

A Study of Knowledge, Attitude and Practices Regarding Cervical Cancer among Women Visiting Primary Health Care Facilities in Kibra Informal Settlement In Nairobi, Kenya

Mark Muasa, MA

Charles Nzioka, PhD

Department of Sociology and Social Work
University of Nairobi
P.O Box 30197 – 00100, Nairobi, Kenya.

Abstract

Background: In Kenya, cervical cancer is the most common female cancer in women aged 15 to 44 years with about 4,802 new cervical cancer cases being diagnosed annually and 1,676 deaths reported. Cervical cancer is the second most common form of cancer among women aged 18 to 49 years after breast cancer. However, screening for cervical cancer remains low at just 3.2 percent of among women aged 18-69 years compared to 70 percent of women in the developed world in the same age group. **Objective:** The study sought to examine knowledge, attitudes and practices relating to cervical cancer and screening for premalignant cervical lesions among women attending primary health care services in Kibra - the largest informal settlement in the city of Nairobi, Kenya.

Methodology: A cross sectional descriptive study design was adopted with a population of women of reproductive age 18-49 years attending health care services in the targeted health facilities. Simple random sampling technique was used in selection of a sample of 45 in three health facilities in Kibra informal settlement in Nairobi. A standardized questionnaire was used to collect data from the respondents and the data analyzed using the statistical package for social scientists (SPSS).

Results: The study findings showed that women sampled lacked the knowledge on various aspects of cervical cancer especially as regards knowledge on signs and symptoms of cervical cancer and knowledge on the causes of cervical cancer. The level of awareness was found to positively correlate with the low levels of screening uptake. The low education levels, poor attitudes and limited knowledge of cervical cancer appeared to correlate with the low uptake of cervical cancer screening. However, the findings demonstrate that health facilities were playing an important role in raising awareness of cervical cancer among women in the community studied.

Recommendations: The study findings suggest that the Ministry of Health in Kenya should consider training health workers at the local facilities to promote awareness of cervical cancer and cervical cancer screening. Well trained medical personnel and equipment for cervical cancer screening is also needed. The Ministry of Health should also provide community-based health education services to women on the cervical cancer.

Introduction

Globally, cervical cancer is the fourth most common cancer in women, and the seventh overall, with an estimated 527,624 new cases and 265,672 deaths in 2012 (WHO, 2013). Cervical cancer remains the most common cancer in women in Eastern and Middle Africa. It is also a leading cause of maternal deaths in developing countries. In 2012, there were an estimated 266,000 deaths from cervical cancer worldwide, accounting for 7.5% of all female cancer deaths. Almost nine out of ten (87%) cervical cancer deaths occur in the less developed regions. Cervical cancer remains the most common cancer in women in Eastern and Middle Africa (WHO, 2013).

Cancer of cervix results from the Human PapillomaVirus (HPV) which is passed by way of sexual intercourse, in most cases the male is a carrier of the papilloma virus that infects and generates in females (Roland et al, 2009). With the peak age of cervical cancer being 35-45 years of age, it claims the lives of women in the prime of their life when they are most productive socially and economically. On average, 25.3 life years are lost due to cancer of the cervix (ref). Despite cancer of the cervix being easily detectable and curable in its early stages, only 5% of women in developing countries undergo routine checkup for cervical cancer compared to slightly over 40% in more developed countries (WHO, 2008).

Cancer of cervix is the most widespread cancer in the developing countries; where over three quarters of the estimated half a million new cases of cancer of cervix are reported yearly. Cervical cancer is a key reproductive health problem facing women in developing countries where screening services are lacking or inaccessible for a majority of women (Powe, 2006). In Kenya, cervical cancer is the second most common form of cancer among women aged 18-49 years after breast cancer. Every year, an estimated 4,802 new cervical cancer cases are diagnosed and 1676 deaths reported annually (Bruni et al, 2012). The country has a population of 10.32 million women ages 15 years and older who are at risk of getting HPV infections and developing cervical cancer (WHO, 2010). It is estimated that only 3.2% of women in Kenya go through screening (WHO, 2010). Current estimates indicate that every year in Kenya, 2454 new cases of cervical cancer are reported and 1676 deaths from the disease. It is projected that by the year 2025, the number of new cervical cancer cases annually in Kenya will reach 4261 (WHO, 2010). According to the Kenya Cancer registry incidence report (2006) data from hospital-based registries in Kenya shows that cancer of the cervix contributes approximately 70-80% of all genital tract related cancers with 10 to 15 new cases of cervical cancer in Nairobi each week (Republic of Kenya, 2006).

Cervical cancer is easily preventable before onset by vaccination with the HPV vaccine. Cervical cancer can also be prevented through routine screening of women to identify any abnormal cells in the cervix. Screening is available in most of the Kenyan health facilities using both VIA/VILI and also through Pap smear. However, screening levels remain low at just 3.2 percent of among women aged 18-69 years compared with 70 percent of women in the developed world (WHO, 2010). There are significant gaps that require attention in the fight against cervical cancer in Kenya (Henley, 2012; Ngondi, 2014; Kei, 2016). For early screening and early detection, having knowledge is important. Women with a better knowledge of cervical cancer are more likely to attend cervical cancer screenings. Lack of knowledge about cervical cancer remains an important factor that affects the participation of women in these screening practices (Terefe et al, 2008; Goyal et al, 2008).

Methodology

The cross-sectional study was conducted in three health facilities that offer out-patient services in Kibra informal settlement in Langata sub-county in Nairobi City, Kenya. Kibra is the largest informal urban settlement in Nairobi with limited basic physical infrastructure and health facilities. The area has 47 health facilities although only one (1) is a public health facility. A total sample of 45 women in the reproductive age 18 - 49 years attending health care services in the targeted facilities were interviewed using a structured questionnaire. The questionnaire covered four sections: 1) demographic characteristics, 2) knowledge of respondents about cervical cancer, 3) Knowledge of respondents on prevention and screening uptake and 4) attitude and practice of respondents towards cervical cancer screening, including barriers to screening. The data were analyzed using the Statistical Package for Social Scientists (SPSS).

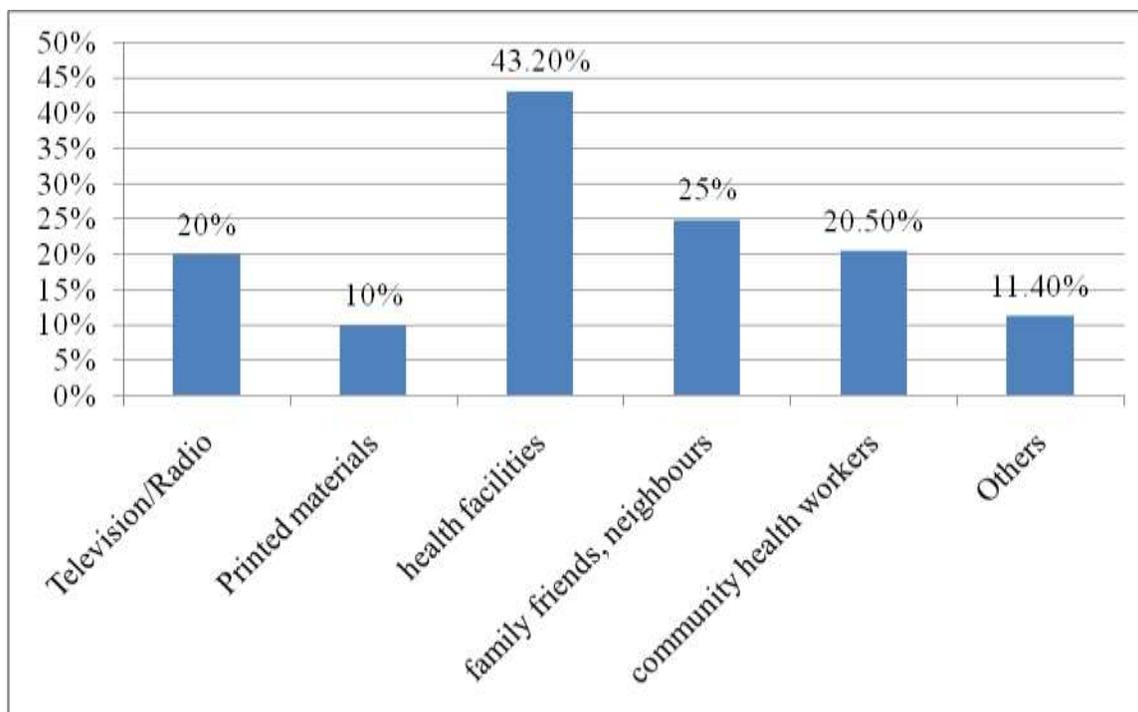
Results

The following were the socio-demographic attributes of the sampled population in this study. Of the total sample, 54.9% respondents were below 30 years of age, 31.8% who were under 30 -39 years and 13.7% who were aged between 40 – 49 years. 90.9% of the respondents were residents of Kibra whereas 9.1% were resident of other place outside Kibra. 40.9% of the respondents had attained primary education, 22.7% had secondary education and 34.1% had achieved college education. 29.5% were full time employees whereas 18.2% were employed on a part time basis, 15.9% were unemployed, and 11.4% self-employed and 25.0% were house wives.

Table 1 : Background Characteristics

		Frequency (n)	Percentage (%)
Age	19 - 29 years	24	54.5
	30 - 39 years	14	31.8
	40 - 49 years	6	13.7
	Total	44	100.0
Residence	Within Kibra	40	90.9
	Outside Kibra	4	9.1
	Total	44	100.0
Education	No formal education	1	2.3
	Primary Education	18	40.9
	Secondary Education	10	22.7
	College Education	15	34.1
	Total	44	100.0
Occupation	Employed (full time)	13	29.5
	Employed (part time)	8	18.2
	Unemployed	7	15.9
	Self employed	5	11.4
	Housewife	11	25.0
	Total	44	100.0
Marital status	Single	9	20.5
	Married	34	77.3
	Divorced	1	2.3
	Total	44	100.0
Years in marriage	1-5	7	20.6
	6-10	16	47.1
	11-20	6	17.6
	>20	5	14.7
	Total	34	100.0
Number of Births	None	4	9.1
	1	8	18.2
	2-4	26	59.1
	5 and above children	6	13.6
	Total	44	100.0

On their marital status, 20.5% were single, 77.3% were married and 2.3% were divorced. Further, 47.1% of the respondents had been married for 6 – 10 years, 20.6% were in marriage for a period of 1 – 5 years and 17.6% were married for 11 – 20 years whereas 14.7% had been in marriage for more than 20 years. 59.1% of the respondents had between 2 to 4 children, 18.2% had only 1 child and 13.6% had 5 children and above.

Figure 1 : Knowledge in Cervical Cancer

Findings showed that radio and television had contributed to 20% in awareness creation among the women, printed materials contributed to 10%, health facilities had contributed to 43.2% and 25% of the women were able to learn from family friends and neighbors. 20.5% were informed through the community health workers and 11.4% learned from other sources.

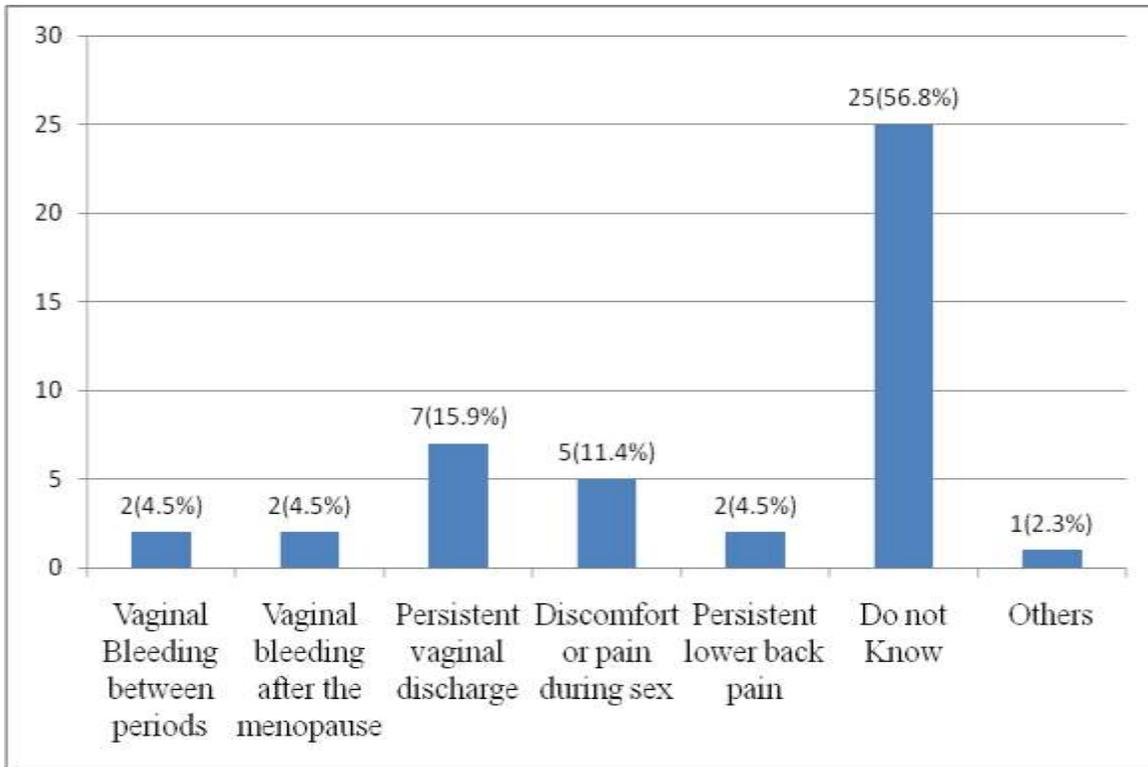
Table 2: Prevalence of Cervical Cancer

Knowledge of persons with cervical cancer		Frequency (n)	Percentage (%)
Anyone you know with cervical cancer?	Yes	19	43.2
	No	23	52.3
	Do not Know	2	4.5
	Total	44	100.0
How the acquaintance got to know?	Hospital Screening	12	63.2
	Suggestive symptoms	7	36.8
	Total	19	100.0

The findings show that, 43.2% of the respondents were aware of some of their close acquaintances who had been suffering from the cervical cancer. These cases were learnt through hospital screening majorly (63.2%) and through suggestive symptoms (36.8%).

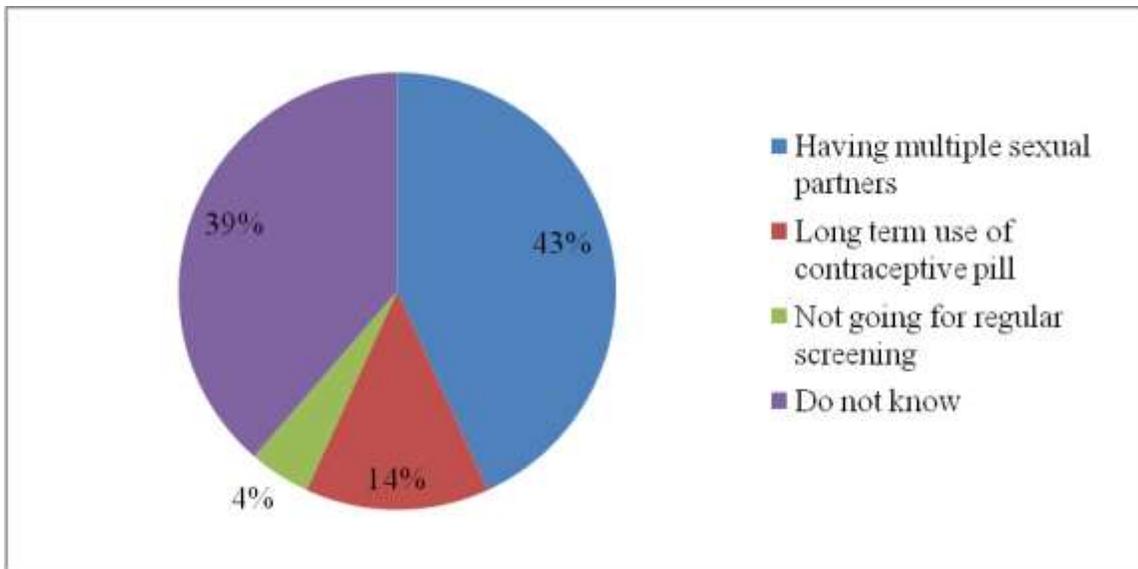
Access to regular screening plays a significant role if cancer of cervix is to be diagnosed early for treatment to be initiated.

Figure 2 : Knowledge on Signs and Symptoms of Cervical Cancer



The findings in Figure 2 showed that, majority of the women were not aware of the symptoms as shown by 56.8% of the respondents. The fact that cervical cancer doesn't show any signs in the early stages, somewhat does tell why most cancer progress to advanced stage and especially in context that lack screening services. Another concern is the fact that signs for cancer of cervix resemble infections like vaginitis and inflammatory of the pelvic, Gillet et al. (2012).

Figure 3 : Knowledge on the Causes of cervical cancer



As shown in the figure, 43% of the women felt that the major cause of cervical cancer is having multiple sexual partners, 14% reported its is caused by long term use of contraceptive pill with 4.5% reporting it was due to failure to go for regular screening. However, 39% of the women were unaware of the causes of cervical cancer.

Table 3 : Knowledge on Prevention and Screening Uptake

Knowledge on Cervical Cancer Test	Frequency (n)	Percentage (%)
Yes	43	97.7
No	1	2.3
Total	44	100.0

Our findings showed that the majority of the respondents (97.7%) had knowledge of cervical cancer test as only 2.3% reported not knowing about the cervical cancer test. These findings are however contrary to the findings of Anorlu et al., (2004) in Lagos-Nigeria which showed that 81.7% of 139 patients with advanced cervical cancer had never heard of cervical cancer before, and 20%, 30% and 10% respectively thought the symptoms they had were due to resumption of menses, lower genital infection and irregular menses. The high levels of knowledge as reported could be associated with the campaigns that were undertaken at the community by the health facilities. When we sought to establish the sources of information regarding cervical cancer, it was found that the health facilities were the major source of knowledge on cervical cancer test.

Table 4 : Sources of Information Regarding Cervical Cancer Screening

Cervical cancer information source	Frequency (n)	Percentage (%)
Television/Radio	7	17.5
Printed materials	4	10.0
Health facilities	25	61.0
Family friends, neighbors	5	12.2
Community health workers	10	25.0
Others	3	7.1

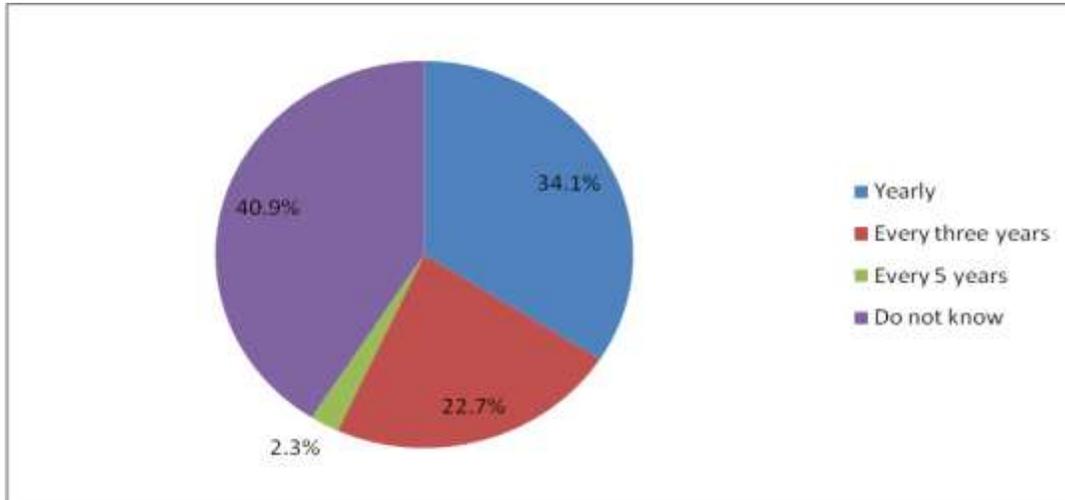
The health facilities were the major sources of information on cervical cancer for the women sampled (61%) with community health workers being second at 25%. The least source of information on cervical cancer was printed materials (10.0%). This would probably indicate high levels of illiteracy in the sampled population meaning oral communication might be best suited method of communicating cervical cancer messages in Kibra.

Table 5 : Women's Knowledge on Cervical Cancer Screening Services

Knowledge on Cervical Cancer Screening	Yes		No	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Can cervical cancer be detected through screening	40	90.9	4	9.1
Cervical cancer is treatable after screening	41	93.2	3	6.8
Awareness of health facilities offering screening services	36	81.8	8	18.2
Awareness on the recommended frequency for screening of cervical cancer	24	54.6	20	45.4

Table 5 shows that 90.9% of the sampled women who had some knowledge of cervical cancer treatment reported that it is possible to detect cervical cancer through screening or routine checkup before the symptoms appeared; 93.2% reported that cervical cancer is treatable if detected early while 81.8% indicated awareness of health facilities within Kibra which could provide cervical cancer screening services.

Figure 4 : Women’s Knowledge on the Required Frequency of Check-up Visits



Asked what they knew to be the required frequency for being screened for cervical cancer, 59.1% of the sampled women reported adult women should undergo checkup for cervical cancer with 40.9% reporting being unaware. Among those who were knowledgeable, 34.1% reported that checkup should be done yearly, 22.7% reported in every three years whereas 2.1% reported that screening should be done every five years.

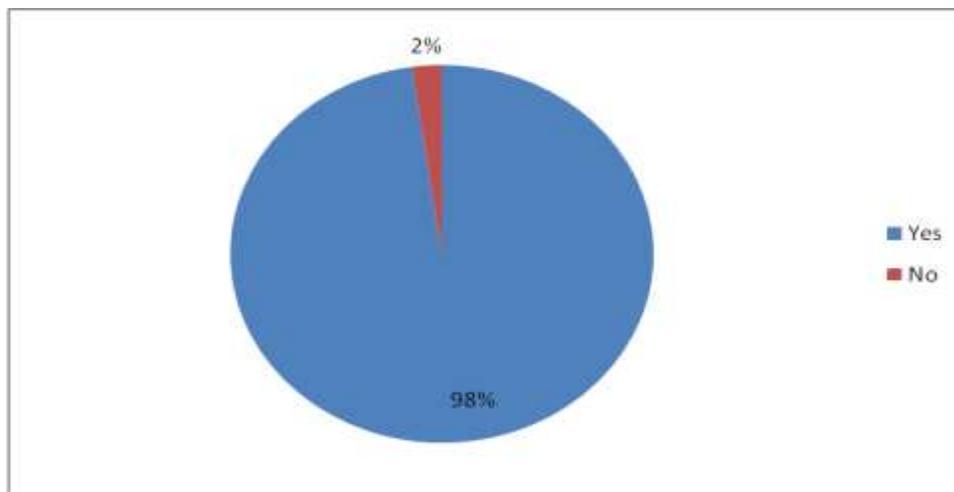
Table 6: Correlation between Knowledge on Cervical Cancer and Screening Uptake

		Cervical cancer Knowledge	Screening Uptake
Cervical cancer Knowledge	Pearson Correlation	1	.692*
	Sig. (2-tailed)		.011
	N	44	44
Screening Uptake	Pearson Correlation	.692*	1
	Sig. (2-tailed)	.011	
	N	44	44

*. Correlation is significant at the 0.05 level (2-tailed).

When knowledge on cervical cancer was correlated with screening uptake, a statistically significant relationship was established. There was a positive correlation coefficient of 0.692 indicating a positive relationship between the women’s awareness and the level of screening uptake.

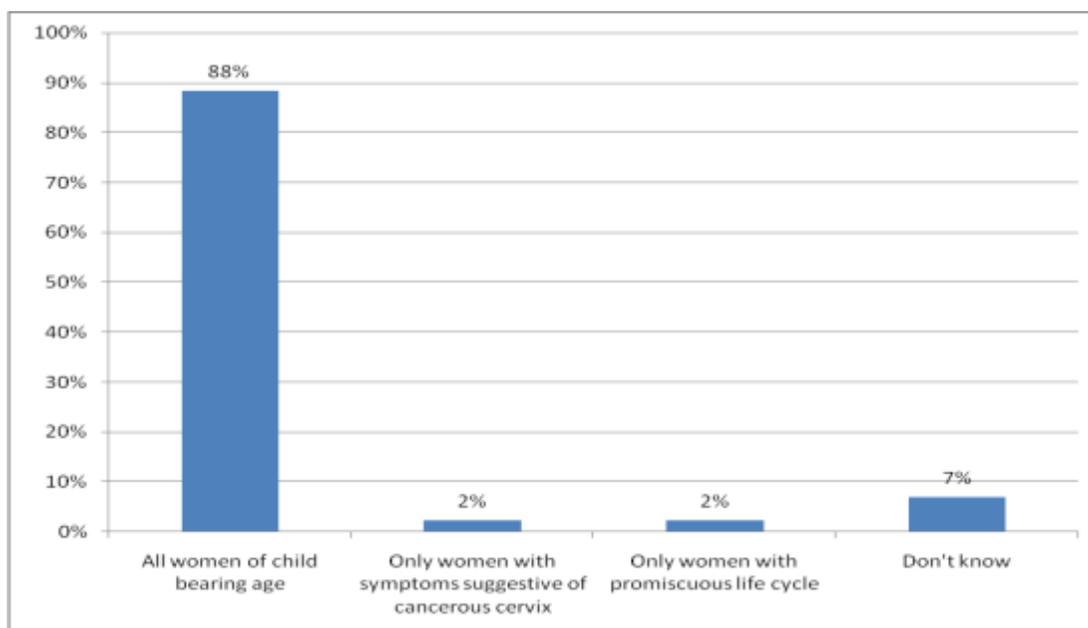
Figure 5 : Women’s Attitude and Practices



As shown in Figure 5, 98% of the women had the will to regularly consult a health care provider for screening of cervical cancer.

This illustrated that a positive belief is significantly associated with increase in the likelihood of accessing cervical cancer screening and thus an important area for health care providers to support in offering the right message to promote positive attitude towards the service.

Figure 6 : Women's Perception of who should be screened



88% of the women felt that all women of child bearing age should be screened for cervical cancer. Others suggested that only women with symptoms suggestive of cancerous cervix should be screened (2%) as well that only women with promiscuous life cycle need to be screened (2%). However, 7% of the respondents were not aware of who should be screened for cervical cancer.

Table 7: Level of Cervical Cancer Screening Uptake among Women of Reproductive Age

Screening uptake		Frequency (n)	Percentage (%)
Have you been screened	Yes	27	61.4
	No	17	38.6
	Total	44	100
When was the last time screening was done?	3 months ago	5	18.5
	six months ago	0	0.0
	1 year ago	13	48.1
	3 years ago	7	25.9
	Over 5 years ago	2	7.4
	Total	27	100
What made you go for screening?	Friend/Family encouraged me	1	3.7
	Health care providers suggested	4	14.8
	Community health workers encouraged me	5	18.5
	The services were free of charge	8	29.6
	Desire to know my status	4	14.8
	Had symptoms that made me want to screen	1	3.7
	Awareness that if found early it is treatable	4	14.8
	Total	27	100

Our findings showed that a majority (61.4%) of the women who participated in the study had been screened for cervical cancer. About one-third of the respondents (38.6%) had however never been screened in the past for cervical cancer. For those who had been screened, 18.5% had been screened in a period less than five months prior to this study while 48.1% had been screened less than a year before this study. This could be as a result of a campaign that had been conducted at these facilities in promoting cervical cancer awareness.

The findings also indicated that 25.9% had been screened 3 years prior to the study and 7.4% in the five years prior to the period of study. Even with increased knowledge on cervical cancer, the uptake of screening among the women was still low reaffirming the need for community outreach and education on cervical cancer and prevention. Asked what had motivated them to go for cervical cancer screening, the following reasons were cited: availability of free medical care (29.6%); encouragement by healthcare provider (14.8%); encouragement by community health workers (18.5%); a perception that it is treatable when identified early (14.8%) as well a desire to know their cervical cancer status (14.8%).

Table 8: Women’s Knowledge on the Transmission of Cervical Cancer

Transmission of Cervical Cancer		Frequency (n)	Percentage (%)
Is cervical cancer transmittable?	Yes	18	40.9
	No	13	29.5
	Do not Know	13	29.5
	Total	44	100.0
How is it transmitted?	Sexually transmitted	17	94.4
	Through contact with the sick	1	5.6
	Total	18	100.0

Our findings showed that 40.9% of the women interviewed reported that cervical cancer is transmittable, 29.5% said it was not transmittable while 29.5% reported not knowing whether it was or was not transmittable. On how they thought it was transmittable, 94.4 % reported through sexual intercourse with 5.6% reporting it was transmittable through physical contact with the sick. The findings showed that a great proportion of the women were correctly aware of sexual transmission as the major cause of cervical cancer.

Table 9 Correlation between Knowledge on Cervical Cancer Test and Screening Uptake

		Knowledge on cervical cancer test	Cervical Cancer Screening Uptake
Knowledge on cervical cancer test	Pearson Correlation	1	.741**
	Sig. (2-tailed)		.000
	N	44	44
Cervical Cancer Screening Uptake	Pearson Correlation	.741**	1
	Sig. (2-tailed)	.000	
	N	44	44

** . Correlation is significant at the 0.01 level (2-tailed).

Fig. 9 shows that there is a strong positive and significant correlation ($r = 0.741$; $p = 0.000 < 0.05$) between the women’s knowledge of cervical cancer test knowledge and their level of screening uptake. This implies the higher the proportion of women were aware of cervical cancer screening services, the higher was the possibility of uptake of cervical cancer screening services. This suggests that there is need for campaigns and education on what is cervical cancer in order to encourage uptake of cervical cancer screening services among in the reproductive age.

Discussions

The study established that knowledge on the cervical cancer among women of reproductive age was high in Kibra informal settlement (97.7%). The main source of information on cervical cancer was from the health facilities and community health workers. The least reported source of information were printed materials. This finding could suggest that most of the respondents were likely to be illiterate and therefore unable to interact well with reading materials. This finding suggests the need for health authorities to use local health facilities as avenues for enhancing cervical cancer awareness. The finding also suggests that a well informed health care provider is likely to pass the right information to the patient. On knowledge of cervical cancer, it was found that most of the cervical cancer cases that were reported were diagnosed mainly through hospital screening. However, majority of the women were found to be unaware of the signs and symptoms of cervical cancer. Those who were found to have some knowledge on the signs reported persistent vaginal discharge; discomfort or pain during sex; persistent lower back pain; vaginal bleeding between periods, as well as vaginal bleeding on attainment of menopause. The results suggest a glaring gap in knowledge about cervical cancer risk factors, signs and symptoms. Existing programs and health authorities should include information on risk factors, sign and symptoms of cervical cancer in their behavior awareness campaigns.

On the causes, 38.6% of the women were unaware of the causes of the cervical cancer while 43.2% reported the major cause of cervical cancer as multiple sexual partners. From these findings, it would appear that a majority of the respondents were knowledgeable of multiple partners as a risk factor, however, it is also evident that there are cases with inadequate knowledge of the basic symptoms of cancer of the cervix hence need for intensified education by health providers and programs to make a deliberate effort to educate the populace on the risk factors associated with cervical cancer. These findings were in line with those of Gillet et al. (2012) which illustrated that symptoms of cervical cancer mimic infections like vaginitis and pelvic inflammatory disease.

A number of the women in the study had not been screened. However, 61.4% of the women had been screened for cervical cancer where only 18.5% had undergone the screening within the five months preceding this study, 48.1% had undergone screening in the year before the study; 25.9% had been screened inside 3 years prior to the study with 7.4% being screened inside five years prior to the period of study. In a similar study done in Uganda (Mutya et al, 2006), it was found that less than 40% of the respondents were knowledgeable of the risk factors for cervical cancer, eligibility criteria for screening and recommended screening intervals.

Cost of care to access service when addressed increasing uptake as mentioned by a majority that the free service influenced them to seek care. From the findings, it is evident that knowledge of risk factors for cervical cancer development has also been observed to be associated with uptake of screening services (Gatune and Nyamongo, 2005).

Those who have heard about cervical cancer and screening have positive attitude about cervical screening than those who have not heard about it. Given that a high percentage of respondents that had accessed screening prior to the study, suggests that a majority were knowledgeable of cervical cancer hence contributing to the uptake. Access for screening was influenced by among others that the services were free, encouragement by healthcare providers and believe that if identified early it can be treated. The socio-economic status as well as awareness of the services and the perceived importance of the services influence uptake of the screening services. Cost as a barrier to health need to be addressed to promote prompt health seeking behavior.

Increased knowledge and belief about the cause and significance of a particular illness is interconnected with healthcare-seeking behavior of individual. Consistent health education and campaigns by health facilities is instrumental in promoting increased uptake of cervical cancer screening services. Women's perceptions of the screening services, awareness of the risk factors for the disease, having financial resources are other significant factors in determining use of available facilities (Winkler J et al, 2008).

Respondents reported key barriers to access as including fear of positive result, lack of awareness about the screening services and lack of finances to pay for the service. Lack of awareness and low priority that women accorded their health have been cited as some of the factors contributing to poor uptake for screening services (Ansik 2007).

Conclusion

While increased level of awareness on cancer of cervix was noted in the study population, this did not translate into higher uptakes of cervical cancer diagnosis and treatment of cervical cancer. This puts into question the quality of knowledge which the study population had regarding symptoms and causes of cervical cancer. However, the health facilities and the community health workers in the community had contributed immensely to the spread of knowledge of cancer among the women through awareness and sensitization campaigns. The importance of providing quality information through inter personal communication however, cannot be over emphasized. The study also illustrates that women are clearly willing to participate in screening initiatives regardless of their level of knowledge. However, it is vital to recognize that a screening strategy can only be useful if it improves patient-health outcomes. This is possible only if effective communication to address barriers to care and treatment is available and if the health facilities are well equipped.

Recommendations

The strong positive and significant correlation between the women's knowledge on the cervical cancer test knowledge and their level of screening uptake suggests the importance of continuous awareness campaigns by relevant stakeholders at facility and community level if increased uptake of screening services is to be achieved.

The Ministry of Health in Kenya needs to address issues of shortages of cervical cancer screening equipment and lack of trained personnel in order to improve the uptake of cervical cancer screening and treatment among women.

Women need more education about risky factors associated with cervical cancer and on the importance of routine screening for cervical cancer prevention as well as recommended intervals for screening.

There is need for a better understanding of the factors associated with women's perceived risk of cervical cancer as this can guide future educational and clinical interventions to increase cervical cancer screening coverage.

References

- Anorlu, R., Imosemi, D., Odunukwe, N., Abudu, O., & Otuonye, M. (2004). Prevalence of HIV among women with vaginal discharge in a gynecological clinic. *Journal of the National Medical Association*, 96(3): 367.
- Ansink A.(2007). Cervical cancer in developing countries: how can we reduce the burden? Awareness raising, screening, treatment and palliation. *Tropical Doctor* 2007;37(2):67-70.
- Bruni L, Barrionuevo-Rosas L, Albero G, Serrano B, Mena M, Gómez D, Muñoz J, Bosch FX, de Sanjosé S (2012). Human Papillomavirus and Related Diseases in Kenya. Roma: Institut Catala d'Oncologia (ICO)
- Eze, J., Umeora, O., Obuna, J., Egwuatu, V., & Ejikeme, B. (2012). Cervical cancer awareness and cervical screening uptake at the Mater Misericordiae Hospital, Afikpo, Southeast Nigeria. *Annals of African Medicine*, 11(4), 238.
- Gatune J and Nyamongo, I. An ethnographic study of cervical cancer among women in rural Kenya: is there a folk causal model? *International Journal of Gynaecological Cancer* 2005;15(6):1049-59.
- Gillet, E., Meys, J., Verstraelen, H., Verhelst, R., De Sutter, P., Temmerman, M., & Broeck, D. V. (2012). Association between bacterial vaginosis and cervical intraepithelial neoplasia: systematic review and meta-analysis. *PloS one*, 7(10), e45201.
- Henley, P (2012) Preventing Preventable Cervical Cancer in Kenya. Nairobi: Centre for International Governance Innovation
- Kei, R; M'Ndegwa, J; Ndwiga, T and Masika, F (2016) Challenges of Cervical Cancer Screening Among Women of Reproductive Age in Kisii Town, Kisii County, Kenya. *Science Journal of Public Health* 4 (4): 289 - 296
- Ngondi, B. (2014) Factors Influencing Access to Health Care Services Among Cervical Cancer Patients at Kenyatta National Hospital. Unpublished MPH thesis. Nairobi : University of Nairobi
- Mutyaba T, Mmiro FA, Weiderpass E. Knowledge, attitudes and practices on cervical cancer screening among the medical workers of Mulago Hospital, Uganda. *BMC Medical Education*. 2006 ; (6): 13.
- Powe, B. (2006). Perceptions of Cancer Fatalism and Cancer Knowledge: A Comparison of Younger and Older African American Women. In *The 17th International Nursing Research Congress Focusing on Evidence-Based Practice*.
- Republic of Kenya, Ministry of Health. (2006). Kenya Cancer Registry 2006 : *Cancer incidence report*. Nairobi. Ministry of Health
- Roland, K.; Bernard, V.; Saraiya M.; Hawkins, N.; Brandit, H.& Friedman, A. (2009). Assessing cervical cancer screening guideline in patient education materials. *Journal of Women's Health*. 18 (1): 5-12
- Terefe Y , Gaym A, (2008). Knowledge, attitude and practice of screening for carcinoma of the cervix among reproductive health clients at three teaching hospitals. *Ethiopian Journal of Reproductive Health*, 2(1).
- Goyal A, Guntant V, Shrivastava A, Verma R, Modi A. Knowledge, attitude & practices about cervical cancer and screening among nursing staff in a teaching hospital. *International Journal of Medical Science & Public Health*. 2013; 2:249-53
- WHO (2008). Cancer Incidence and Mortality worldwide database. Geneva : WHO
- WHO/ICO (2010). Information Centre on HPV and Cervical Cancer. www.who.int/hpvcentre. accessed on [16th January, 2010]
- World Health Organization, (2013). Cervical Cancer: Estimated Incidence, Mortality and Prevalence World Wide. Geneva: WHO
- Winkler J, Bingham A, Coffey P, Handwerker. W. (2008). Women's participation in a cervical cancer screening program in northern Peru. *Health Education Research* 2008; 23(1):10-24.