Cervical cancer screening uptake among women in Naivasha

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Summary

Background: About 86% of the cases of cervical cancer occur in developing countries. In Kenya, cervical cancer represents 21% of all cancers in women. With a development period as long as ten years, cervical cancer is possible to control through screening and treatment. Several projects in reproductive health have been offering cervical cancer screening using visual methods through visual inspection with acetic acid or visual inspection with Lugol's iodine (VIA/VILI). Family planning counselling programs are a good opportunity to discuss the benefits of cervical cancer screening with gynaecological examination more easily accepted. The study looked at the outcomes in relation to screening.

Methods: A total of 384 women aged 18 – 49 years were enrolled through systematic sampling in the descriptive cross sectional study. These were clients who attended the family planning clinic in June-July 2014. Participants answered questions from semi-structured questionnaires.

Results: Participants who reported to have been screened for cervical cancer were 15.4%. Those screened during the study period were 2.3% and of these, 44.4% had positive VIA/VILI results. Age-group, residence, employment status and usual treatment centre were significant in relation to cervical cancer screening uptake.

Conclusion: The availability of screening services in clinics that clients normally attend does not translate into high proportions in cervical cancer screening uptake. However, targeted screening will result in more positive cases being reported.

Keywords: Cervical cancer screening uptake, VIA/VILI, family planning clinic, Kenya

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Introduction:

Cancer has become a major source of morbidity and mortality globally. Worldwide, breast and cervical cancers represent 33% of the new cancer cases in females. Cervical cancer is the second most common cancer among women worldwide and the tenth most common cancer in developed regions [1]. About 86% of the cases occur in developing countries [1]. This represents 13% of female cancers. High-risk regions include Eastern and Western Africa with a cumulative risk (0-74) of 3.8%. Age-specific incidence rates peak at around 55-64 years [1, 2].

Breast cancer represents 22% of all the cancers while cervical cancer represents 21% in Kenya as reported at the Nairobi Cancer Registry (2003-2007). In Kenya, 10.32 million women 15 years older are at risk of developing cervical cancer [2].

Human papillomavirus (HPV) infection is a well-established cause of cervical cancer and though it is a necessary cause, it is not sufficient. Infection with one or more of the high-risk oncogenic types leads to invasive cervical cancer after around 10 years. About 38.8% of women in the general population are estimated to harbour cervical HPV infection at a given time. Other cofactors associated with the progression from cervical HPV infection to cancer include tobacco smoking, high parity and age at first sexual intercourse and co-infection with HIV [2].

Cervical cancer screening can reduce the incidence of cancer by early detection and treatment. In an effort to reduce the incidence, morbidity and mortality associated with cervical cancer, the Kenyan government is placing greater emphasis on the need for system strengthening to facilitate provision of primary prevention, screening, early detection, diagnosis and appropriate management of pre cancer and cancers [3].

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 visual inspection methods VIA/VILI [3]. The family planning clinic also offers family planning and contraceptive methods services. Despite this service being offered, not all clients take up cervical cancer screening.

There are six levels of health care delivery in Kenya (Kenya Essential Package for Health-KEPH). Specialization increases with each increasing level with level 6 being the highest. District and sub-district hospitals are in Level 4. They are the first referral hospitals and form an integral part of the district health system [4]. The family planning clinic is a setting that offers the opportunity for health providers to add value to the visit of a woman through cervical cancer screening [5]. Though easily preventable, the cervical cancer screening coverage is low with some studies showing that cervical cancer screening uptake lower than 30% [3, 6, 7].

Since most cervical cancer cases are diagnosed late, the scope for successful treatment is limited and very expensive and consequently the mortality rate is high among the affected patients. Cervical cancer thus claims the lives of women in the prime of their life. It has been estimated that the average life years lost due to cancer of the cervix is 25.3 years [3]. Hence the target of the national cervical cancer prevention program strategic plan is to ensure that women have access to cervical cancer

prevention and control services through family planning clinics. The objective of the study was to determine the uptake of these services through a descriptive study. By knowing how these services are working, measures can be put in place to make them more effective. This will lead to a reduction of incidence of cervical cancer and have a positive impact on health and development.

Materials and Methods:

This was a descriptive cross-sectional study to determine cervical cancer screening uptake in a family planning clinic.

Study site

The study was carried out at Naivasha District Hospital, a level four referral hospital located in a major catchment area bordering highly populated areas. It is in Naivasha District in Nakuru County which lies northwest of Nairobi. Naivasha district's main industry is agriculture especially horticulture. It is also a popular tourist destination. It is cosmopolitan with many people migrating there in search of work. The poverty rate is at 40% and the urban population at 45.8% [8, 9].

Study participants

The study population was the clients treated at the family planning clinic at the hospital. The sample size was 384 participants (Cochran formula 1977). With the facility attending to approximately 1200 clients during the study period, systematic sampling with a sampling interval of 3 was used to choose the study participants. Those included were between 18-49 years of age who were willing to give consent and participate.

Data collection

Data was obtained through semi-structured questionnaires from the study participants. Questionnaires were interviewer-administered to participants after they were attended to by the healthcare providers. Information sought for in the questionnaires included socioeconomic factors, access to healthcare, exposure to risk factors.

Data analysis

Data was entered, cleaned and analysed using Statistical Package for Social Sciences (SPSS) version 20.0. The economic group level was achieved by first undertaking factor analysis. Then the two factors contributing the most were analysed using a standardized index (SI) and divided into three economic groups [10]. For continuous data, distribution characteristics were confirmed using Kolmogorov-Sminorv test and Exploratory Data Analysis (EDA). The risk level was a composite variable obtained by grouping those exposed to any co-factors (like tobacco smoking, high parity, and co-infection with HIV [2]) necessary for progression of HPV infection to cervical cancer and those not exposed. During analysis, the participants were divided into three age-groups. This was based on high risk HPV being more common in women under 25 years and considering the approximately 10 year-developmental period to cervical cancer, the best age to be screened if only screened once is over 35 years of age [2].

Ethical considerations

Approval was obtained from the KEMRI Ethical and Research Committee and the Scientific Steering Committee. All participants provided written informed consent.

Results:

Demographic and economic characteristics

A total of 384 participants were enrolled for the descriptive study. Age-group of 25-34 had the highest number of participants at 47.4% (Table 1). The participants had a mean age of 26.81 with a standard deviation of 6.14 and ranged from 18 to 48 years. They had a median of 2 children with a minimum of 1 and a maximum of 9. A large percentage of the participants, 94.8% were married. Secondary education had 44.5% of the participants followed closely by 42.4% with a primary level education. Almost half of the participants, 44.3%, were dependent on relatives with 43.2% of them being housewives depending on their husbands/partners. Those working for an income were either in salaried or self-employment and accounted for 55.5%. Those who lived in the area near the hospital accounted for 68.5% (Table 1). Over three-quarters (83.9%) were living in rented houses.

Table1: Socio-demographic characteristics of study participants (N = 384)

Variable	Frequency	Percent (%)
Age group (years):		
24 and below	160	41.7
25-34	182	47.4
35 and above	42	10.9
Marital status:		
Single	17	4.4
Married (monogamous)	356	92.7
Married (polygamous)	8	2.1
Divorced/separated	3	0.8
Widowed	0	0
Education level:		
None	4	1
Primary	163	42.4
Secondary	171	44.5
College (post-secondary)	46	12
Source of income:		
Employed (salaried)	82	21.4
Husband/ partner/relative	170	44.3
Self-employed	131	34.1
Non-response	1	0.3

Variable	Frequency	Percent (%)
Residence:		
Area near the hospital	263	68.5
Other areas in Naivasha	118	30.7
Area outside Naivasha	3	0.8
Economic level:		
Lower	30	7.8
Medium	347	90.4
Higher	7	1.8

Access to the hospital

The hospital was the nearest health facility for 83.3% of the participants and yet it was the usual health facility for 86.7%. Walking to the hospital was the common mode of transport for 58.9% of the participants (Table 2a).

Table 2a: Access to hospital

Variable	Frequency N=384	Percent (%)
Nearest facility to client's home:		
Yes	320	83.3
No	64	16.7
Usual facility for health care:		
Yes	333	86.7
No	51	13.3
Mode of transport:		
Motor vehicle/Matatu	120	31.3
Walking	226	58.9
Motorbike	36	9.4
Both walking and Matatu	2	0.5

Table 2b: Access to hospital (continuous variables)

Variable	N	Median	Interquartile range (IQR)	Minimum-Maximum
Time (minutes) to reach hospital via:				
Matatu/Motor vehicle:	120	30	20-35	5-180
Walking:	226	30	15-30	2-120
Motorbike:	36	20	10-30	1-60
Both walking and Matatu:	2	40	40-40	40-40

Participants History

About 20.1% of the study participants reported to being exposed to co-factors that increased their risk of cervical cancer. For the 99.2% who were using a family planning method, 50.9% were on the injectable contraceptive method (Table 3).

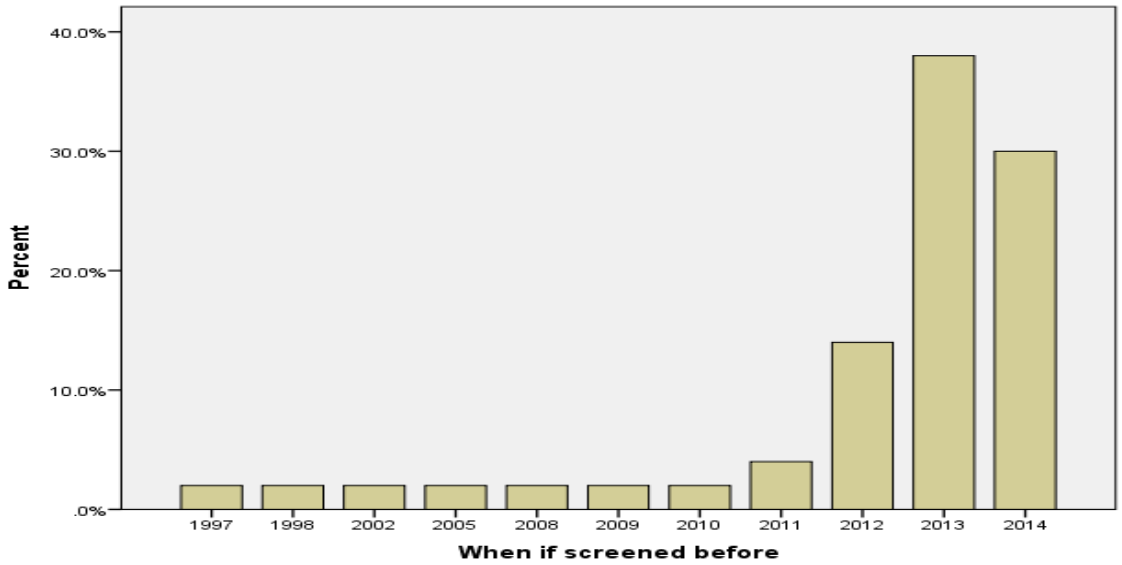
Table 3: Participants history

Variable	Frequency N=384	Percent (%)
Client's risk level on exposure to co-factors:		
Low level	307	79.9
High level	77	20.1
Method of family planning (N=381)		
Pill	97	25.5
IUD	45	11.8
Injectable	194	50.9
Implant	42	11
Male/female condom	1	0.3
Non-response	2	0.5

Cervical cancer screening uptake

A total of 59 participants (15.4%, 95% confidential interval (CI) 11.8-19.0%) had been screened both from ever screened and screened during the study period for cervical cancer. Cervical cancer screening uptake as reported by participants screened before was higher in recent years (Figure 1).

Figure 1: Percentage per year for participants reporting having being screened before study period (N=53)



Variables with a significant p-value of < 0.05 in the bivariate analysis were age group, residence, employment status, usual treatment centre (Table 4a,b).

Table 4a: Association between screening and other variables

Variable	Screened				P-value
	Yes = 59		No = 325		
	Frequency	%	Frequency	%	
Age group (years):					
24 and below	14	23.7	146	44.9	
25-34	29	49.2	153	47.1	<0.001
35 and above	16	27.1	26	8.0	
Residence					
Area near Hospital	32	54.2	231	71.1	
Other areas	27	45.8	94	28.9	0.010
Educational level					
Primary and below	25	42.4	142	43.7	0.851
Secondary and above	34	57.6	183	56.3	

Table 4b: Association between screening and other variables

Marital status					
Single	2	3.4	15	4.6	
Married (monogamous)	54	91.5	302	92.9	0.436
Married (polygamous)	2	3.4	6	1.8	
Divorced/separated	1	1.7	2	0.6	
Employment status					
Working	45	76.3	168	51.9	
Unemployed	14	23.7	156	48.1	0.001
Economic level					
Low	6	10.2	24	7.4	
Middle	53	89.8	294	90.5	0.544
High	0	0	7	2.2	
Nearest facility					
Yes	45	76.3	275	84.6	
No	14	23.7	50	15.4	0.114
Usual treatment centre:					
Yes	43	72.9	290	89.2	
No	16	27.1	35	10.8	0.001
Risk of cervical cancer					
High	17	28.8	60	18.5	
Low	42	71.2	265	81.5	0.068

Age group was significant at p=<0.001 with age group of 25-34 with the highest frequency at 49.2% of those screened. The residence of the participants was also significant at p-value of 0.010. Having been screened had a higher frequency for those living near the hospital at 54.2% compared to those living farther from the hospital at 45.8%. Those working were significant at p=0.001 with those working having a higher frequency (76.3%) of having been screened (Table 4).

VIA/VILI results among those screened

During the study period, the prevalence of screening was 2.3%. Of these, 44.4% had positive VIA/VILI results (Table 5). All of the study participants screened (100%) reported that they would tell people they knew closely about cervical cancer screening.

Table 5: Screening during study period

Variable	Frequency N=9	Percent (%)
Screened during study period:		
Yes	9	2.3
No	375	97.7
Screening results:		
Positive VIA/VILI	4	44.4
Negative VIA/VILI	5	55.6
Tell others know closely of screening(if screened today):		
Yes	9	100
No	0	0

Discussion:

This cross-sectional study determined cervical cancer screening uptake in a family clinic which is a setting where gynaecological examination is expected to be more easily accepted. The overall cervical cancer screening uptake was 15.4%. The findings of this study show a lower cervical cancer screening uptake compared to other regions where a study done in Embu County had an uptake of 25% [11] and another in Kisumu had 17.5% [12]. However, this study showed that in those who had been screened, the percentage uptake was higher in the recent years shown in Figure 1 in contrast to an Eldoret study [13] that showed previous screening was uncommon. This could be due to increased dissemination of cervical cancer information.

Those screened during the study period were 2.3%. This low screening uptake is reflected in other studies with 4.1% in low income countries [14], 0.6% in South-east Nigeria [6] and 22.6% in Moshi Rural District Tanzania [7]. A 2010 study in a similar setting in Eldoret, Kenya showed an uptake of 12.3% [5]. This data shows that though screening has been there for at least five years, screening uptake is still low. In contrast, high income countries have higher uptake. In 2009, a study in Italy found that only 65% of women regularly undergo pap testing due to public health programmes used to promote cancer screening [15]. The difference may be due to different knowledge levels of cervical cancer between the high- and low-income countries. Despite a large number of participants reporting that the hospital was the nearest facility the target population of 75% to be screened has not been reached even with active promotion of cervical cancer screening through VIA/VILI [16].

There was a similar significant association in age reported in other studies [12-13, 15]. Similar to the Napoli *et al.*, 2011 [15] and a Kisumu [12] studies, a significant association was found between having a

source of income and cervical cancer screening uptake. Screening involves payment and those in the low income level may not be able to spare any money. High risk participants have been found to be more likely to accept screening. A retrospective cohort study done using patient chart data from HIV-infected women enrolled at a centre in Nairobi found acceptance of cervical cancer screening at 44% [17]. Another study done on 3642 women in HIV care and treatment clinics in Kenya and had an uptake of 87% [18]. Though the participants' level of education was not significant, a study in Tanzania [7] found women's level of education was significant in relation to uptake of cervical cancer screening service.

Of those who were screened during the study period 44.4% had positive VIA/VILI results. A cross sectional survey of 219 women in Eldoret found the test positivity rate was 13.9% and 16.9% for VIA/VILI respectively [5]. Another study was done on 3642 women in HIV care and treatment clinics in Kenya found that among the women offered screening 15% of them had a positive or unsatisfactory VIA [18]. Claeys [19] study found 4.5% of Pap smears were abnormal while Gatune [20] study reported 4.3%. The reason for the high positive results in this study could be as a result that participants reporting genital tract problems may be targeted for screening. The family planning clinic has one nurse at a time resulting in long queues. Clients attended to during the study period were 1200. According to the World Health Organization, the recommended provider: client ratio is 2.3:1000 [4]. The result is a limited ability to offer the screening to everyone.

A limitation of this study was that the study participants were those accessing family planning services. This could mean that the outcome from this study may not be generalized to those not using family planning services. The family planning clinic also focuses on screening using VIA/VILI which is not suitable for postmenopausal women [21].

Conclusion:

Though there is active promotion of cervical cancer screening through VIA/VILI in family planning clinics, it does not translate into high proportions in cervical cancer screening uptake. This is despite the fact that these services are offered in a clinic where clients normally attend and gynecological examinations are expected to be more easily accepted. When screening is targeted on specific cases presenting with symptoms or those in the peak age for occurrence of cervical cancer (35-45 years), it will result in more positive cases being reported than in those studies where screening is not based on these factors. These findings suggest that more needs to be done by hospital management teams and healthcare providers to reach those accessing the family planning clinics. This can be by easing access to services through the increase of the number of VIA/VILI trained healthcare providers and screening rooms and improving public health programmes used to promote cancer screening resulting in an increase in the use of cervical cancer screening services.

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