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Factors Associated with Cervical Cancer Screening Uptake in Naivasha District, Kenya

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Abstract
The objective was to determine and explore factors associated with cervical cancer screening uptake among women attending the family planning clinic at a public hospital in Naivasha District. A concurrent triangulation mixed study method was used. Using systematic sampling, 384 women aged 18-49 years of age were enrolled into the study. Data was collected through semi-structured questionnaires. After purposive sampling 7 key informant interviews and 2 focus group discussions were conducted using interview guides among women treated at the family planning clinic. Data from the quantitative study was analyzed for descriptive statistics, bivariate (unpaired student's t-test, Chi-square) and multivariate analysis (Binary logistic regression analysis) while themes were used to analyze data from the qualitative study. Using multivariate analysis, employment status, usual treatment center, risk of cervical cancer, having heard of cervical cancer and knowing someone who had been screened were factors found to be significantly associated with cervical cancer screening uptake. Large number of clients, inadequate screening rooms, inadequate information and misconception of facts on cervical cancer screening were identified as common barriers to uptake of screening. Hospital talks were the most preferred source of getting information related to cervical cancer. In conclusion, policy makers should establish a comprehensive strategy that ensures programs in health facilities and outreaches educate those accessing their facilities well so as to increase cervical cancer screening uptake.
Keywords: Cervical cancer screening; VIA/VILI; family planning clinic; Naivasha referral public hospital; Health access.

1. Introduction

Worldwide, cervical cancer is the second most common cancer among women while in developed countries it is the tenth. Statistically, 86% of the cases occur in developing countries. High-risk regions include Eastern and Western Africa (Ferlay *et al.* 2010, WHO/ICO 2010). In Kenya, 10.32 million women aged 15 years and over are at risk of developing cervical cancer (WHO/ICO 2010). Cervical cancer is the second most common cancer type, at 21%, of all cancers as reported at the Nairobi Cancer Registry (2003-2007).

Cervical cancer screening can reduce the incidence of cancer by early detection and treatment. However there are barriers to cervical cancer screening uptake. In developing countries barriers include: absence of knowledge about the disease, lack of familiarity with the concept of preventive healthcare, geographic inaccessibility of services, lack of support from families and communities and fear of the speculum exam (Huchko *et al*. 2011, ACCP 2004, MOPHS 2012).

Visual inspection with Acetic Acid (VIA) and Visual Inspection with Lugol's Iodine (VILI) are used in low-resource settings. In Kenya, several projects in reproductive health and HIV have been offering cervical cancer screening using VIA/VILI methods (MOPHS 2012).

Hence the target of the national cervical cancer prevention program strategic plan (NCCPPSP) is to ensure that women have access to cervical cancer prevention and control services through family planning (FP) clinics. This will lead to a reduction of incidence of cervical cancer and have a positive impact on health and development.

Most studies do not distinguish between women not seeking healthcare and those using the health care system but not receiving appropriate preventive care because women avoid cervical examinations (Rigal *et al*. 2011). A study by Were *et al*. (2011) stated that limitations to its findings were referable to women who accepted to participate and then undergo screening using visual inspection hence the likelihood that the women that did not accept screening were significantly different. This study aimed to identify the factors influencing women to participate in VIA/VILI screening. The expected outcome was generation of information that can be applied in policy making and outreach programs to reach women and increase coverage rates.

2. Methods

2.1 Study design and setting

This was a concurrent triangulation mixed method study using a cross-sectional study design, key informant

interviews (KII) and focus group discussions (FGD). The study was carried out at Naivasha District Hospital, a level four referral hospital located in a major catchment area bordering highly populated areas. The hospital has a family planning clinic that offers cervical cancer screening services using VIA/ VILI.

2.2 Study participants

These were clients, 18-49 years of age, treated at the family planning clinic at the Naivasha District Hospital. They were the participants for both the cross-sectional study and the FGD. Doctors and nurses were the study participants for the KII.

2.3 Sampling strategy

A cross-sectional study sample size (Cochran formula, (Bartlett et al., 2001)) of 384 was used and systematic sampling used to select the study participants. Purposive sampling was used to select participants for the qualitative study. This included 2 FGDs. Each group had minimum of 5 and a maximum of 6 participants. There were 7 KII. The KII participants were recruited on the basis of having first-hand knowledge on cervical cancer screening.

Data was collected through semi-structured questionnaires from the study participants for the cross-sectional part and guides for the KII and FGD part of the study. Both note taking and tape recording were used to record information for the qualitative part of the study.

2.4 Data analysis

Data was entered, cleaned and analyzed using Statistical Package for Social Sciences (SPSS) version 20.0 for the quantitative data. Qualitative information was coded thematically by researcher and a research assistant. Data was then analyzed manually using content analysis.

2.5 Ethical considerations

Ethical and scientific approval was obtained from the Ethical and Research Committee and the Scientific Steering Committee in Kenya Medical Research Institute (KEMRI).

3. Results

From June to July 2014, data was collected using a concurrent triangulation mixed method study method. The themes are represented by a few quotes from both the FGD and KII (Table 1). These themes are linked with the cross-sectional part of the study.

3.1 Participants' characteristics

The 384 cross-sectional participants had a mean age of 26.81 with a standard deviation (SD) of 6.14 and ranged from 18 to 48 years. All the FGD participants were married and had at least a primary education. Median age was 29 and ranged from 23 to 47 years. The 7 KII participants ranged in age from age 35 to 59 and consisted of 5 females and 2 males. They were all involved in various ways in cervical cancer screening.

Table 1: Illustrative quotes from the FGD and KII

Theme	Quotes
Reason for not screening	-*"There is no need to stress myself finding out if I have cervical cancer now, it is better to wait until that day reaches and I am told I have it (FGD-5, 8)."* -*"So we really do screening on women using IUCD and if there is a mother who has a problem (KII-1, 3)."* -*"Some of them are elderly mothers, if they find whoever is screening is a grandchild and because of the position for screening they are ashamed and don't want to be screened (KII-3)."*
Knowledge of cervical cancer	-*"If we who are the women are ignorant, we don't expect most of our husbands to know about cervical cancer (FGD-7)."* -*"You can get cervical cancer by getting pregnant early, for example, 15 years or getting pregnant in older age, for example, 40 years (FGD-8)."* -*"I know someone whose problems with cervical cancer started after she had a C-section (FGD-7)."* -*"Women also ask if men can be treated for HPV (KII-5)."*
Knowledge of cervical cancer screening	-*"I think women are screened after every 3 months (FGD-5)."* -*"I heard screening is painful so I wouldn't like to be screened unless I am in pain from illness (FGD-8)."* -*"Watching what we eat and by being clean will prevent cervical cancer (FGD-2, 3 and 5)."* -*"When we treat a woman, she tells others that if you go to Naivasha you are screened and if there is a problem it is solved there so you find the women coming because they have been informed by one of their own (KII-3)."* -*"We don't want to be just told to enter and get ready to be screened without guidance. This causes women to fear to be screened (FGD: 3-5)."*
Source of information	-*"There are those who do not have radios or TVs; or the information might be brought when we are not listening therefore it is better when we get the information at the hospital (FGD-2, 5 and 7)."* -*"Women who have heard of cervical cancer screening in outreaches, but missed also come to the hospital to ask for screening (KII-7)."* -*"I heard of cervical cancer because someone I knew died from it. Though I was not taught but did my own research (FGD-7)."* -*"After the church service, time can be taken to inform us as it is difficult for women to leave their chores and also to get many women together other times (FGD-7)."* -*"We talk on the importance of screening and making it routine during health education talks at the maternal child health (MCH) plus we spare a few minutes so that the clients can ask questions (KII-5)."* -*"Visual aids have an impact as when women look at them and they think that they look like that, they say now let me be screened (KII-7)."*

Of the 384 participants, 70.1% were aware that cervical cancer can be screened for. More than three-quarters of the study participants did not know of someone who had been screened for cervical cancer (Table 2). In the KII the uptake was seen from two different perspectives; one was that some challenges discouraged women going to the hospital from being screened while another group described screening uptake to be high during outreach campaigns in churches and women groups.

Table 2: Participants information on cervical cancer (N=384)

Variable	Frequency	Percent (%)
Cervical cancer preventable: (N=257)		
Yes	146	56.8
No	42	16.3
Do not know	69	26.8
***Causes of cancer:**		
Do not know	198	51.6
Family planning methods	33	8.6
Food eaten	34	8.9
Multiple partners	33	8.6
Sexual activity	32	8.3
Lack of awareness	32	8.3
Cervical wounds	15	3.9
STDs	5	1.3
Stress	5	1.3
Smoking	5	1.3
Ever heard of HPV:		
Yes	39	10.2
No	344	89.6
Non-response	1	0.3
Ways of transmission: (N=39)		
Do not know	29	74.4
Contagious	1	2.6
Sexually	9	23.1
Advice women they know closely to be screened:		
Yes	374	97.4
No	9	2.3
Non-response	1	0.3
Future risk of cancer:		
Low	164	42.7
Medium	109	28.4
High	72	18.8
Do not know	39	10.2
Partner/Husband know of cervical cancer:		
Yes	160	41.7
No	186	48.4
Do not know	33	8.6
Non-response	5	1.3
Hard to discuss symptoms of female genital tract:		
Yes	67	17.4
No	315	82
Non-response	2	0.5
Know someone screened:		
Yes	95	24.7
No	289	75.3

**Other mentioned causes for cervical cancer by participants were pregnancy at an early age, early start of sexual activity, natural occurrence, inheritance and abortion at 0.5%; long duration without pregnancy, dirt, wet clothes, method used to deliver baby and drugs each at 0.3%.*

3.2 Reasons for not screening

Study participants who were not screened during the study period gave various reasons (Table 3) similar to the FGD. These included: not knowing that cervical cancer can be screened for and not being asked to be screened. Other reasons in the FGD included long waiting queues, fear of the screening process, belief that one needs to first get the symptoms and belief that a health care practitioner will notice a problem during other routine practices such as a C-section.

Table 3: Reasons for not being screened (N=375)

Variable	Frequency	Percent (%)
Reason not screened:		
No reason	98	26.2
Do not know of cervical cancer screening	78	20.9
No information on cervical cancer	37	9.9
Not aware of where cervical cancer screening is done	31	8.3
Will be screened at a later date	24	6.4
Been screened before	20	5.3
Not sick	20	5.3
Not decided	17	4.5
Busy schedule	13	3.5
Not asked by healthcare worker	11	2.9
Fear	8	2.1
Do not want to be screened	5	1.3
Financial constraints	5	1.3
Was waiting to deliver	2	0.5
Others*	1	0.3

*Other reasons for not being screened mentioned by participants include: long waiting queue, distance from facility, forgot to go for screening, advised to wait until 30 years of age and just out of high school each at 0.3%.

In the KII additional reasons for not screening clients for cervical cancer were: inadequate screening rooms, lack of enough trained workers, inadequate screening equipment and reagents; and resistance to new services by some clients and staff (Table 1). The large number of clients was reported to be as a result of referrals from health centers and dispensaries in rural facilities where staff were not trained on cervical cancer screening. Many services in addition to VIA/VILI were also offered at the same FP clinic. As a result, screening was done on specific cases. This proved to be a challenge especially when encouraging other clients whose target visit had not been the FP clinic to be screened.

Some key informants responded that cost of screening was a challenge for some clients while others said it was affordable. High turnout in the villages when free cervical cancer screening was offered was also reported. It also came out that the FGD participants were not aware of the cost of screening though they hoped it was affordable.

3.3 Knowledge on cervical cancer

More than half of the study participants at 51.6%, did not what causes or increases the chance of a woman getting cervical cancer. The others gave different reasons (Table 2). Some things that some FGD participants thought caused cervical cancer included those mentioned in the cross-sectional study plus: Food eaten especially crops grown with chemicals, re-cycling cooking fat, family planning methods for example the coil and long duration of using family planning. Participants at 89.6% had not heard of Human papilloma virus (HPV) though 56.8% thought cervical cancer was preventable (Table 2). Most of the FGD participants mentioned that they did not know about prevention of cervical cancer while others gave some ideas (Table 1).

While a large percentage at 97.7% had not been told they have any kind of cancer by a doctor those who saw their risk of getting cancer in the future as low were 42.7% (Table 2). Some of the FGD study participants had different views on who they thought was at risk of getting cervical cancer. These included women at menopause, women with children, very young and very old women. Husband/partner lack of knowledge of cervical cancer was high at 48.4% (Table 2). In the KII it also came out that though spousal support was good, men were not actively involved.

3.4 Knowledge on cervical cancer screening

Participants who mentioned that women can be screened for cervical cancer even if they were healthy were 93% (Table 4). However responses on when the screening was to be done was varied with 75% saying it should be done whenever a woman wants (Table 4).

Table 4: Knowledge factors (N = 384)

Variable Knowledge	Frequency	Percent (%)
A woman can be screened if healthy	357	93
Screening helps a woman know if there is a problem with her cervix	357	93
Screening should be done whenever a woman wants	288	75
A positive screen test means a woman has cancer	210	54.7
Screening should be routine	203	52.9
Screening should be only at advice of health worker	151	39.3
Screening tells a woman she has a fatal condition with no cure	116	30.2
Screening is painful	89	23.2
The screening process is like getting a vaccine	85	22.1
Screening should be once in a lifetime	16	4.2

In the FGD, views on the number of times a woman should be screened were varied from several months to a year. The FGD participants also preferred waiting until a healthcare practitioner advised them to be screened.

Women of age 30 and above, who have children, were seen as being more receptive to screening by key informants. Almost all the study participants at 97.4% would advise the women they knew closely to be screened for cervical cancer (Table 2). Some FGD participants also reported that if screened they would tell other women.

3.5 Communication methods on cervical cancer

The most common means study participants got cervical cancer information was from health workers and media both at 32.7% (Figure 1). Nurses at 81% were the main source of information among these health workers. While radio at 51.2% followed by television (TV) at 25% were the most common sources of media information.

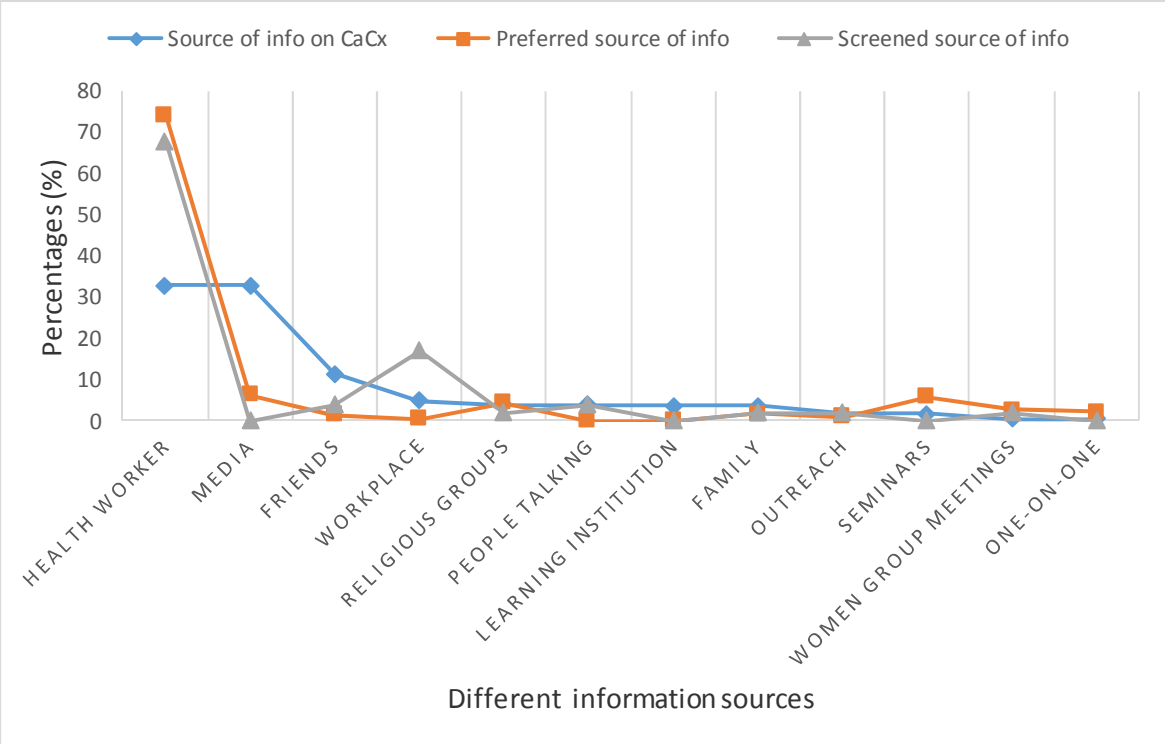

Figure 1: Trends in information sources

**Figure 1 shows where the source of information that the participants reported having heard about cervical cancer was. It also showed the future preferred source of information for all the participants. The participants who had been screened also indicated the source where they had got information on cervical cancer screening.*

When asked about how they would prefer to be given information on cervical cancer, 74.2% wanted to be given educational talks at the hospital (Figure 1). This was also the preferred source in the FGD. The most preferred form of media for getting information was the radio at 45.8%. This was slightly lower than the 51.2% who had heard about cervical cancer through that same means of communication. Posters, TV and pamphlets

were preferred by the more educated FGD participants who could read. The preferred language for communication by FGD participants was Kiswahili or English for those in urban areas with local languages favored in rural areas.

3.6 Factors associated with cervical cancer screening

Variables which had a p-value ≤ 0.25 in the bivariate analysis were subjected to binary logistic regression analysis following Hosmer and Lemeshow 1989. These were age group, residence, income level, nearest hospital facility, usual treatment center, risk of cervical cancer, ever heard of cervical cancer, knowing someone screened, knowledge level, perceived risk of getting cancer and partner/husband knowledge of cervical cancer. Some of the variables were retained in the model and were associated with screening uptake (Table 5). Those working were 2.35 times more likely to have been screened than those not working. The hospital as a usual treatment center was significant at p=0.041. Those who indicated that the hospital was the usual treatment center were less likely to have been screened (OR=0.43).

Table 5: Multivariate analysis result

Variable	α – value (P-value)	Exp (β) (Odds Ratio)	95% C.I.
Employment status:			
Working		1.0	
Unemployed	0.023	2.35	1.13-4.92
Usual treatment center:			
Yes		1.0	
No	0.041	0.43	0.19-0.97
Risk of cervical cancer:			
High		1.0	
Low	0.028	2.41	1.1-5.27
Ever heard of cervical cancer:			
Yes		1.0	
No	0.006	5.64	1.64-19.41
Know of someone screened:			
Yes		1.0	
No	<0.001	9.97	4.99-19.92

Exposure to factors that increased the risk of cervical cancer was significant with those at high risk 2.41 times more likely to have been screened than those at low risk. Knowing someone who has been screened was highly significant at p<0.001. Those who knew someone who had been screened were 9.97 times more likely to have been screened (Table 5).

4. Discussion

A woman's ability to make an informed decision and act on it is influenced by existing social networks and institution or community in addition to her own beliefs and behavioral patterns (ACCP 2004). This came out in this study as participants gave various reasons for lack of screening despite the fact that it was offered in a facility they were visiting. Those wishing to be screened at a later date were much lower than expected in relation to other studies (Were *et al*. 2011). Lack of awareness and knowledge on screening and where it is done were main barriers to cervical cancer screening. Similar findings were found in other studies (ACCP 2004; Claeys *et al*. 2003). During the interviews, screening for cervical cancer was often compared with screening for HIV or for a fatal condition with no cure. This may be due to perception that cancer is untreatable and eventually leads to death (MOPHS 2012, WHO 2006). Fear of screening process and abnormal results were findings similar to other studies (ACCP 2004; Were *et al*. 2011). Screening is often viewed as an unnecessary procedure by women who perceive themselves as healthy (Gatune *et al*. 2005). This was also reported in the study. In the KII, this was also a problem because clients reported late for screening when they were already in the cancer stage. Other participants waited for a healthcare worker to advise them to be screened. Thus screening could be directly linked to health practitioners.

The long waiting period in the FGD due to the large number of clients resulted in healthcare workers being rushed with little time allocated for each client. Some KII participants reported that this could be solved by training more healthcare workers on cervical cancer screening, having specific rooms for VIA/VILI where clients feel their privacy is protected and adequate reagents and instruments for screening.

In this study, having heard of cervical cancer had a higher percentage than other studies (Gatune *et al*. 2005; Eze *et al*. 2012). It was also significantly associated with screening uptake. Those who had heard of cervical cancer were 5.6 times more likely to be screened. Those who thought it was preventable were higher than other studies (Eze *et al*. 2012; Agurto *et al*. 2004). This could be due to increased dissemination of cervical cancer information over the years.

Most of the participants in this study did not know how to prevent cervical cancer and were higher than reported in other studies (Gatune *et al*. 2005). Causes of cervical cancer similar to other studies were mentioned and included family planning methods, sexual activity and type of food eaten. There is a perception that all cancers in general have similar causative factors such as diet. Those who perceived they were at high risk of getting cancer were low, similar to another Kenyan study (Were *et al*. 2011). This could lead to low screening uptake. Only 10.2% had ever heard of HPV similar to other studies (Wong *et al*. 2013) with many not knowing how it is spread. The need not to associate cervical cancer with STIs due to promiscuity while giving information to clients so that they can make choices about their sexual behaviors is a challenge (Lee *et al*. 2007; Waller *et al*. 2004).

While one of the barriers to cervical cancer screening was lack of support from families and communities (ACCP 2004), support given by husbands may encourage women to get screened as indicated by a key informant who reported that husbands who knew of screening told their women to go and be screened. Though participants reported that a woman can be screened even if she's healthy, some participants thought a woman should be screened three times in a year. This was in contrast to the recommended screening cycle in Kenya which is every five years except for HIV positive women (MOPHS 2012).

It was also noted that women satisfied with the services they received were more likely to describe their experience to family members and friends (ACCP 2004). Knowing someone who had been screened was significantly associated with screening uptake. However, few participants in this study knew someone who had been screened. This could be one of the reasons for low screening uptake.

Privacy and unavailability of female providers were some similar main barriers identified (Agurto *et al*. 2004). In both the KII and FGD, preference of older more experienced female healthcare practitioners was mentioned. This shows the sensitivity with which matters dealing with the female genital tract are hence the need to understand the culture and attitudes within an area.

Most of the participants in the FGD were not for media being how they would like to learn more on cervical cancer which was the opposite of Gatune *et al*. (2005) study. They reported that the information may be aired when they were not tuned in. The fact that media was not mentioned by those who had been screened supports this. Educational talks at the hospital as a preferred source of information was more than three times the Gatune *et al*. (2005) study. This could be as a result of the trust clients have with the healthcare providers. Another reason came out in the KII where it was reported that clients interact with the healthcare workers and can ask questions.

High risk participants have been found to be more likely to accept screening (Huchko *et al*. 2011; McKenzie *et al*. 2007). This also came out in this study with those at a higher risk more likely to be screened. The definition of high risk were those participants who indicated they were exposed to co-factors.

The study limitation was that study participants ranged in age from 18-49 years. This could mean that the outcome from this study may not be generalized to younger and older women. Further research may be needed to confirm this. However, the family planning clinic focuses on screening using VIA/VILI which is not suitable for postmenopausal women (WHO 2006).

5. Conclusion

Various challenges like inadequate knowledge on cervical cancer and screening are worrying considering studies conducted over five years before the current one have reported similar findings. Clients not knowing the cause and associated risk factors may hinder them from taking adequate measures to protect themselves. Results of this study show that knowing someone who was screened was highly significant in relation to having been screened. Therefore it may be advisable for reproductive health programs to ensure that women who have been screened are adequately informed on cervical cancer. This will have a ripple effect on other women they associate with, demystify the screening process and in turn influence other women to be screened.

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