

Socio-Demographic Factors Affecting Competency of Health Care Providers in Cervical Cancer Prevention and Control in Kenya, Case Study of Machakos County

Boraya JO*, Jacqueline MKK and King'au BK

Department of Reproductive Health, Kenyatta University, Kenya

***Corresponding author:** Joshua Omwenga Boraya, Department of Reproductive Health, Kenyatta University, 10337-00100 Nairobi Kenya, Tel: 0721626033; Email borayajoshua@gmail.com

Research Article

Volume 3 Issue 2

Received Date: September 10, 2019

Published Date: October 03, 2019

DOI: 10.23880/oajco-16000146

Abstract

Cervical cancer had been reported to be the best understood and most preventable type of cancer. Almost 90 per cent of deaths related to cancer occurring in middle-income and low-income countries are due to cervical cancer. HPV has been discovered to be the causative agent of most cervical cancers and this has led to innovation of highly competent prevention methods: using prophylactic HPV vaccination to control the early infections and use of sensitive HPV-based screening to diagnose and treat the cancer in pre-cancer stages. This study aimed at identifying socio-demographic factors of the health workers that influence their competency in controlling and preventing cervical cancer. A cross-sectional descriptive survey study design was used to generate data through self-administered questionnaires. The questionnaire was structured to collect socio-demographic factors of health workers influencing prevention and control of cervical cancer. Reliability of the instrument was estimated using the split half method. Odd-even split method was used to obtain the two halves. The cronbach's alpha was calculated for the tool and was at 0.817 which was considered good. Then was checked for Lavenes test for normality in distribution of participants and was 0.832. A sample size of 146 was used to generate quantitative data. Data collected was used for the sole purpose of research, informed consent and clearance for the study was sought. Data was analyzed using SPSS version 24. A p value of <0.05 was used to determine significant associations. The results revealed that the health workers department of work. On analysis, the respondents from MCH/FP, gynecology clinic and obstetric ward were found to be more efficient prevention and control of cervical cancer. These reflected that working in these departments had more chances of becoming competent than working in a female medical ward. In female medical wards, may be large numbers of the patients may explain why the health workers do not become competent in prevention and control of cervical cancer as for those in the other departments. In MCH/FP

and gynecology clinics they mostly deal with mothers of reproductive age almost on one to one situations, this increases chances of the health worker to cater for the mother in a holistic manner. Years of experience were key determinants of health care provider's competency in cervical preventing and controlling cancer of the cervix. There was a variation in number of years in which a respondent had worked in the current department. It was evident that the more number of years the respondent had worked in their current departments the more effective they were in preventing and controlling cervical cancer. Those who had worked for more than four years were more likely to be effective than those who had worked for less than one year. Therefore, experience was a determinant of health worker competency in prevention and control of cervical cancer.

In conclusion, the study found out that the department the health worker was working in determined their competency in prevention and control of cervical cancer. Years of experience in cervical cancer screening was also significantly associated with competency in cervical cancer screening and prevention.

Keywords: Cervical Cancer; Health Care Providers; Prevention and Control of Cervical Cancer

Introduction

Cervical cancer had been reported to be the best understood and most preventable type of cancer. Almost 90 per cent of deaths related to cancer occurring in middle-income and low-income countries are due to cervical cancer. HPV has been discovered to be the causative agent of most cervical cancers and this has led to innovation of highly competent prevention methods: using prophylactic HPV vaccination to control the early infections and use of sensitive HPV-based screening to diagnose and treat the cancer in pre-cancer stages [1].

Staging of Cancer

Staging of cancer is done using Roman numerals I, II, III, IV and 0 to describe the progress of cervical cancer from stage 0 to stage 4. Stage 0: refers to carcinoma in situ, that is, abnormal cells growing in their normal place, Stage I: refers to the stage at which cancer cells are localized to one part of the body. At this Stage the cancer cells can be surgically removed if small enough. Stage II: refers to cancers are fairly locally advanced and can be treated by chemotherapy, radiation, or surgery. Stage III: is where the cancers are locally advanced but affecting many tissues in the body, in this stage the cancer can also be treated by chemotherapy, radiation, or surgery. In Stage IV: cancers have spread to other and many body parts, or spread to other organs or throughout the body. Stage IV cancer is also called terminal cancer, however,

can be treated by radiation, chemotherapy, or surgery. Despite treatment, mortality rate of a patient in stage IV of cancer can be significantly higher [2].

During screening for cervical cancer, the risks factors for cervical cancer can be used to guide screening but cannot be intended to predict individual risk of getting cervical cancer. Each health facility should health educate its clients on modifiable risk factors for cancer to minimize cervical cancer risks with women, in addition to the recommended Pap test screening. Since Human Papilloma Virus is transmitted through sexual contact, it is important to make women of reproductive age to understand cervical cancer as a sexually-transmitted disease and advocate for sexual behavior change. The behavior-change prevention strategies include; avoiding HPV infection by using a condom for protection and/or spermicidal gel during sexual intercourse, abstaining from sex, vaccination against HPV infection; and screened for cervical cancer, regular gynecological checkups and Pap testing; avoidance of cigarette smoking (active or passive) [3].

Mortality rates of cervical cancer in developing countries are above those of western countries [4]. Currently, cervical cancer is the second largest threat to women's health in Sub Saharan Africa with its mortality rate rising every year. As such, nine out of ten cervical cancer deaths occur in less developed regions, which

were roughly 445,000 patients and 230,000 deaths yearly [4].

Randomized controlled trials from India had shown that the competency of screening once in a life time with HPV DNA, one-time screening with VIA by trained and competent nurses and four-time screening with VIA by trained primary health workers, reduced mortality rates related to cervical cancers. It was revealed that can be prevented with two-dose HPV vaccination and early detection of precancerous cervical lesions of the eligible population through screening and appropriate treatment with a single-visit. 'Screen-and-treat' approach appeared promising for low-middle-income countries including India [5].

In China, significant numbers of health care workers had knowledge on cervical cancer. In spite of having adequate knowledge on cervical cancer the reasons for low practice of cervical cancer screening among health care workers in India needs to be investigated. However in Southern Ethiopia, knowledge on cervical cancer screening among health care workers was found to be low [6]. In another study in Ethiopia, there was a clear need among health care providers for education specifically on cervical cancer causes (related factors), risk factors and for training in low-cost screening methods like VIA-VILI. Meeting these knowledge needs and improving the infrastructure were necessary, implementation of appropriate screening programs was also essential to reduce the burden of cervical cancer in Ethiopia [7].

Although Kenya is referral country for cancer treatment and care for patients from neighbouring East African countries, the bulk of her own patients in the rural parts have limited access to specialised services for any type of cancer, including cervical cancer. Majority of the available cancer specialists are in the major cities and private hospitals. This has led to high incidences and increased mortality rates related to cervical cancer in the country [8]. According to Kenya's Ministry of Health, 6 to 8 women die every day as a result of cervical cancer and it is the second leading cause of deaths in the country after cardiovascular diseases [9]. Cervical cancer ranks as the first frequent cancer among women between 15 and 44 years of age among other types of cancer [8].

Kenya, like other East Africa countries, has a very high prevalence of cervical cancer. Kenya has a population of about 13.5 million women aged 15 and 49 years old. All these women are at risk of contracting cervical cancer [10]. In Machakos County there are seven

nongovernmental organizations supporting cervical cancer screening to reinforce the government strategies. These include; Aphia plus, EGPAF, hope beyond cancer trust, ICAP, JHPIEGO, Kenya cancer association and women4 cancer. Despite these efforts cervical cancer screening is still a challenge and this study seeks to understand factors affecting the competency of the health care workers in screening the women at risk of the disease.

In the fight against cervical cancer, there are many factors that predispose one to risk of infection [9]. These factors influence cervical cancer screening and can be grouped into those that are related to individual patient, those related to the health care providers, and those related to health system. Cancer screening may be influenced by a multiple of either the three groups, but it is useful to consider these factors as they impact on care processes from different perspective to avoid overlooking important ones.

- **Patient Factors** are individual characteristics possessed by each patient, or the factors that the patients have control over, and that have an impact on their care. These factors include patient age, race, daily diet, and lifestyle of the patients. Patient factors need to be addressed more systematically, targeting to address low health literacy levels of the patients, or using a systematic approach to educate staff on the cultural norms of the population [9].
- **Health Care Provider Factors** are those factors controlled by the health care providers. These include care provision processes, workflows and cues, procedures followed, and effectiveness of the team working together at the screening center. Health care provider factors may influence Cervical Cancer Screening especially processes staff use to outreach to or educate patients to ensure periodic care based on level of risk, procedures that are culturally acceptable and provide culturally-competent care to address the patient's cultural norms about cervical cancer screening, processes that provide comprehensive patient care for regardless of reason for visit, providers attitude in doing Pap smear.
- **Health System Factors** are those factors controlled at the high level of management in an organization and more often involve financial and operational costs. Health system factors that influence Cervical Cancer Screening may include: Cost for screening and

treatment, appointments and accessibility of the hospital.

Methodology

A cross-sectional descriptive survey study design was used to generate quantitative data through self-administered questionnaire. This design enabled the researcher to collect data assessing competency of health care workers in prevention and control of cervical cancer. The independent variables in this research were competence of the health care worker, age, years of experience, profession and level of knowledge on updated strategies on prevention and control of cervical cancer. The study employed two sampling techniques: Purposeful sampling of the hospitals in Machakos County and proportionate random sampling of research participants. Purposive sampling was used to identify the target study population (the health workers) on the basis of specific considerations by the researcher such as, they have relevant information. The number of participants from each hospital was proportionate to its total population of health workers in relation to other hospitals under study. After getting the proportion per hospital, the participants were chosen again proportionately from different specialities; nurses, doctors and gynaecologists. Those health care providers who voluntarily reported to have had participated in cervical cancer prevention and control were systematically and randomly sampled. To identify the research participants from the selected institutions, the researcher made use a list of the health care personnel who volunteered to participate after explanation from the researcher. From the list k^{th} health worker was calculated. Number 6 was randomly picked from 0-9, and then every third person in the list was chosen. The proportions of participants from each hospital were spread out to various departments within the facility. The health care workers participated in the study after working session or during breaks.

The data in the questionnaires was checked for completeness. Data cleaning and sorting was done to eliminate obvious inaccuracies and omissions. The data collected was then grouped into categories, tested for homogeneity and normality of distribution using Lavenes test and Shapiro-wilk test, Chi Square was used to check for the significant associations between the variables at 95 percent confidence interval, a p value of $p < 0.05$ was used. Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS version 24). For nominal data, Pearson correlation was done. Descriptive statistics specifically tables and bar graphs were used to present the findings. The methods of data analysis were applied following the guidance in research books.

Permission for carrying out this proposed study was sought from the relevant authorities who include; the Graduate School of Xiangya school of nursing(Central South University), IRB, and the administrative offices of the health facilities in Machakos County (Machakos County Government through the Director of health, and medical superintendent/ health centre administrators) before initiating the actual research data collection. Clearance was sought from the National Commission for Science, Technology and Innovation (NACOSTI) to conduct the study. Participants were identified using study number for anonymity.

Research Results

Majority of the respondents were between the age of 25 years and 40 years old. On marital status, more than half of the respondents were married. There were more nurses than other professions and most respondents had diploma level of education. The respondent's background information like economic status was not included in the study.

Variable	Frequency (N=142)	Percentage	
Age in years	<20	4	2.8
	21-30	92	64.8
	31-40	44	31
	>41	2	1.4
Gender	Female	114	80.3
	Male	28	19.7
Marital status	Single	20	14.1
	Married	114	80.3
	Widowed/divorced	8	5.6
	Certificate	4	2.8

Level of education	Diploma	101	71.1
	Degree	30	21.1
	Masters degree	7	4.9
Department of work	MCH/FP	26	18.3
	Female medical ward	87	61.3
	Gynecology clinic	16	11.3
	Obstetric ward	13	9.2
Professional training	Nursing	130	91.5
	Medicine and surgery	8	5.6
	Gynecology	4	2.8
Years of experience	<1	22	15.5
	01-Mar	86	60.6
	04-May	30	21.1
	>5	4	2.8
Religion	Catholic	48	33.8
	Islam	1	0.7
	Protestant	78	54.9
	SDA	15	10.6

Table 1: Socio-Demographic Factors of the Respondents.

There was a weak association between age and competency in prevention and control of cervical cancer with Cramer's V of 0.144 and $Rho=0.130$. These results were not statistically significant $\chi^2 (3, N=142) = 2.926$, $p \leq 0.403$. At the same time there was no statistical significance between gender and competency in prevention and control of cervical cancer $\chi^2 (1, N=142) = 0.585$, $p \leq 0.445$. The study showed a negative correlation between gender and competency in preventing and controlling cervical cancer, $Rho=-0.064$ and a very weak association with Cramer's V value of 0.064. The female health workers were 0.721 times more likely to be competent in preventing and controlling cervical cancer than their male counter parts (OR=0.721, CI [0.311-1.672]).

Majority of the respondents were married, half of them were found to be competent in prevention and control of cervical cancer. However, there was no statistical significance between marital status and competency in prevention and control of cervical cancer $\chi^2 (2, N=142) = 1.507$, $p \leq 0.471$. In the same line, there was a weak relationship between marital status and competency in prevention and control of cervical cancer with a Cramer's V of 0.103. The respondents in this study had different levels of education (certificate, diploma, degree and master's degree). However, there was no significant difference in competency in prevention and control of cervical cancer despite the variations in the level of education among the respondents. There was a

weak relationship between level of education and competency in prevention and control of cervical cancer, with Cramer's V of 0.016, $\chi^2 (3, N=142) = 4.417$, $p \leq 0.220$.

The results revealed that working in MCH/FP clinic, Obstetric ward and gynecology clinic were strongly associated with increased competency in cervical cancer prevention and control (Cramer's V=0.337, $r=0.057$). There was a statistical significance between the department where the respondent was working in and competency in prevention and control of cervical cancer $\chi^2 (3, N=142) = 16.169$, $p \leq 0.001$. From the results there was no statistical significance between profession of training (nursing, gynecologist and medical doctors) and competency in prevention and control of cervical cancer $\chi^2 (2, N=142) = 1.011$, $p \leq 0.603$. The study revealed a weak relationship between professional training and competency in prevention and control of cervical cancer (Cramer's V=0.084, $r= -0.079$).

Increase in years of experience was significantly associated with competency in screening the mothers, therefore more competent in prevention and control of cervical cancer $\chi^2 (3, N=142) = 35.396$, $p \leq 0.000$. These results showed a strong relationship between years of experience in cervical cancer prevention and control and competency in preventing the cancer (Cramer's V=0.499, $r=0.468$)

Based on the normal approximations in correlation, there was a negative correlation between religion and

competency in prevention and control of cervical cancer ($r=-0.248$). The association was moderate with a Cramer's V of 0.281 and statistically significant at χ^2 (3, N=142) = 11.187, $p \leq 0.011$. There was a strong association between competence in performing cervical cancer screening and competency in prevention and control of cervical cancer with a Cramer's value of 0.398. the respondents who were

competent in performing the cervical cancer screening were 9.788 times more likely to be efficient in preventing and controlling cervical cancer than those who were not competent (OR=9.788, CI [3.378-28.364]). These results were statistically significant when computed for chi-square at χ^2 (1, N=142) =22.526, $p \leq 0.000$

Correlation Analysis

		Competency in Prevention and Control	Age	Level of education	Marital status	Experience
Competency in Prevention and Control	Pearson Correlation	1				
	Sig. (2-tailed)					
Age	Pearson Correlation	0.137	1			
	Sig. (2-tailed)	0.104				
Level of education	Pearson Correlation	0.016	.207*	1		
	Sig. (2-tailed)	0.852	0.013			
Marital status	Pearson Correlation	0.02	.317**	-0.098	1	
	Sig. (2-tailed)	0.81	0	0.247		
Experience	Pearson Correlation	.447**	-0.056	0.009	-0.134	1
	Sig. (2-tailed)	0	0.509	0.92	0.113	

Table 2: Correlation Matrix for Socio-Demographic Factors Influencing Competency in Cervical Cancer Prevention and Control.

Significant results were indicated by use of **

Discussion of Results

Association between Department of Work and Competency in Cervical Cancer Prevention and Control

In the current study, the department in which the respondent was working in was significantly associated with competency in cervical cancer prevention and control. Due to staffing issues more respondents were from female medical ward. However, the study also sampled respondents from MCH/FP clinic, gynecology clinic and obstetric ward. These were the departments that were relevant to the study. On analysis, the respondents from MCH/FP, gynecology clinic and obstetric ward were found to be more efficient prevention and control of cervical cancer. These reflected that working in these departments had more chances of becoming competent than working in a female medical ward. In female medical wards, may be large numbers of the patients may explain why the health workers do not become competent in prevention and control of cervical cancer as for those in the other departments. In MCH/FP and gynecology clinics they mostly deal with mothers of reproductive age almost on one to one situations, this increases chances of the health worker to cater for the

mother in a holistic manner. These results concur with those revealed in a study in Ethiopia by Dubale Dulla, et al. [7] which indicated that the department one works in determines competency in cervical cancer screening.

Association between Years of Experience and Competency in Cervical Cancer Prevention and Control

The years of experience in cervical cancer screening was also a significant predictor of competency in prevention and control of cervical cancer. There was a variation in number of years in which a respondent had worked in the current department. It was evident that the more number of years the respondent had worked in their current departments the more effective they were in preventing and controlling cervical cancer. Those who had worked for more than four years were more likely to be effective than those who had worked for less than one year. Therefore, experience was a determinant of health worker competency in prevention and control of cervical cancer. These results are in line with those found in Uganda, which also found experience of health workers to affect their competency in service delivery especially screening the mothers for cervical cancer [11,12].

Conclusion

The study found out that the department the health worker was working in determined their competency in prevention and control of cervical cancer. Years of experience in cervical cancer screening was also significantly associated with competency in cervical cancer screening and prevention.

Recommendation

- The Government of Kenya to develop policies and strategies to facilitate on job trainings on health workers specifically on cervical cancer prevention and control
- The study recommends need to devise strategies to improve efficiency of services at all health facilities and reproductive health clinics to procure all necessary requirements for screening mothers for cervical cancer.

References

1. WHO (2015) Projections of mortality and causes of death. World Health Organisation Health Statistics and Information Systems.
2. Vivian Tsu, Scott Wittet, Sarah Goltz, Aubrey Cody (2015) Progress In Cervical Cancer Prevention: The CCA Report Card 2015, A New Era in Cervical Cancer Prevention.
3. Franceschi S, Wild CP (2013) Meeting the global demands of epidemiologic transition-the indispensable role of cancer prevention. *Mol Oncol* 7(1): 1-13.
4. Jessica Hanae Zafra, Hurtado Villanueva ME, Saenz Naranjo MDP, Taype Rondan A (2018) Self perceived competence in early diagnosis of cervical cancer among recently graduated physicians from Lima, Peru. *Plos One* 13(9): e0203778.
5. Benzerdjeb N, Garbar C, Camparo P, Sevestre H (2016) Digital holographic microscopy as screening tool for cervical cancer preliminary study. *Cancer Cytopathology* 124(8): 573-580.
6. Di JL, Rutherford S, Wu JL, Song B, Ma L, et al. (2016) Knowledge of cervical cancer screening among health care workers providing services across different socio-economic regions of China. *Asian Pac J Cancer Prev* 17(29): 65-72.
7. Dubale Dulla, Deresse Daka, Negash Wakgari (2017) Knowledge about cervical cancer screening and its practice among female health care workers in southern Ethiopia: a cross-sectional study. *International Journal of Women's Health* 9: 365-372.
8. KDH (2014) Central bureau of Statistics. Kenya Demographic and Health Survey, Ministry of Health, Kenya, Nairobi.
9. Black E, Richmond R (2018) Prevention of Cervical Cancer in Sub-Saharan Africa: The Advantages and Challenges of HPV Vaccination. *Vaccines* 6(3): 61.
10. Ugwu E, Obi SN, Ezechukwu PC, Okafor II, Ugwu AO, et al. (2012) Acceptability of human papilloma virus vaccine and cervical cancer screening among female health care workers in Enugu, Southeast Nigeria. *Niger J Clin Pract* 16(2): 249-252.
11. Nakisige, Carolyn, Melissa Schwartz, Anthony Ndira (2017) Cervical cancer screening and treatment in Uganda. *Gynaecologic oncology reports* 20: 37-40.
12. Mutyaba T, Mmimo F, Weiderpass E (2006) Knowledge, attitudes and practices on cervical cancer screening among the medical workers of Mulago Hospital, Uganda. *BMC Med Educ* 6: 13.

