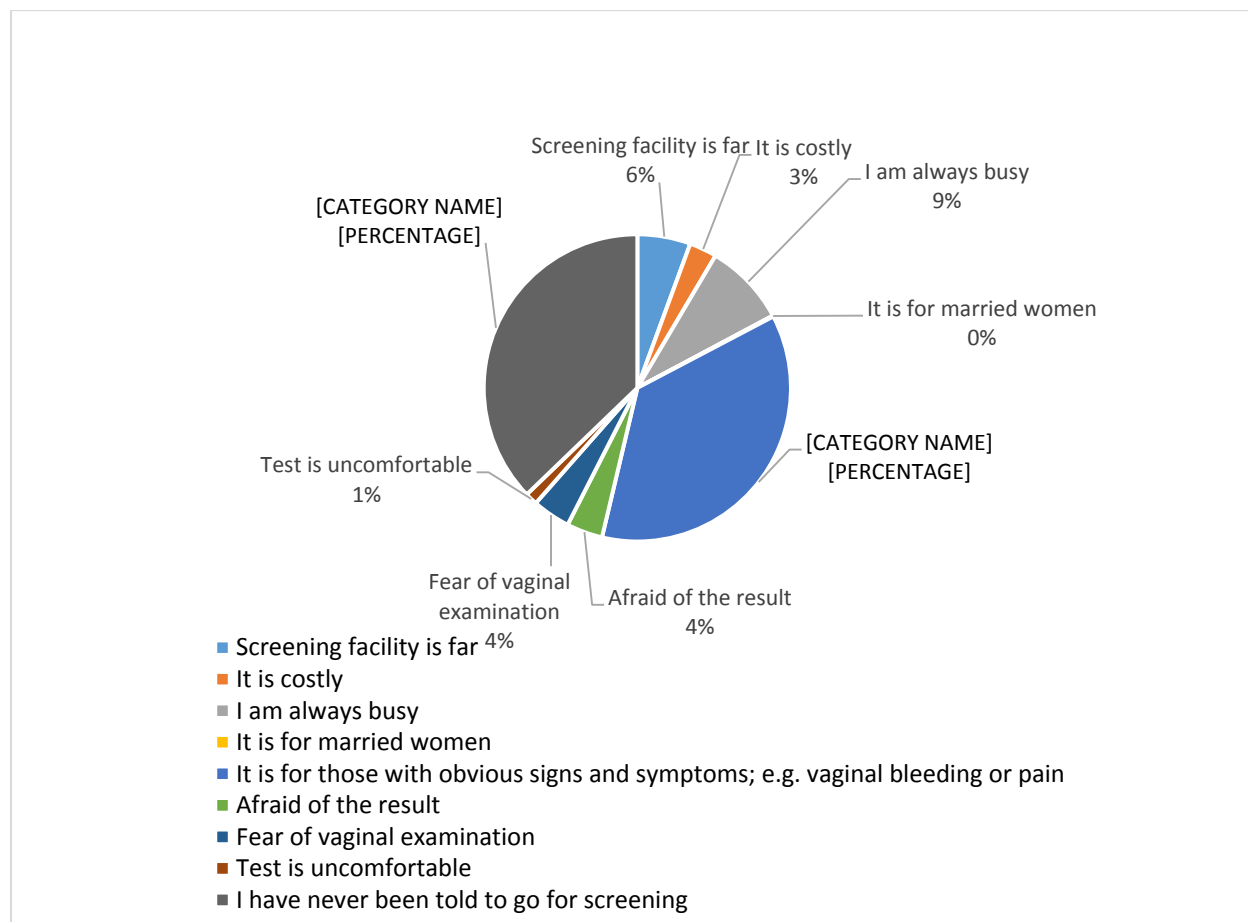
Up to 22% of participants had been screened for cervical cancer previously. Among the participants who had never been screened, majority (96%) were willing to be screened if the benefits are explained to them. Approximately 84% of participants had been visited by a Community Health Volunteer, (CHV). Of these, almost all participants never discussed with CHVs about Cervical Cancer Screening (Figure 1).



**Figure 1:** Access to and practice of Cervical Cancer screening

### Reasons given by participants for not screening

Figure 2 illustrates reasons given by participants for not having gone for screening. The main reasons were; not having been told to screen (37.2%) and the perception that screening was for those with obvious signs and symptoms of the disease (36.4%). A few participants gave other reasons including; always busy (8.7%), facility was too far (6%), fear of vaginal examination (4%), afraid of the results (4%), screening was costly (3%), and the test was uncomfortable (1%) (Figure 2)



**Figure 2:** Reasons given by participants for not having gone for screening

### Discussion

This study evaluated the effectiveness of integrating cervical cancer screening awareness in community health strategy on the uptake of screening. It provided insight into awareness of women living in Kakamega County regarding signs of and risk factors for developing cervical cancer and the practice of Cervical Cancer Screening. Knowledge of early symptoms of Cervical Cancer is important for women so that they may seek care when the disease is still in early stage and responsive to treatment.

Most participants had heard about cervical cancer and their main sources of information was media including radio and TV as well as from healthcare professionals at the health facilities. These results were comparable to studies conducted in Uganda where 83% of participants had heard about cervical cancer (Ajambo et al., 2017) and 87.5% knew that cervical cancer can be prevented by early detection (Mukama et al., 2017). However, Tapera et al., (2017) reported that the awareness was mostly through brochures, posters and other printed material, a minority of participants heard from health facilities. This was probably due to the educational status of the participants and the influence of the print media in the creation of awareness of the disease among the populace. This underscores the need to seek for a complimentary source of information to back up the current sources whenever there is need to overcome cultural and attitudinal barriers.

The study found that majority of participants had poor knowledge level on symptoms of cervical cancer and the risk factors for developing cervical cancer. These findings are similar to those in a study done in Ethiopia among higher education female students in which knowledge about cervical cancer and its causes were found to be inadequate (Tesfaye et al., 2019). Contrary to this study, a study done in Botswana (Tapera et al., 2017) amongst female University students to assess knowledge on CCS and their attitudes towards CCS found all study participants had good knowledge on cervical cancer and screening. Mahumud et al., 2020 avers that women's knowledge and utilization of CCS services in Low and Middle Income Countries (LMIC) are unequally distributed, more so among socioeconomically deprived women in the majority of these countries. In the current study, most participants knew that the following are risk factors to develop cervical cancer; long term use of contraceptive pill, infection with Chlamydia, having a sexual partner who is not circumcised, starting to have sex before age 17, having many sexual partners. Similarly (Tapera et al., 2017) reported in a study done in Botswana that early sexual debut and smoking were mentioned as the main risk factors for cervical cancer. Majority of participants did not know about the contribution of the sexually transmitted HPV virus and use of tobacco products in causation of cervical cancer. HPV is the necessary cause of cervical cancer (IARC, 2013; Louie et al., 2009).

As regards to attitude, majority of participants had a positive attitude towards CCS. Similarly, in a study done by (Tsegaye et al., 2018) in Ethiopia, majority of participants had a positive attitude towards CCS. Almost half of participants believed that CCS; is painful, it would make them worry, it is embarrassing, and test results could not be trusted as some laboratory results were contradictory. They further believed that a male service provider would discourage them from screening, and feared test results. More than half of participants believed that; screening was too expensive, a cervical screen test would take away their virginity, and that a cervical screen test could lead to a surgical operation.

Regarding access to cervical cancer screening, almost all participants in the study had been visited by a Community Health Volunteer, (CHV), yet they were never sensitized on cervical cancer and screening. According to (Choi et al., 2018), CHVs within Kenya's community health strategy can be used to mobilize, educate and create awareness about cervical cancer among eligible women in the community in order to increase demand for CCS services. Such Community Health Workers have been used in other countries to increase accessibility to Maternal and Child Health services. This is supported by (Wangalwa et al., 2012) & (Rose Olayo

et al., 2014) who noted that there is significant improvement in essential maternal and newborn care practices when community-based governance structures are established to organize and coordinate the activities of CHWs with the formal health care system.

In the study, less than a quarter of participants had been screened for cervical cancer previously despite more than half (57%) of participants being aware of cervical cancer and health facilities near their homes that screen. Such low uptake of screening was also reported by (Tekle et al., 2020) and (Mahumud et al., 2020) in studies done in Ethiopia and 18 Resource Constrained Countries respectively. Tapera et al., (2017) attributed such low uptake to lack of perception of being susceptible to cancer and hence the lesser the likelihood of engaging in preventive behaviors. Unfortunately, opportunistic CCS services are usually practiced in developing countries. This method of delivering screening services is ineffective because it predominantly targets a small proportion of women who have the chance to come in contact with health care providers either in a health facility or within the community for varied primary needs (Okunowo et al., 2018). These opportunistic screening services are not widely accessible; where they are available, the service is grossly underutilized (Chidyaonga-Maseko et al., 2015), (Okunowo et al., 2018). Nevertheless, a wider variation was observed between awareness about Cervical Cancer Screening, knowledge of the disease and uptake of CC screening services (Tapera et al., 2019), (Chidyaonga-Maseko et al., 2015), (Okunowo et al., 2018), (Han et al., 2012). Although majority of participants perceived that they were at risk of developing cervical cancer, their uptake of CCS was poor.

According to this study, a very high percentage of women did not go for screening because of the following reasons; absence of obvious signs and symptoms, not having been informed to go for screening, having busy schedules, fear to be examined, fear for screening results, and long distance to health facility. Similarly according to (Rosser et al., 2015), participants did not screen because of busy schedule and needing more time. Understanding reasons of women regarding their poor uptake of CCS can help public health authorities to implement educational programs to increase the absorption of CCS.

Regarding exposure to risk factors, most participants had multiple sex partners and had never used condoms during sex all the time. This finding is in contrast with a study done in Ethiopia (Tadesse Tekle et al., 2020), in which 79% of respondents had single sexual partners and less than 50% had not used condoms during sexual intercourse. The study shows that a third of participants had not tested for their HIV status in the previous 6 months and a similar proportion had had worrisome vaginal discharge that required treatment. Most participants had their first sexual intercourse before age 17 years. Similar findings were reported by (Tekle et al., 2020) and (Tsegaye et al., 2018). Early sexual debut among girls is a risk factor in developing cervical cancer. Unlike in this study in which only 1.8% of participants had ever smoked before, 8.7% of respondents in the Ethiopian study (Tekle et al., 2020) were cigarette smokers. This therefore shows that knowledge and attitude in themselves did not lead to uptake of cervical cancer screening. Majority of women do not see themselves being susceptible to CC when there are no signs and symptoms.

## **Conclusion**

Majority of participants had heard about cervical cancer mainly from media including radio and TV as well as from healthcare professionals at the health facilities. Majority of participants had poor knowledge on both symptoms of cervical cancer and risk factors for developing cervical

cancer. Therefore, there was notable misinformation among the women regarding risk factors for cervical cancer. Poor to average knowledge is not sufficient to enable women make decisive actions on CCS. There is need therefore, to enlighten women on the signs and symptoms of cervical cancer and risk factors for developing cervical cancer. Although majority had a positive attitude towards cervical cancer screening in Kakamega County, the uptake of cervical cancer screening was poor. Therefore, there is a need to enlighten women on the signs and symptoms of cervical cancer and risk factors for developing cervical cancer. This is where integrating CCS in the CHS would play a role in enhancing uptake of early screening.

### Recommendations

Women should be encouraged by the county government to seek for more information about CCS through the various sources of media available to them. Women should go for cervical cancer screening. The healthcare providers should be empowered further on delivering key and targeted information about CCS. Further, they should partner with Community Health Volunteers in sensitizing women on CCS. The Ministry of Health through the County government of Kakamega should consider and strengthen alternative sources of information on CCS e.g. Community Health Volunteers to complement the health care providers. The government should adopt community based health education in order to access a wider women population. It should further, initiate a monitoring and evaluation program to track trends of factors barring uptake of CCS. A qualitative research need to be conducted to establish deeper factors associated with poor knowledge and uptake of CCS despite positive attitude.

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