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# Factors Influencing Uptake of Cervical Cancer Screening among Rural Women in Webuye East Sub - County, Kenya

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***Authors' contributions***

*This work was carried out in collaboration among all authors. Author PKK conceived and designed the study, wrote the protocol, collected data and wrote the first draft and the final of the manuscript, Author EN participated in the statistical analysis, Authors JMM, JNJ and DM supervised and approved the study at any given stage. All authors read and approved the final manuscript.*

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## ABSTRACT

**Aims:** The study sort to determine factors influencing the uptake of cervical cancer screening services among rural women aged 18-69 years in Webuye East Sub-County, Kenya.
**Study Design:** We conducted a cross-sectional descriptive study design.
**Place and Duration of Study:** Webuye East Sub-County, Bungoma County, Kenya, between December 2018-March 2019.
**Methodology:** The study adopted a quantitative data collection technique to a target population of 125 rural women aged 18-69 years.
Data on social demographics and social-cultural factors, level of uptake, level of awareness and health care facility factors influencing cervical cancer screening variables were collected using

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structured questionnaires. Data were verified, coded, and analysed with SPSS version 25. Descriptive statistics were analysed and presented in tables. Chi-square tests were carried out to determine the link between categorical variables.

**Results:** The use of screening facilities for cervical cancer was found to be low at 26% (33/125). On the overall, the study showed a significant relationship between age [p=0.05], women with insurance cover [p=0.00] and income [p=0.01].

**Conclusions:** Cervical cancer screening is low women in the study area. The study concludes that there is a significant/potential possibility of improving women's participation in cervical screening if regular best practices are embraced.

**Recommendations:** The study recommends that Women enrol in health insurance schemes to ensure that they access screening services together with enhancing community awareness on cervical cancer.

*Keywords: Cervical cancer; screening uptake; cancer screening; awareness.*

## 1. INTRODUCTION

Globally, about 640,000 cancer cases occur annually due to human papillomavirus (HPV), of that 89% affect women while cervical cancer accounts for a significant 82% of the total [1]. It is estimated that 90% of fatalities from cervical cancer are expected in developing nations [2]. The WHO estimates that around 68,000 cervical cancer incidences occur every year in Africa. While, The figure is conservative and it is thought to be more owing to challenges encountered at cancer registries in the region [3]. The East Africa community bears a high burden of mortality and morbidity rates according to a recent survey, Tanzania ranks 6$^{th}$ followed by Uganda ranked 10$^{th}$ then Kenya ranks 14$^{th}$ [4].

According to the 2014 Kenya Demographic and Health Survey, 68.2% of the women surveyed had heard of cervical disease in the western region this is compared to their counterparts in Nairobi 89.5% and central with 86.8%. Among those, only 8.1% have had cervical cancer screening as compared to 23.6% and 21.8% in Nairobi and central regions, respectively [5].

Reducing cervical cancer incidences will play a huge role too in achieving the sustainable development goals majorly the goals on ending poverty, ensuring healthy lives, promoting the lifelong prospects for all, promoting gender equity and enablement of females and reduce inequalities within and among countries [6].

The study is vital in helping both the National and counties to come up with better policies and frameworks for upscaling uptake of screening services.

## 2. METHODS

The study was community-based; it adopted a cross-sectional descriptive research design. The sample size was determined using Fisher et al. (1998) formula.

The research focused on 125 women in Webuye East Sub County aged 18 to 69 years. In Bungoma County, due to the low cancer screening uptake in these areas. Women aged 18-69 years were sampled as women at this age are all vulnerable to cervical cancer.

First, Bungoma county was purposively selected as it registered the low rates of utilization of cervical screening services. Second, Webuye East Sub–County was chosen based on the fact that it has a higher rural orientation compared to other Sub–Counties. The use of cervical cancer screening facilities is also comparatively smaller in the Sub– County [5]. Third Ndivisi ward was purposively selected among three wards as it has the highest population compared to the other wards.

## 3. RESULTS

The response rate was 100%. This was due to the self-administration of the questionnaires, which ensured a 100% response rate. The return rate is statistically representative, therefore enhancing generalization of the research results. Socio-demographic and economic characteristics of respondents are displayed in Table 1.

### 3.1 Uptake of Cervical Cancer Screening

A majority of participants, 74% (92) were not tested for cervical cancer, with only 26% (33) being screened during interviews as illustrated in Table 2.

**Table 1. Characteristics of study respondents**

| Variable | | N=125 | % |
|---|---|---|---|
| Age group | Mean | 43.9 | |
| | Std. Deviation | 11.1 | |
| | 25-35 | 29 | 23.2% |
| | 36-46 | 47 | 37.6% |
| | 47-57 | 32 | 25.6% |
| | >58 | 17 | 13.6% |
| Education Level | Non-formal Education | 14 | 11.2% |
| | Primary Level | 67 | 53.6% |
| | Secondary Level | 34 | 27.2% |
| | Tertiary Level | 10 | 8.0% |
| Marital Status | Single | 14 | 11.2% |
| | Married (monogamy) | 69 | 55.2% |
| | Married (polygamy) | 38 | 30.4% |
| | Divorced/separated | 4 | 3.2% |
| Employment status | Employed | 43 | 34.4% |
| | Others | 26 | 20.8% |
| | Unemployed | 56 | 44.8% |
| Annual Income | 0-100,000 | 115 | 92% |
| | 100,000-500,000 | 10 | 8% |
| Insurance Cover | Yes | 33 | 26.4% |
| | No | 92 | 72.8% |

**Table 2. Proportion of women that had ever been screened for cervical cancer**

| Ever been screened | Frequency | Percent |
|---|---|---|
| No | 92 | 73.6% |
| Yes | 33 | 26.4% |
| Total | 125 | 100.0% |

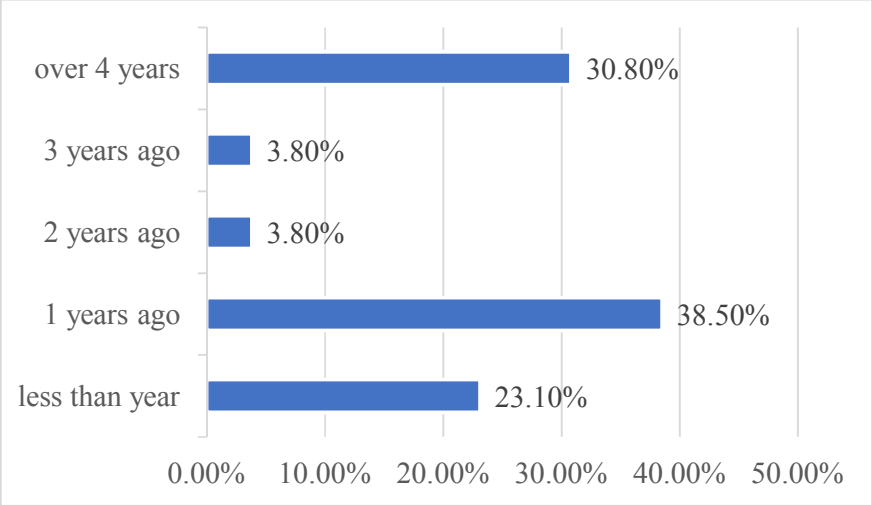


**Fig. 1. Last time screened**

### 3.2 Last Time Screened

From Table 3, of those who had ever been screen for cervical cancer (N=92), 23.1% reported to have been screened on the very same say year of the study (2018), 38.5% reported to have been screened a year preceding the study; 3.8% reported to have been

screened in 2 and 3 years ago respectively, while 30.8% reported having been screened for cervical cancer 5 years ago as demonstrated in Fig. 1.

### 3.3 Association between Age and Utilization of Screening Services

A significant relationship existed between age and the use of screening facilities ($\chi 2 = 9.425$, $p=0.05$) as shown in Table 3 hence more Women between the ages of 36-46 were more probable than their counterparts to go for testing.

There was no statistically significant association between the use of cervical cancer screening and the education level, marital status and occupation status. Chi-square test of independence shows that the level of respondents' income was found to be statistically significant with cervical cancer screening or not ($\chi^2 = 6.316$, $p=0.012$) as indicated in Table 5.

Health insurance ownership was observed to be associated with the use of screening facilities according to Chi-Square test as shown in Table 5 which suggested that women with an insurance cover were four times more likely to screen for cancer than those did not have a health insurance cover.

### 3.4 Social-cultural Factors

Underutilization of cervical cancer has often been compounded with women's social-cultural practices. The interviewer sort to ascertain whether cultural factors that would hinder uptake of screening services.

The participants were asked if there are cultural beliefs that could prevent them from using cervical cancer screening facilities, 8.8% said yes, 91.2% said no while.

Among the respondents who said yes, 45.5% (N=5) claimed that cervical cancer was a result of a curse hence not treatable, 18.5% (N=2) noted that it is their Christian belief not to go to hospitals but rather use herbs while 18.5% (N=2) stated that it was against their culture to have their private parts intruded. The respondents were asked if their religious affiliation encouraged them to seek cervical cancer screening. A majority, 62.4% said no, while the rest, 37.6% said yes. From the respondents who said yes, 34.0% (N=16) said their religious leaders provided education on cervical cancer, 52.1% (N=24) encouraged to them to seek screened while 15.2% [7] reported their religious leaders directed them on where to seek screening services.

### 3.5 Barriers to Cervical Cancer Screening

The participants quoted various obstacles to accessing cervical cancer screening, 37.8% explained that they needed more information pertaining the disease, 13.5% were concerned about their privacy which they considered as an intrusion, while 10.3% thought the test was too expensive and that they couldn't afford as shown in Fig. 2.

**Table 3. Association between age and utilization of screening services**

| | Screened for cervical cancer % | | | |
|---|---|---|---|---|
| **Age category** | **No** | **Yes** | **Total** | |
| 25-35 | 25(86.2%) | 4(13.8%) | 29(100%) | $\chi 2 = 9.425$, |
| 36-46 | 29(61.7%) | 18(38.3%) | 47(100%) | $p = 0.05$ |
| 47-57 | 23(71.9%) | 9(28.1%) | 32(100%) | |
| 58-68 | 14(93.3%) | 1(6.7%) | 15(100%) | |
| 69 & Above | 1(50%) | 1(50%) | 2(100%) | |
| Total | 92(73.6%) | 33(26.4%) | 125(100%) | |

**Table 4. Association between income and utilization of screening services**

| | Screened cervical cancer | | | |
|---|---|---|---|---|
| **Annual income** | **No** | **Yes** | **Total** | |
| 0-100,000 | 88(76.5%) | 27(23.5%) | 115(100%) | |
| 100,000-500,000 | 4(40%) | 6(60%) | 10(100%) | ($\chi^2 = 6.316$, $p=0.01$) |
| Total | 92(73.6%) | 33(26.4%) | 125(100%) | |

**Table 5. Association between owning an insurance cover and screening**

| Have insurance cover | No | Yes | Total | |
|---|---|---|---|---|
| No | 75(82.4%) | 17(17.6%) | 92(100%) | |
| Yes | 17(51.5%) | 16(48.5%) | 33(100%) | (χ2 =14.713, p=0.01) |
| Total | 92(73.6%) | 33(26.4%) | 125(100%) | |

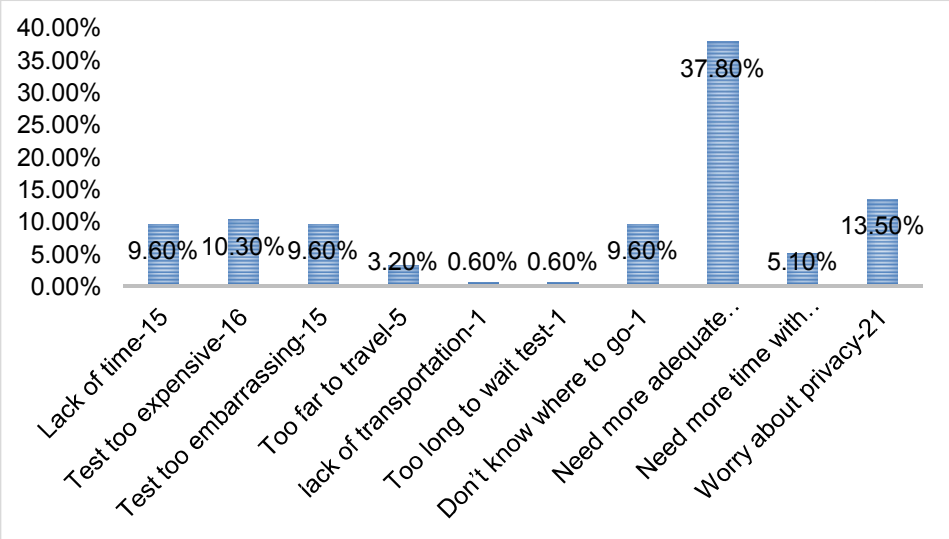


**Fig. 2. Barriers to cervical cancer screening**

**Table 6. Proportion of women who had heard about cervical cancer**

| Heard about cervical cancer | Frequency | Per cent |
|---|---|---|
| No | 23 | 18.4% |
| Yes | 102 | 81.6% |
| Total | 125 | 100.0% |

## 3.6 The Level of Awareness

### 3.6.1 Heard about the screening of cervical cancer

Majority of respondents, 82% (102) had heard of cervical testing as opposed to 18% (23) who never heard of it. (Table 6).

### 3.6.2 Source of information on cervical cancer

Most of the study participants re-counted having learned about cervical cancer from the radio 43.0%, 31% from the hospitals, 14% from friends, 7% from community health workers, 3.10% from television and 0.80% from other sources (Fig. 3).

### 3.6.3 Risk factors for cervical cancer

Barriers to the screening of cervical cancer screening vary but not limited to knowledge. The research sort to assess the respondent's understanding of risk factors. Most participants 75.2%, were unaware of the predisposing factor linked to cervical cancer, 11.3% assert that cervical cancer is associated with multiple sexual partners, 5.30% to smoking or the use of tobacco, 3.8% (hereditary)Family history of cervical cancer while only 0.80% mentioned a woman having more than three pregnancies (Fig. 4).

### 3.6.4 Signs and symptoms of cervical cancer

It has been averred that the lack of understanding about signs and symptoms associated with cervical cancer is a significant reason why screening facilities are underutilized. The researcher sort to assess the knowledge regarding symptoms and signs. Most respondents were unaware of cervical cancer signs and symptoms 64.20%, 13.90% mentioned breeding between menstrual periods, 8.40% said

irregular menses while 5.30% said abnormal bleeding after intercourse after sexual intercourse, 2.60% indicated Vaginal discharge while fatigue, weight loss, loss of appetite and one swollen leg accounted for 0.70% each (Fig. 5).

### 3.6.5 Preventive measures for cervical cancer

The investigator questioned the participants whether they knew any ways to prevent cervical cancer, 83.7% of the participants knew no way to prevent cervical cancer., 10.6% saying the provision of condoms to sexually active couples while 3.2% and 2.4% saying vaccination and delayed the start of sexual activities respectively (Fig. 6).

### 3.6.6 Tests carried out during screening

Comprehension of the screening process bridges the gap between knowledge and preventive procedures. This increases the probability of women being involved in cervical cancer screening. Most participants were unaware of any screening options available 83.7%, 11.40% knew VIA/VILLI, while 4.90% knew Pap smear (Fig. 7).

### 3.6.7 Age for screening services

The success of screening programs is highly influenced by the screening of women who are a high risk as the best predictor of high risk has been affirmed by age. When asked which age women are encouraged to go for screen services, the most substantial proportion 70.40% did not know, 8% said the age between 10-20 years, 11.2% said the age between 21-30 years, 9.60% said the between the age of 41-50 years while the least proportion 0.80% said the age between 41-50% (Fig. 8).

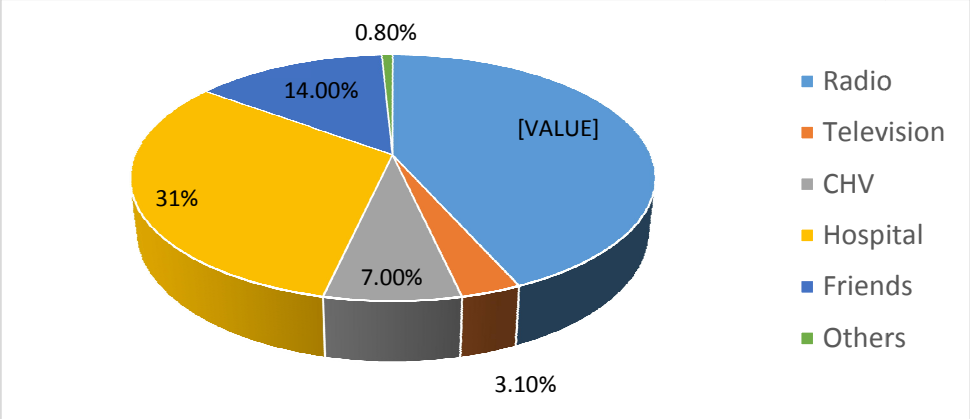


**Fig. 3. Source of information**

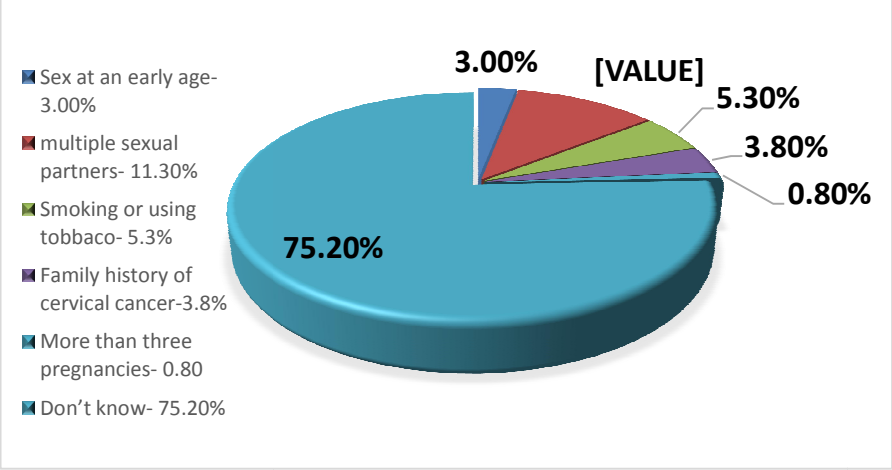


**Fig. 4. Risk factors of cervical cancer**

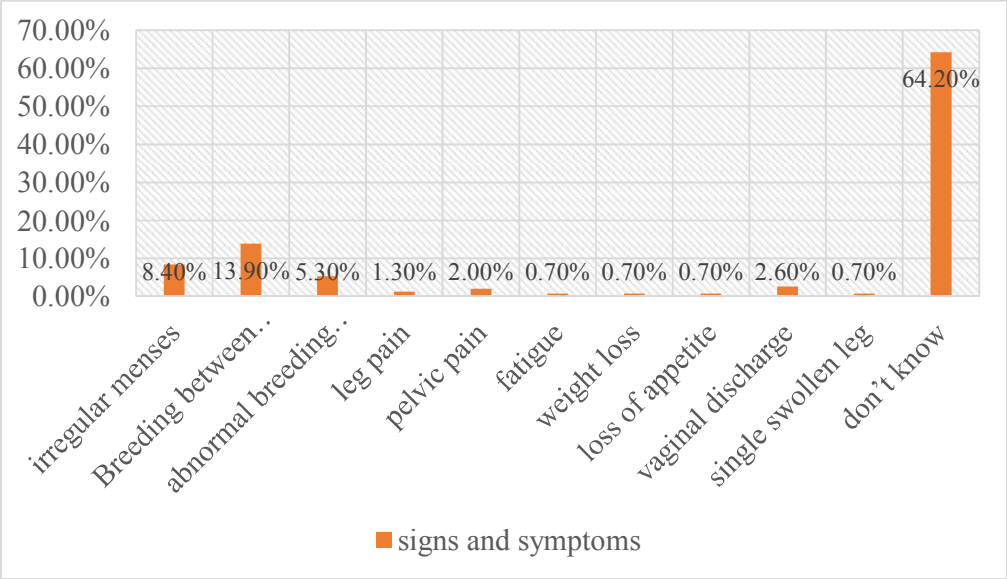


**Fig. 5. Signs and symptoms of cervical cancer**

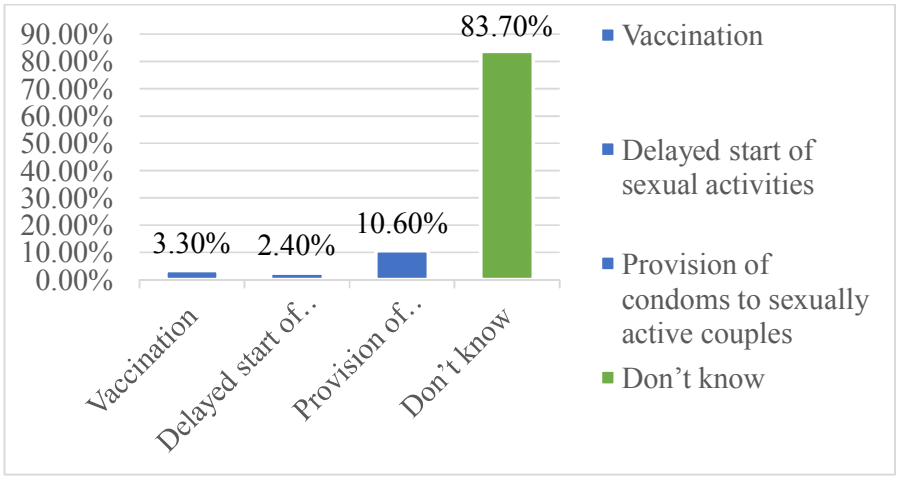


**Fig. 6. Preventive measures of cervical cancer**

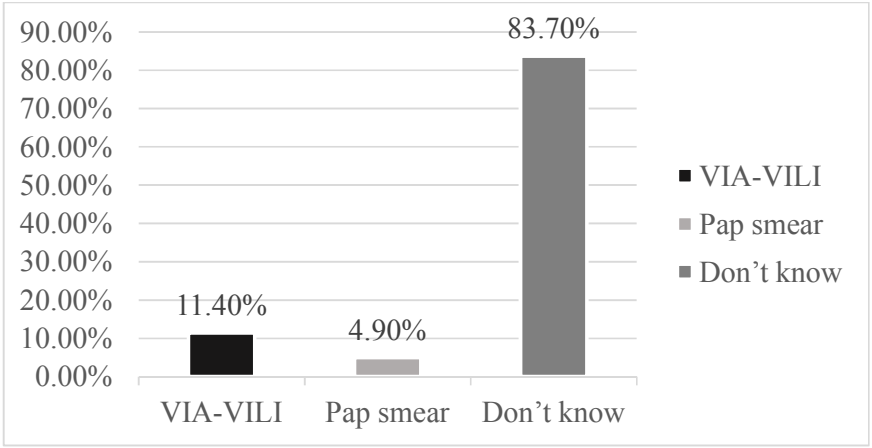


**Fig. 7. Tests are carried out during screening**

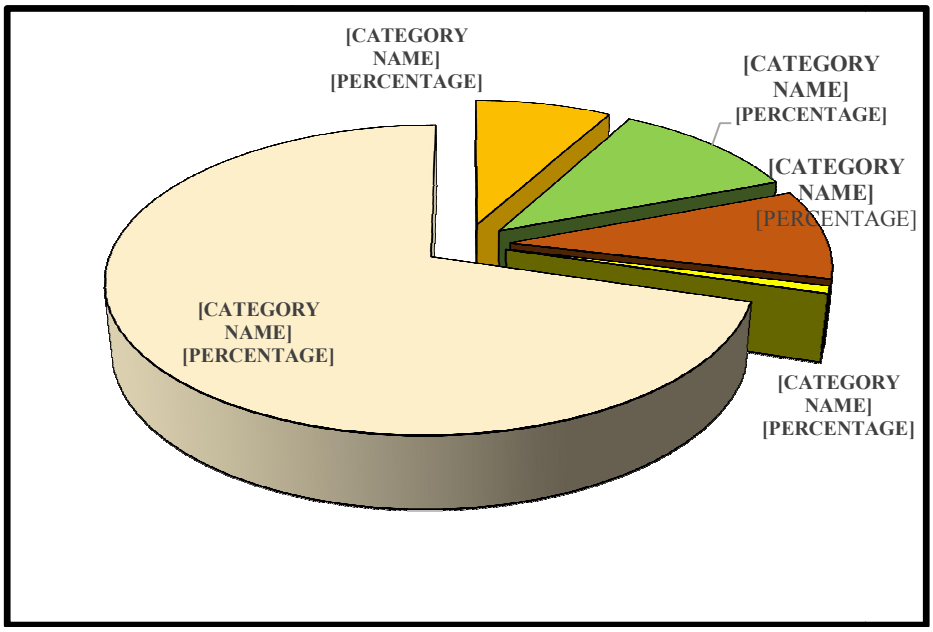


**Fig. 8. Age which women are encouraged to go for screening services**

**Table 7. Number of visits to health care providers**

| | Responses | |
|---|---|---|
| | **N** | **Per cent** |
| Less than once a year | 54 | 43.9% |
| Once a year | 23 | 18.7% |
| More than once a year | 46 | 37.4% |
| Total | 123 | 100.0% |

**Table 8. Discussed cancer with the health provider on the last visit**

| | **Frequency** | **Per cent** |
|---|---|---|
| No | 106 | 84.8 |
| Yes | 19 | 15.2 |
| Total | 125 | 100.0 |

**Table 9. Charges for cervical cancer screening**

| | **Frequency** | **Per cent** |
|---|---|---|
| **Don't know** | 28 | 22.4 |
| No | 69 | 55.2 |
| Yes | 28 | 22.4 |
| Total | 125 | 100.0 |

## 3.7 Health Care Facility Factors

### 3.7.1 Visits to the health care provider

While asked how often they see their health providers annually, 43.90% said less than once a year, 18.7% visited once, while 37.4% visited more than once (Table 7).

### 3.7.2 Discussed cancer with the health provider on the last visit

The participants were asked if they talked to the health care provider on their last visit about cervical cancer, 84.8% said no, while 15.2% said yes.

**Table 10. Free cervical cancer screening**

| | Frequency | Per cent |
|---|---|---|
| **Don't know** | 62 | 49.6 |
| No | 13 | 10.4 |
| Yes | 50 | 40.0 |
| Total | 125 | 100.0 |

### 3.7.3 Charges for cervical cancer screening

While asked if women are charged for cervical cancer screening, the most substantial proportion, 55.20% (69) said no while both those who said yes and don't know accounted for 22.40% each.

### 3.7.4 Free cancer screening

The respondents were asked if the facilities in which they seek services provide free cervical cancer screening 49.6% said didn't know, 40% said yes while 10.4% said no.

## 4. DISCUSSION

Screening rates of cervical cancer differ by socio-demographic variables; some of the social demographic variables that influence screening of cervical cancer produced significant results. Age and use of screening services for cervical cancer were found to have a statistical significance; women aged between 36 and 46 were more probable to be screened than their counterparts. Descriptive statistics illustrate, uptake of cervical cancer screening reduced with increase in age of respondents This finding collaborates a study in Maharashtra, India wherein that increasing age was found to have a relationship with a decline in utilization of screening services [7]. There was also a statistical association between annual income and screening; women with lower income were less likely to seek screening services. In line with the study, research on cervical cancer screening predictors among Kenyan females revealed more excellent screening rates among females in high-income quintile [8] health insurance ownership an insurance cover was established to a determinant to the use of screening facilities. This indicates considerable potential for improvement of cervical screening uptake in the study area if the economic factors are improved and increase of insurance covers ownership. A study on increasing testing and access on cervical cancer resonated with this study, it reported that in comparison with those without insurance, NHIF patients were more likely to be screened or finish a therapy [9]. Cultural convictions have often been ascribed to screening facilities; 91.20% reported that there were no cultural beliefs that would impede them from screening services. This result could have been due to limited knowledge of cervical cancer since most of the participants were uncertain of the predisposing factors, physical symptoms and preventive measures.

Results from the study show that while 81.6% of respondents learned about cervical cancer, 74% of participants had never been screened. The respondents between the ages of 36-46 had accounted for the most substantial proportion (38.3%) that had been screened. The Lack of adequate cervical cancer information, the cost of screening and worry about privacy were some of the primary reasons that respondents gave for having not been screened thus, increasing awareness and creation of an enabling environment would increase utilization. Mantula's study on the use of screening services for cervical cancer in a provincial hospital in Zimbabwe posited similar results wherein, 18.7% of survey participants had been screened while 62.2% had heard about cervical cancer [10].

Most women had heard of cervical cancer, 82% (102) while 18% (23) had not. A Chi-square test disclosed a statistical association between participants that had heard of cervical cancer and screening. It was more probable that women who had heard of cervical cancer had been screened. This corresponded to other studies [10]. In this study, the (43%) of participants quoted radio as their primary source of cervical cancer-related information, followed by hospitals 31%. This finding corroborates findings by Lukorto [11] in Dagoretti Kenya, wherein, 70% of respondents, asserted that radio was their primary source of cancer-related information. Most participants were unaware of any related predisposing factors associated with cervical cancer (75.2%). A plausible explanation for the low understanding of the factors predisposing one to cervical cancer was lack of information these findings are consistent with prior results [12].

Most participants (64.2%) lacked an understanding of the signs and symptoms of cervical disease, 13.9% mentioned breeding between menstrual period, and the results demonstrate two things. First, the women lack knowledge on cervical cancer, and second, the women are unable to go for timely screening because they could not identify signs and symptoms which is notable on the low utilization of screening services in this community, this was affirmed by a similar study in Kibera [13]. However, it is worth discussing that signs and symptoms are not the best indicators for cervical cancer and should not be relied on during the prevention as the disease will already have developed. Therefore, the research(er) concludes that there is a lack of understanding about signs and symptoms and that females should receive help and periodic health education on cervical cancer. The study found that 83.7% of participants did not understand ways preventing cervical cancer and could be a plausible explanation for the elevated incidence of cervical cancer in Rural Bungoma County and the low screening uptake. This study revealed low levels of awareness about cervical cancer causes, signs and symptoms, risk-related factors preventive measures, barriers and this negatively affected uptake of cervical cancer screening.

A study carried out in Ethiopia, whose objective was to determine preventive posited similar results [14]. The understanding of females with cervical cancer and screening tests is critical in strategies to prevent cervical cancer [15].

Most of the respondents did not know any of the available tests for screening at 87.7%. This is an essential finding in the understanding of the women's knowledge of the screening process having mentioned lack of information and worry about privacy as the significant barriers for using screening services. It is unlikely that women will seek screening services if they feel their privacy is intruded.

Approximately 70.40% of the participants did not understand which age females were encouraged to seek screening services. This may explain why uptake is low, the government of Kenya argues that any woman who has ever had sexual intercourse is eligible for cervical cancer screening but puts more emphasis for screening among women aged 25 to 49 years which is their target population. Women between the ages of 50 and 65 are still at danger of cervical cancer and are advised to seek screening facilities within five years with their resources [16].

Majority of the respondents reported to visit the health care providers less than once annually, 18.7% once annually, and 37.4% more than once. It has been observed that women who visit health care providers often are probable to have a higher understanding of cervical cancer as well as likely to seek screening services [17].

Most respondents (84.7%) stated that during their visits, they did not discuss cervical cancer with their health care provider, while 15.2% said yes.

However, when comparing our results with previous studies [18], it must be pointed out that there is need for client and health care provider discussion on cervical cancer mainly through a Client-centered approach and assist in overcoming concerns and misunderstandings.

About 22.4% respondents said that women are charged for screening services, 55.2% said no while 22.4% didn't know. Knowing the cost of testing is essential as it determines the affordability of screening services, other results were broadly in line with this study [19]. Screening cost was attributed as among the primary challenges in screening uptake.

## 5. CONCLUSIONS

The study concludes that Cervical cancer screening is low among women in the study area. The low level of understanding could have precipitated this. Most of them cited the absence of appropriate information as the primary screening obstacle to the screening of cervical cancer. A significant proportion of the women in Rural Bungoma County were less educated, and they possessed less information and experiences about cervical malignant growth and the screening programs. This research has shown that the majority of women in Bungoma had not heard of cancerous cervical growth, and neither had they thought about seeking screening services. despite having very limited or no knowledge of cervical cancer, the majority of women showed interest in seeking cervical cancer screening.

The study concludes that there is a significant/potential possibility of improving women's participation in cervical screening if regular best practices are embraced.

## 6. RECOMMENDATIONS

It is necessary to create awareness among females primarily through health discussions, awareness campaigns, and instructional programs about the advantages of seeking screening for cervical cancer.

The study recommends that health workers increase their engagement with women on cervical cancer issues during their regular visits.

The Ministry of Health and county governments should work together and involve other stakeholders in enhancing the use of screening for cervical cancer.

The government and other stakeholders should plan and provide screening services closer to the women as this will increase their uptake as a result of the reduced cost incurred in transport and time used to the facilities.

## CONSENT

Study participants were taken through the information sheet and consent form where the study purpose, objectives, and voluntary participation were discussed. Permission from respondents was sought verbally and through a consent form.

## ETHICAL APPROVAL

Ethical approval for conducting the research was acquired from Mount Kenya University Ethical and Research Committee and the School of Postgraduate Studies (MKU who issued an introductory letter to facilitate application for proper clearance to collect data for the study. The National Commission for Science, Technology, and Innovation (NACOSTI) granted a Research License for investigation, inquiry, an interview Permit No. NACOSTI/P/18/22250/ 24324. The County Government of the study area was informed of the intended study and the permission and co-operation sought.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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