Cervical Cancer Screening Uptake Among Women Aged 18 to 49 Years in Eastleigh Airbase Ward, Nairobi County, Kenya

Authors: Hagarsu A. M,[1 2],*Kariuki J. G.[2], Affey A. F.[3],

[1] Kenya Medical Research Institute
[2] Mount Kenya University
[3]Umma University
Affiliations

*Corresponding Author
Mumina Adhan Hagarsu
Master's student,
Mount Kenya University,
School of Public Health,
Department of Epidemiology and Biostatistics,
P.O. Box 13495-00100,
Nairobi, Kenya.
Tel: +254721388178 / +254718466288

Co-Authors

John G. Kariuki, Ph.D.
Dean, School of Public Health,
Mount Kenya University,
School of Public Health,
Department of Public Health,
P.O. Box 342-01000,
Thika, Kenya.
Tel: +254722495458

Fatuma A. Affey, MScN.
Lecturer,
Umma University,
School of Nursing,
P.O. Box 713,
Kajiado, Kenya.
Tel: +254722731306

Abstract

Cervical cancer is the second most common cancer among women in Kenya. Screening uptake is a priority research area, as it reduces the incidence, allows for early diagnosis and treatment. To assess the uptake of cervical cancer screening among women who are 18-49 years of age residing in Eastleigh Airbase Ward Nairobi Kenya. This was a community based descriptive cross-sectional study where quantitative and qualitative data was collected. Analysis was done using IBMSPSS version 23. Chi-square was used to test for significance at a level of $p \leq 0.05$. Key informant interviews was analyzed using NVivo11.The mean age of the participants was 31 years with majority, 99 (40.9%) participants aged 30 - 39 years, while women aged 20 - 29 years less likely to uptake cervical cancer screening (OR 0.440, 95% CI 0.223 – 0.868, P = 0.018). Of 219 women interviewed, 66 (28.8%) utilized the screening services. Sources of information found to be significant were from radio, TV, newspaper, friends, women groups, family members, religious leaders, health care providers, barazas and internet (<0.05). The study findings showed that cervical cancer screening uptake was low, and this shows that the availability and accessibility of the services has not translated to improved uptake of screening

Keywords human papillomavirus virus, papanicolaou smear test, visual inspection with acetic acid/visual inspection with lugol's iodine, age, non-communicable diseases

1. Introduction

Worldwide, approximately 500,000 cases of cervical cancer are diagnosed each year and about 50% of women dying from this condition mainly at the peak ages of 35-45 years (Ferlay et al., 2010). Kenya has a population of 10.32 million women aged 15 years and above who are at risk of developing cervical cancer (Morema, Atieli, Onyango, Omondi, & Ouma, 2014; Nthiga, 2014). Currently, it is estimated that every year, 2454 women are diagnosed with cervical cancer with 1676 deaths resulting from it (Morema et al., 2014; Nthiga, 2014). Cervical cancer ranks as one of the most common cancer among Kenyan women. (Ferlay et al., 2010; Varughese & Richman, 2010).

Symptoms of cervical cancer may include vaginal bleeding at late stages. Cervical cancer treatments are surgery, chemotherapy and radiotherapy. Through screening, pre-cancerous lesions can be detected and treated non-invasively (Canavan & Doshi, 2000).

Previous studies showed that about 40% of women in developed countries undergo cervical cancer screening compared to only 5% in developing countries with uptake of the service among Kenyan women being 3.2%. (Ansink, 2007; MoPHS, 2012; Were, Nyaberi, & Buziba, 2011). Screening services were offered in all government health facilities which have set in place a robust cancer awareness and screening program, however, the mortality and morbidity remained high. The daily cases in Nairobi County is 10 to 15 women with the country's daily reported death due to cervical cancer standing at 7(MOH, 2016).

At the current level of cervical cancer service utilization, it was impossible for the government to achieve the vision 2030 objective of shifting health care from curative to preventive as more

women will continue getting the disease, hence increasing the government's expenditure on health care as more specialized treatment, equipment and medication was required to treat affected people. Knowing this, the government put in place policies and strategies to increase cervical cancer service uptake. However, the uptake of these services by those whom it targeted for is wanting. For effective utilization of any service by people, there needed to be consultations with those whom the service is meant for to know how well to package the service and deliver it. Just as populations are dynamic so are the ways in which the same service was delivered to different populations since different populations have different influences from their culture, education, economic standards among other factors that will affect how they utilize the service in question. For instance, it was noted that women of Somali origin have poor uptake of cervical screening services (Abdullahi, Copping, Kessel, Luck, & Bonell, 2009).

The ministry of health come up with several strategies to increase cervical cancer screening in the country. These included, increasing cancer awareness efforts through the media and having the month of October as a cancer awareness month where persons suffering from cancer, cancer survivors and those affected by the disease share their stories while cervical cancer screening camps are held throughout the month.

Despite the ministry of Health initiatives, the mobility and mortality of the disease remained high (MoPHS, 2012). This situation demands answers as to why uptake of the service is poor among Kenyan women. Statistics on uptake of the service among persons of Somali origin were poorer both nationally and globally, these community made up the majority of residents in Eastleigh airbase ward (Abdullahi et al., 2009; Were et al., 2011). It is for this reason that it is important that a study be done to ascertain the reasons for poor uptake of cervical cancer screening services among women who are 18-49 years of age in Eastleigh air base ward. Information and findings gathered from this study would help in coming up with strategies to increasing the cervical cancer screening uptake, and enhance the strategies that are already in place.

The objective of this study was to assess the uptake of cervical cancer screening among women who are 18-49 years of age residing in Eastleigh Airbase Ward Nairobi Kenya.

2. Method This was a community based descriptive cross-sectional study, where 244 women were consented. Questionnaires consisting of 37 questions and Key informant interviews (KIIs) among opinion leaders were conducted.

Data was collected using structured questionnaires, and all data entry and statistical analyses were performed using IBM SPSS version 23. These data was presented inform of frequencies and percentages using tables and charts. Chi-square was used to test for significance among categorical data such as distribution of proportion of women utilizing cervical screening services. Factors that influence the uptake of cervical screening services was done by determined empherical relationships between factors that affect uptake of cervical cancer screening (bivariate analysis). This was done using regression to establish the association between utilization of cervical screening services and socio-cultural, demographic, economic or behavioral characteristics.

Multiple relationships (multivariate analysis) that concurrently affect uptake of cervical cancer screening was examined, by performing a manual backward elimination approach, including factors that were independently associated with uptake of cervical screening services at the significance level of p =0.05.

The data from key informant interviews was collected and analysis was done using Nvivo 11. This involved categorization of data collected, organized, and the themes extracted in summary.

3. Results

Majority of the participants 163 (71.2%) did not utilize cervical cancer screening services. The proportion of women who utilized postnatal care services is shown in figure 1.
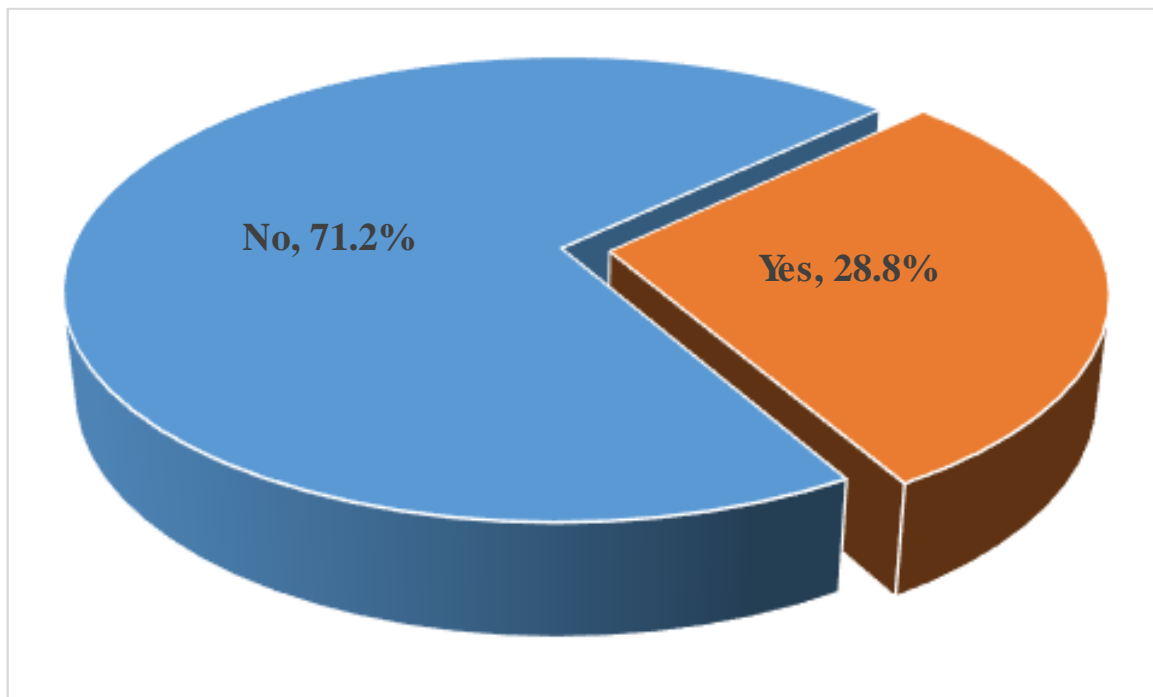
Figure 1: Proportion of women Table 1 summarizes the socio-demographic characteristics of the women enrolled. The mean age of the participants was 31.49 (SD 7.947) years with median of 30 years (range 18 to 49 years). 99 (40.9%) participants were aged between 30 to 39 years while 88 (36.4%) were aged between 20 to 29 years. 144 (46.9%) of the participants were married while 92 (37.9%) were single. 183 (75.9%) participants had at one point of their lives given birth while 58 (24.1%) had never given birth. 76 (35.3%) had 1 - 2 children. 102 (41.8%) of the participants had attained secondary education as their highest level of education. 202 (83.8%) resided in rental houses. 67 (27.8%) of the participants were housewives. The mean income was Ksh. 21,435.13 (SD 18,059.01) and 53 (41.4%) participants earned Ksh. 11,000 - 20,000.Table 1: Demographic characteristics

Demographic characteristics	Frequency (N)	Percent (%)	Mean (SD)	Median	Mode	Range	X^2	df	P
Age (years)									
<20	10	4.1							
20 - 29	88	36.4	31.49 (±7.947)	30	30	31 (18 - 49)	10.319	3	0.016
30 - 39	99	40.9							
40 - 49	45	18.6							
Marital status									
Married	114	46.9							
Single	92	37.9					4.148	3	0.246
Separated/Divorced	24	9.9							
Widowed	13	5.3							
Child birth									
Yes	183	75.9					4.177	1	0.042
No	58	24.1							
Number of children									
None	28	13.0							
1 - 2	76	35.3							
3 - 4	63	29.3	2.88 (±2.115)	3	1	8 (0 - 8)	33.715	8	<0.001
5 - 6	35	16.3							
7 - 8	13	6.0							
Education level									
Not educated	50	20.5							
Primary	50	20.5							
Secondary	102	41.8					45.04	4	<0.001
Tertiary education	22	9.0							
Madrassa education	20	8.2							
Housing									
Rental	202	83.8							
Own house	35	14.5					3.085	2	0.214
Other forms of housing	4	1.7							
Main occupation									
Trader	47	19.5							
Casual worker	35	14.5							
Unemployed	7	2.9							
Employed	46	19.1							
Housewife	67	27.8					78.991	9	<0.001
College student	32	13.3							
Secondary school student	1	0.4							
Beggar	1	0.4							
Sex worker	2	0.8							
Land lady	3	1.2							
Monthly income (KShs.)									
1,000 - 10,000	39	30.5							
11,000 - 20,000	53	41.4							
21,000 - 30,000	15	11.7	21,435.13 (±18,059.01)	15,000	20,000	97,000 (3,000 - 100,000)	19.953	5	0.001
31,000 - 40,000	8	6.3							
41,000 - 50,000	8	6.3							
>50,000	5	3.9							

SD - Standard deviation; **N** - Number; **(%)** - Percentage; **X^2** - Chi square test; **df** - degree of freedom; **P** - P value (level of significance <0.05)

When conducting the key informant interviews, there was consensus with the respondents who pointed out the ages of the women who participate in cervical cancer screening programs. Examples of some of the responses included: "College, and school girls, under 22 and 23 do not participate in screening. They think that they cannot get cancer at this age". said a Community Health worker.

"Most women who volunteer are from ages 45 and above because they are anxious cancer is a disease associated with old age. They younger ones, you need to persuade them because think they are not prone to cancer". Answered one of the nurses.

Table 2 shows cervical cancer awareness factors associated with uptake of cervical cancer screening. A logistic regression was performed to ascertain the effects of awareness of cervical cancer, awareness of cervical cancer screening, frequency of cervical cancer screening and prevention of cervical cancer. In bivariate analysis, participants who screened frequently for cervical cancer if suspicious, every 3 months, every 6 months and yearly were more likely to uptake cervical cancer screening (OR 175.5, 95% CI 20.9 – 1469); (OR 29.2% CI 1.8 – 470.4); (OR 75.2, 95% CI 13.5 – 416.4)

Table 2 Awareness of cervical cancer and cervical cancer screening

Awareness characteristics	N (%)	Cervical cancer screening uptake No, N (%)	Yes, N (%)	P	Crude OR (95% CI)
Cervical cancer					
Yes	153 (66.8)	88 (57.5)	65 (42.5)		Ref
No	75 (32.8)	74 (98.7)	1 (1.3)	<0.001	0.018 (0.002 - 0.135)
Don't know	1 (0.4)	1 (100)	0		ND
Cervical cancer screening					
Yes	153 (67.7)	87 (56.9)	65 (43.1)		Ref
No	73 (32.3)	73 (100)	0		ND
Cervical cancer screening frequency					
If suspicious	8 (3.6)	2 (25.0)	6 (75.0)	<0.001	175.500 (20.966 - 1469.066)
Every three months	3 (1.4)	2 (66.7)	1 (33.3)	0.017	29.250 (1.819 - 470.409)
Every six months	16 (7.2)	7 (43.8)	9 (56.3)	<0.001	75.214 (13.584 - 416.474)
Yearly	73 (32.9)	26 (35.6)	47 (64.4)	<0.001	105.750 (24.133 - 463.400)
Every two years	3 (1.4)	3 (100)	0		ND
Every five years	0	0	0		ND
Don't Know	119 (53.6)	117 (98.3)	2 (1.7)		Ref
Cervical cancer prevention					
Yes	108 (50.2)	45 (41.7)	63 (58.30		Ref
No	15 (7.0)	14 (93.3)	1 (6.7)	0.006	0.051 (0.006 - 0.402)
Don't know	92 (42.80	92 (100)	0		ND

N - Number; **(%)** - Percentage; **P** - P value (level of significance <0.05); **OR** - Odds Ratio; **CI** - Confidence interval
ND - Not done; Ref - Reference

Table 3 shows healthcare system factors associated with uptake of cervical cancer screening. A logistic regression was performed to ascertain the effects of distance, time to be served at the health facility, decision making based on the time to be served at the health facility, attitude of the health workers, speculum examination and preferred choice of the healthcare workers. In bivariate analysis, participants who made their decision based on the time taken to be served

were more likely to uptake cervical cancer screening (OR 2.365, 95% CI 1.313 – 4.258, P = 0.004). Participants who made their decision based on attitude of the health care workers were more likely to uptake cervical cancer screening (OR 1.983, 95% CI 1.107 – 3.553, P = 0.021). Participants who made their decision based gender of the health care workers were more likely to uptake cervical cancer screening with those preferring male (OR 10.853, 95% CI 2.992 – 39.364, P = <0.001) and those preferring either (OR 6.068, 95% CI 3.002 – 12.266, P = <0.001).

Table 3: Health care facility factors

Health care system factors	N (%)	Cervical cancer screening uptake		P	Crude OR (95% CI)
		No, N (%)	Yes, N (%)		
Distance					
<500 Metres	131 (58.8)	96 (73.3)	35 (26.7)		Ref
500 Metres - 1 Kilometre	91 (40.6)	60 (65.9)	31 (34.1)	0.24	1.417 (0.793 - 2.534)
>1 Kilometre	2 (0.9)	2 (100)	0		ND
Time to be served at the health facility					
<30 Minutes	45 (20.0)	33 (73.3)	12 (26.7)	0.908	0.956 (0.444 - 2.058)
30 minutes - 1 Hour	127 (56.4)	92 (72.4)	35 (27.6)		Ref
>1 Hour	27 (12.0)	17 (63.0)	10 (37.0)	0.328	1.546 (0.646 - 3.701)
It depend on number of patients	26 (11.6)	17 (65.4)	9 (34.6)	0.47	1.392 (0.568 - 3.412)
Decission making based on time taken to be served					
Yes	94 (42.0)	57 (60.6)	37 (39.4)	0.004	2.365 (1.313 - 4.258)
No	130 (58.0)	102 (78.5)	28 (21.5)		Ref
Attitude of health workers					
Worst	1 (0.4)	1 (100)	0		ND
Worse	9 (4.0)	9 (100)	0		ND
Neutral	21 (9.4)	14 (66.7)	7 (33.3)	0.442	1.179 (0.442 - 3.148)
Better	61 (27.4)	41 (67.2)	20 (32.8)	0.599	1.151 (0.599 - 2.210)
Best	131 (58.7)	92 (70.2)	39 (29.8)		Ref
Attitude of health workers and effect to utilization					
Yes	106 (47.1)	67 (63.2)	39 (36.8)	0.021	1.983 (1.107 - 3.553)
No	119 (52.9)	92 (57.9)	27 (22.7)		Ref
Speculum examination experience					
Worst	17 (22.4)	1 (5.9)	16 (94.1)	0.363	3.000 (0.281 - 31.992)
Worse	17 (22.4)	7 (41.2)	10 (58.8)	0.099	0.268 (0.056 - 1.283)
Neutral	6 (7.9)	2 (33.3)	4 (66.7)	0.36	0.375 (0.046 - 3.056)
Better	19 (25.0)	3 (15.8)	16 (84.2)		Ref
Best	17 (22.4)	5 (29.4)	12 (70.6)	0.333	0.450 (0.089 - 2.263)
Prefered choice of HCW based on gender					
Male	13 (7.1)	4 (30.8)	9 (69.2)	<0.001	10.853 (2.992 - 39.364)
Female	99 (54.4)	82 (82.8)	17 (17.2)		Ref
Either	70 (38.5)	31 (44.3)	39 (55.7)	<0.001	6.068 (3.002 - 12.266)

N - Number; **(%)** - Percentage; **P** - P value (level of significance <0.05); **OR** - Odds Ratio; **CI** - Confidence interval
ND - Not done; Ref - Reference group/Base

When conducting the key informant interviews, there was consensus with the respondents that there were no any health regulations that are followed by the women who participate in cervical cancer screening programs.

Examples of some of the responses included: "They have an option of accepting or rejecting

screening", said a Community Health worker.

"There is no exact policy but we encourage them through health education". Answered one of the nurses.

"There is no government regulation". Answered one of the nurses.

4. Discussion

Uptake of cervical screening is considered a very effective way in the reduction of the morbidity and mortality of the disease. There were factors that were explored by this study to ascertain the association with uptake of cervical cancer screening services at the Eastleigh Airbase ward health facilities. The results found in this study demonstrated that out of a total of 244 respondents only 66 (28.8%) reported that they went for cervical screening. The low uptake of screening has been found in other previous studies that were done in different parts of Kenya and African countries neigh boring Kenya. These included studies done in Embu county which reported an uptake of 25% (Nthiga, 2014), Kisumu which reported findings of 17.7% (Morema et al., 2014) and a study conducted in Moshi Rural District Tanzania whose findings were at 22.6% (Lyimo & Beran, 2012). The low uptake might be attributed to level of awareness, dissemination of information and knowledge on the signs and symptoms of cervical cancer.

Based on previous studies, socio-demographic characteristics have been found to affect uptake of cervical cancer screening among women within this age group. This study showed that women aged between 20 - 30 years were less likely to go for cervical cancer screening (OR 0.440, 95% CI 0.223 – 0.868, P=0.018). This findings are comparable with other studies that have found lower rates of screening among women aged 20-29 years (Nthiga, 2014). Another study done in Kenya on risks and barriers to cervical cancer screening found that women over 30 years were more likely to have screened for cervical cancer than younger women(Were et al., 2011). Screening uptake is usually lower in younger women as compared to relatively older women, as shown in our study findings. *"College, and school girls, under 22 and 23 do not participate in screening. They think that they cannot get cancer at this age".* Similar findings were fund in previous studies where the rates of screening were substantially lower in younger and elderly women than middle aged women aged of 30 years and above(Dim, Ekwe, Madubuko, Dim, & Ezegwui, 2009; Were et al., 2011).

Majority of the women who participated in this study 109 (47.8%) were married. However, this study found no significant association between age and uptake of cervical cancer screening. Previous studies found that unmarried and widowed women are less likely than married to obtain Screening (Liao, Wang, Lin, Hsieh, & Sung, 2006; Nthiga, 2014). This study findings also showed that there was a significant association between child birth and uptake of cervical cancer screening. Women in this study who had not had any delivery were less likely to go for cervical cancer screening (OR 0.440, 95% CI 0.216 – 0.980, P=0.044).

Of all the women who participated in this study, 98 (42.8%) had secondary education while 48 (21.0%) had primary education. In this study, there was a significant association observed between level of education and cervical cancer screening uptake and women who had attained primary level of education were less likely to uptake cervical cancer screening (OR 0.323, 95% CI 0.148 – 0.705, P=0.005). This is in agreement with studies done by Nthiga 2014 who found that women with lower screening rates have a lower level of education(Nthiga, 2014).

This study also showed that there was a significant association between education and uptake of cervical cancer screening. Furthermore, women who had formal and informal employment were more likely to uptake cervical cancer screening. These findings were consistent with a previous study done in Embu (Nthiga, 2014).

Women who had financial earnings of 1,000 – 10,000 kenyan shillings were less likely to uptake cervical cancer screening services. Increased socio-economic status place the women population in a better position economically increasing the likelihood of them seeking for cervical screening. This is because they are able to finance their health care needs.

The source of information on cervical cancer screening among most of the respondents was from TV and radio. Other sources of information on cervical cancer screening were Newspaper, Friend, Women group, Family, Religious leader, Health provider and community health workers. Findings from this study indicated that women's knowledge and awareness of cervical cancer screening was significantly associated with uptake of screening or screening status. Hence, women who are aware of cervical cancer and screening are more likely to undergo screening of the disease. Our study findings showed that participants who said that they did not know about uptake of screening had a higher likelihood of not being screened for cervical cancer. Findings from the demographic characteristics in this area/ward revealed that the uptake is still significantly low at 28.8% as compared to the national target of 75% by the year 2009. A similar study carried out in South Africa, showed a figure of 18%. As such, relatively less people could have been aware about it at the time. Screening is usually encouraged at the health facilities as was shown during the KII interviews *"We encourage screening so that treatment is done early"*. This study included methods of visual inspection using acetic acid (VIA) and visual inspection using Lugol's iodine (VILLI), which have been highly mentioned when KII were conducted *"Cervical cancer screening is readily available and is free of charge and the method is VIA/VILLI. Reagents are cheap like vinegar, iodine, readily bought from supermarket and shops around"*.

This study found that knowledge on symptoms of cervical cancer and how cervical cancer is spread was poor. A large proportion of women in this study that they did not know how cervical cancer as spread or or the symptoms of cervical cancer. This was in keeping with a study conducted among primary school teachers in Kenya which sought to find out to know if the women knew of the signs and symptoms of cervical cancer. The majority of the women were not aware of the common signs and symptoms of cervical cancer(Ombech, Muigai, & Wanzala, 2012).

Further logistic regression analyses demonstrated that those who indicated that they didn't know about the disease or the symptoms had a higher likelihood of not being screened for cervical cancer. These observations were similar to a study carried out at the Moi Teaching and Referral Hospital and support the Health Belief Model that the importance of perceived severity and susceptibility guides the decision to seek a service such as cervical screening.

This study showed that participants who made their decision based on the time taken to be served were more likely to uptake cervical cancer screening. Furthermore, participants who made their decision based on attitude of the health care workers were more likely to uptake cervical cancer screening. Participants who made their decision based gender of the health care workers were more likely to uptake cervical cancer screening with those preferring male. Previous studies have shown that barriers to screening include decrease in access, insufficient funding, and unfavourable attitudes towards screening. Similarly, the barriers identified by a study conducted by Mutyaba showed additional barriers in health systems such as language and unhelpful attitudes of health professionals and unfriendly health care services(Ferlay et al., 2010). Also, lack is cervical cancer control programme could also be a factor influencing utilization of services(WHO, 2006).

In conclusion, the study demonstrated that cervical cancer screening was low at 28.8%, and that those participants who indicated that they did not know about the disease or were not aware about susceptibility to it had a higher likelihood of not being screened for cervical cancer. More emphasis should be on creating additional awareness about cervical screening at all service delivery points within the health facilities. This will lead to an enhanced knowledge and reduced morbidity and mortality associated with cervical cancer.

The study also demonstrated that demographic factors that influenced cervical cancer screening included employment, age and income. The health facility factors that that influenced cervical cancer screening were decision made based on time taken to be served, attitude of health care workers, and gender of the health care workers. All these barriers need to be addressed so as to ensure effective utilization of cervical cancer screening.

Forming a group of women who have been screened will go a long way in promoting cervical cancer screening uptake. Therefore, Eastleigh Airbase ward being a cosmopolitan area with different ethnic groupings and the two common religious affiliations may result in far reaching effects to other parts of the county of Nairobi and other parts of the country.

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