

Research Article

Utilization of Cervical Cancer screening services in the Ejisu-Juaben municipality of Ghana: a cross-sectional study

ABSTRACT (ARIAL, BOLD, 11 FONT, LEFT ALIGNED, CAPS)

Aims: To explore the factors affecting utilization of cervical cancer screening including the knowledge level cervical cancer among women in the Ejisu-Juaben municipality of Ghana.

Study design: Cross-sectional study

Place and Duration of Study: Juaben, Ejisu and Onwe Government Hospitals in the Ejisu-Juaben municipality of Ghana, January to June 2015.

Methodology: Data were collected using close-ended structured questionnaires. 395 questionnaires, based on completeness were analyzed. A multivariable logistic regression analysis was done to determine the association between socio-demographic characteristics and knowledge level on uptake of cervical cancer screening services.

Results: Only 7.8% of the surveyed had screened for cervical cancer. 86.8% had not heard about the screening and 87.9% had no idea of the place to access cervical cancer screening services. 88.4% of the women had no knowledge of cervical cancer and compared to women with low knowledge of cervical cancer, having a good knowledge of cervical cancer was associated with higher odds of cervical cancer screening (aOR [adjusted odds ratio], 95%CI; 7.56, 2.36-24.14). Women who were 35 years or older had lower odds of utilizing cervical cancer screening services compared to those who were younger (aOR, 95%CI; 0.19, 0.05-0.68).

Conclusion: The prevalence of cervical cancer screening is very low in the Ejisu-Juaben municipality of Ghana. Interventions to increase uptake of cervical cancer screening should be implemented so as to improve access to the service in Ghana.

Keywords: Cervical cancer, screening, uptake, knowledge, Ghana, knowledge level

1. INTRODUCTION

Cancer of the cervix is the commonest malignancy of the female genital tract and is fourth and second most frequent cancers in women worldwide and in less developed regions respectively [1]. In 2012, there was an estimated 445,000 new cases of cervical cancer in developing countries, representing 84% of the new cases worldwide [1,2]. In 2012, 270,000 women died from cervical cancer, with more than 85% of the deaths occurring in low and middle-income countries (LMICs) [1–3].

Despite being one of the world's deadliest, it is the most easily-preventable form of cancer in women. Incidence of cervical cancer has reduced in developed countries though the availability and utilization of screening programmes to identify the premalignant phase for treatment before an invasive cancer develops [4,5]. However, cervical cancer remains the most common female malignancy in sub-Saharan Africa [6]. The incidence of cervical cancer in sub-Saharan Africa is among the highest worldwide, with the available age-standardized rates ranging from 19.9 per 100,000 in Ibadan, Nigeria, through 35.7 per 100,000 in Bamako, Mali, to 41.7 per 100,000 in Kyadondo, Uganda. Cancer remains a major cause of global morbidity [7]. In Ghana, cervical cancer is the most common cancer affecting women, with 50.5% attributed to human papillomavirus (HPV) types 16 and 18, and is the cause of 16% of mortality due to cancer [8]. Current estimates indicate that every year 3052 women are diagnosed with cervical cancer and 1556 die from the disease [9]. The cervical cancer incidence and mortality rates in Ghana are among the highest in the world and the World Health Organization (WHO) has estimated additional cases of cervical cancer to be over 5,000 in Ghana with at least 3,300 deaths every year by 2025 [10,11].

Cervical cancer screening involves testing for pre-cancer and cancer among healthy women who have no symptoms. Detected pre-cancerous lesions can easily be treated to avoid cancer and early stage cancer has a high potential for cure. The WHO recommends cervical cancer screening for every women aged 30-49 years at least once in her lifetime. However, the effectiveness of screening on cervical cancer mortality is achieved only when a high proportion of women partake in screening services [1]. In spite of the existence of effective screening, the awareness and acceptance of these preventive measures is low in developing countries and Ghana for that matter. Poor acceptance and patronage of cervical cancer screening in less developed countries have been attributed to factors including; social status, cultural beliefs and norms and ignorance [12]. Little is however known about the perceptions, acceptance and utilization of cervical cancer screening services in Ghana and hence, the Ejisu-Juaben municipality. This study sought to explore the factors affecting utilization of cervical cancer screening including the knowledge level of women in Ghana. Identification of these factors will inform the design and subsequent delivery of health education on cervical cancer and screening services. This will lead to improved acceptance and patronage of cervical cancer screening services in the municipality and Ghana as a whole.

2. MATERIAL AND METHODS

2.1 Study design and setting

A facility-based quantitative descriptive cross-sectional study design was used, to examine the factors affecting utilization of cervical cancer screening among women between the age 18 to 55years in Ejisu Juaben municipality. The study was conducted at the three main Government hospitals in the municipality, Juaben, Ejisu and Onwe.

Ejisu-Juaben Municipality is one of the 30 administrative and political Districts in the Ashanti Region of Ghana. The Municipality is known globally for its rich cultural heritage and tourist attractions notably the booming kente weaving industry. The Municipality is located in the central part of the Ashanti region and stretches over an area of 637.2 km² constituting about 10% of the entire Ashanti Region and with Ejisu as its capital. Poverty is widespread in the Municipality with 46 per cent of residents living below the poverty line. Fifty one per cent of the employed working age population is involved in petty trading, weaving of kente and agricultural activities. The three main Government hospitals in Juaben, Ejisu and Onwe, serve as referral points of these health delivery facilities. In all there are 30 health facilities in the Municipality as tabulated below. Poor transportation has always been a problem to referred indigenes as poor roads makes it difficult for people to access the needed healthcare services. The means of transportation to these referrals are mainly done by vehicle, motor bicycle, bicycle or even by foot.

2.2 Study population and sampling

The study was conducted among sexually active women aged 18-55 years visiting the outpatient departments of the three selected hospitals. Women who voluntarily agreed and consented were enrolled. The sample size was determined with the assumption that cervical cancer screening awareness in Ghana was 40%. Epi-info version 7.1.4 software was used to calculate the minimum sample size required with level of significance set at 5% and 95% confidence interval. Considering the sensitive nature of the topic (the fact that some women might not respond to the entire questionnaire), the calculated sample size (369) was extrapolated to four hundred and six (406) by a ten percent (10%) non-response rate. Proportionate to the population of the three towns, 49% of the women were selected from Ejisu Hospital, 32% from Juaben Hospital and 19% from Onwe Hospital.

Study subjects were recruited using a systematic random sampling technique. Based on the number of expected respondents per facility, and the average attendants per day using the OPD register, a sampling interval, K , was computed for each facility. Using this interval, an estimated number of subjects were recruited each day until the required sample size was reached for the facility.

2.3 Data collection and tool

Field data collection using structured interview questionnaires occurred between April 2015 and July 2015. The participants completed questionnaire on demographic characteristics, knowledge level of

cervical cancer, perception of the women on cervical cancer screening services, accessibility of cervical cancer services to the women in respect to distance, cost of transportation and cost of service. The first part of the questionnaire collected data on study population's demographics. The second contained questions measuring their knowledge level. The third part looked at women's perception about cervical cancer screening. The proportion if women screened of cervical cancer among the study population were the fourth part and how cervical cancer screening services could be assessed was the fifth.

Questions related to demographic characteristics included age, religion, educational status, occupation, income of the family per month, marital status, and parity. Thirty one items was used to measure knowledge level and six items looked at the source of the information of cervical cancer to the women. Women who marked 70% were measured as having adequate knowledge; those with 50% to 69% had moderate knowledge and 49% and below had slight or poor knowledge. Seven questions elicited perception of cervical cancer among women who did not utilized the screening. This included if the procedure is painful, cost of treatment, outcome of results, is the screening done for a particular group of people, fear of stigmatization and the results leading to marital separation.

In order to evaluate the accessibility of the screening services to women, the following questions were probed; How far was the screening centre from residence? How will they rate the distance from their residence to the screening centre? What was the means of transport from their home to the screening centre? If by public transport, how much do they spend for transport from their home to the screening center and how do they consider the cost of transport to the facility?

A pre-testing study using a sample of twenty (20) women was selected from Kwaso within the Ejisu Juaben Municipal. This provided the opportunity to assess the ability of the questionnaire to elicit the information required from the respondent, as well as the ability of respondents to accurately understand questions asked. Other factors taken into consideration include the appropriateness of the sequence in which the questions were arranged, time allocated to the interviews and the budgetary implications. All research assistants were involved in the pre-testing to ensure adequate preparedness for the field work.

2.4 Data Analysis

The data was entered into Microsoft excel 2013 and then transferred into STATA (Version 12) computer statistical Software package for analysis. Result of the analysis was generated using descriptive and some analytical statistics. Frequencies, ratios and percentages were used to generate results and presented in tables and graphs forms. Pearson Chi square (χ^2) analyses were performed to determine the association between dependent and independent variables under the study. Univariable and multivariable logistic regression analysis was used to determine the association between the utilization of cervical cancer screening services and the independent variables. Supplementary Table 1 shows the outline of the dependent and independent variables for the study and their corresponding scales of measure. Inferences were made with 95% confidence interval with 5% error margin and p-value <.05.

2.5 Ethical Consideration

Ethical clearance was obtained from Kwame Nkrumah University of Science and technology (KNUST) Committee for Human Research Publication and Ethics (CHRPE), and permission was sought from the Municipal Directorate of Health Service to enter the health facilities. Informed consent was sought from all the respondents before interviewing them. The purpose and the objectives of the study, and any potential risk or benefits inherent in the study were explained to the respondents. The respondents were given an opportunity to ask questions about the study. Privacy and confidentiality was ensured by dealing with the respondents on individual basis.

3. RESULTS AND DISCUSSION

3.1 Demographic Characteristics

Table 1 presents the demographic characteristics of the participants of the study. In all, 395 women aged between 18 and 55 years were involved in the study. The Majority (68.9%) were either below the age of 34 years or Christians. On education, 24.6% of respondents had tertiary education, while 40.1% of the respondents had primary or no education. Of the total number, approximately seven in ten were salaried workers. Two hundred and forty-six (62.9%) of respondents were married, 71.1% were multi parous while 28.9% were nulli parous. Majority (88.4%) of respondents had no knowledge on cervical cancer screening.

Table 1. Demographic characteristics of study participants

Variables	Frequency N=395	Percentages
Age		
</=34 yrs	272	68.9
=/>35 yrs	123	31.1
Religion		
Christians	345	87.3
Non-Christians	50	12.7
Educational status		
Primary/no Education	182	46.1
Secondary Education	116	29.4
Tertiary Education	97	24.5
Occupation		
Salaried workers	268	67.9
Non salary workers	127	32.1
Marital status		
Not married	145	37.1
Married	246	62.9
Parity		
Primi-para	144	28.9
Multi Para	281	71.1
Knowledge level of cervical cancer		
Low knowledge	349	88.4
Moderate knowledge	29	7.3
Good Knowledge	17	4.3

3.2 Women's Perception about Cervical Cancer Screening (Reasons for not screening)

Of the 395 respondents in this study, 364 representing 92.2% had never been screened for cervical cancer. Table 2 presents the responses by study participants on why they had never been screened. Majority (86.8%) have not heard about the screening. 13.2% perceive the screening procedure to be painful; 19.2% perceived the procedure to be expensive. 5.0% believed that screening could lead to death while 4.4% were of the opinion cervical cancer screening is meant for prostitutes.

Table 2. Perception about cervical cancer screening among women not screened s

Reasons	Frequency N=364	Percentage
The screening procedure is painful	48	13.2
The screening procedure is expensive	70	19.2
Outcome of results will lead to death	18	5.0
The screening is for only prostitutes	16	4.4
Fear of stigma or embarrassment	16	4.4
Results will lead to marital separation	8	2.2

3.3 Accessibility of Cervical Cancer Screening Services

Table 3 Indicates the level of access to screening services by study participants. Only 12.1% of respondents said screening services were accessible to them. Majority (87.9%) had no idea of the place to access cervical cancer screening services. Among those who were aware of a cervical cancer screening center, 58.3% complained of the service center being far away from their residence. 46 out of the women who knew screening centers disclosed that they will go there with public transport with 25.0% describing the cost of transport as expensive.

Table 3. Accessibility of the screening service to the study participant

Variables	Frequency	Percentage
Know of cervical cancer screening center	48	12.2
The distance to Cervical Cancer Screening Center (n=48)		
Near	20	41.7
Far	28	58.3
Means of transport (n=48)		
Public transport	46	95.8
Walk	2	4.2
Cost of transport (n=48)		
Expensive	12	25.0
Normal	36	75.0

3.4 Association between demographic characteristics and knowledge level and utilization of screening services

Of the several variables tested for association, only age ($P=.007$) and knowledge of cervical cancer screening ($P<.001$) showed significant association with respondents' screening status, Table 4. The proportion of women who utilization screening services increased with increasing knowledge level of cervical cancer.

Table 5 presents the univariable and multivariable analysis of the association between demographic characteristics and knowledge level on utilization of cervical cancer screening services. After adjustment for the variables in the multivariable model, only age and knowledge level of cervical cancer were associated with utilization of screening services. Women who were 35 years or older had lower odds of utilizing cervical cancer screening services compared to those who were younger. Compared to women with low knowledge of cervical cancer, having a good knowledge of cervical cancer was associated with higher odds of utilizing cervical cancer screening services. Having a secondary school education also increased the odds of utilizing cervical cancer screening services but the effect was attenuated in the adjusted model.

Table 4. The association between demographic characteristic of study participants and screening

Variables	Screened (n=31) N (%)	Not Screened (n=364) N (%)	p-value
Age, years			
≤34	28 (10.3)	244 (89.7)	.007
≥35	3 (2.4)	120 (87.6)	
Religion			
Christians	27 (7.8)	318 (92.2)	.97
Non-Christians	4 (8.0)	46 (92.0)	
Educational status			
No formal	3 (5.6)	51 (94.4)	.13
Primary	5 (5.2)	92 (94.8)	
Secondary	10 (6.8)	136 (93.2)	
Tertiary	13 (13.4)	84 (87.6)	
Occupation			
Salaried workers	17 (6.3)	251 (93.7)	.11
Non salary workers	14 (11.0)	113 (89.0)	
Marital status			
Not Married	7 (4.9)	136 (95.1)	.09
Married	24 (9.7)	224 (90.3)	
Parity			
Nulli Para	6 (5.3)	108 (94.7)	.22
Multi Para	25 (8.9)	256 (91.1)	
Knowledge			
Low knowledge	22 (6.3)	327 (93.7)	<.001
Moderate knowledge	3 (10.3)	26 (89.7)	
Good knowledge	6 (35.3)	11 (64.7)	

Table 5. Logistic regression analysis of association between demographic characteristics and knowledge level on utilization of cervical cancer screening services

Covariates	OR	95% CI	p-value	aOR	95% CI	p-value
Age						
< 35YRS	1.00			1.00		
≥ 35YRS	0.22	0.06-0.73	.01	0.19	0.05-0.68	.01

Religion						
Christians	1.00			1.00		
Non-Christians	1.02	0.34-3.06	.98	1.08	0.32-3.64	.89
Educational status						
None/primary	1.00			1.00		
Secondary	2.77	1.10-6.95	.03	1.11	0.39-3.11	.84
Tertiary	1.31	0.50-3.42	.58	1.84	0.52-6.60	.35
Occupation						
Salaried Workers	1.00			1.00		
Non-Salaried workers	1.83	0.87-3.84	.11	1.18	0.40-3.42	.77
Marital status						
Not married	1.00			1.00		
Married	2.1	0.89-5.07	.08	1.45	0.52-4.03	.48
Parity						
Nulli para (primip)	1.00			1.00		
Multi para	1.7	0.70-4.40	.23	2.91	0.95-8.89	.06
Knowledge level						
Low knowledge	1.00			1.00		
Average knowledge	1.71	0.48-6.11	.41	1.83	0.47-7.08	.38
Good knowledge	8.11	2.74-23.98	<.001	7.56	2.36-24.14	<.001

OR=Odds ratio; aOR=Adjusted odds ratio; CI=Confidence interval

4. DISCUSSION

The main purpose of this study was to assess the level of utilization and the factors associated with the utilization of cervical cancer screening services among women in the Ejisu Juaben Municipality in the Ashanti region of Ghana. The main findings of the study is that utilization of cervical cancer screening is very low, 7.8% and is associated with age and knowledge of cervical cancer. Most of the women were not aware about cervical cancer screening services and knowledge about cervical cancer was low.

4.1 Discussion of key findings

This study found a very low level of cervical cancer screening uptake among sexually active women in the Ejisu Juaben Municipality. This was consistent with a previous study in Tanzania where more than 75% of interviewed women had never gone for screening [13]. Findings from this study also corroborates findings from a study in rural Uganda, where only 4.8% of women interviewed had ever been screen for cervical cancer [14]. Similarly, a study conducted in Nigeria among female health workers [15] as well as two hospital-based studies in Kenya revealed a relatively low level of self-reported cervical screening [16,17].

This finding and related studies shows gaps in service utilization and the need to strengthen programs and interventions aimed at improving utilization of cervical cancer screening services. Currently there are only few screening centres which are not strategically situated to encourage universal access to cervical cancer screening services. The problem of proximity and unavailability of screening centers will obviously not encourage women to visit the facility for regular screening. In this study for instance, most of the women had not even heard of a screening center and those who had heard stated accessibility challenges including distance and means and cost of travelling to the screening centre. Previous studies have identified lack of information and distance to screening centres as important barriers to cervical cancer screening [18,19]. Results from a recent review also show that increasing travel requirements are associated with more advanced disease at diagnosis, inappropriate treatment, a worse prognosis, and a worse quality of life among cervical cancer patients [20].

Aside service availability, cost of screening service may also explain the low uptake of services among sexually active women in this study. About 19.2% of the women who did not use cervical cancer screening services in this study alluded it to expensiveness of the service. Barriers to cervical cancer screening are mostly cost-related as women in developing countries are expected to pay in order to access such services [21,22]. Cervical cancer screening services are principally available in some secondary and tertiary health facilities at a cost that makes it unreachable and unreasonable to many women in developing countries [23]. Removing barriers to access cervical cancer screening could improve utilization among sexually active women in Ghana.

Utilization of services is also influenced by perceptions about service quality and outcomes. In this study, women who did not use cervical cancer screening services disclosed various perceptions barring them from accessing screening services. Some of the women believed the procedure was painful, outcome will lead to death, screening is only for prostitutes and some were afraid the outcome could lead to marital separation. This is consistent with a recent study that assessed the knowledge and attitudes of Ugandan women about cervical cancer prevention, where there were undesirable perceptions and beliefs regarding cervical cancer among respondents [24]. As posited by Chorley et al [25], the variation in women's understanding and perceptions of cervical screening suggests that interventions tailored to decisional stage may be of value in increasing engagement with the invitation and uptake of screening in those who wish to take part.

4.2.1 Influence of knowledge and demographic characteristics on cervical cancer screening

Age was also a significant predictor of cervical cancer screening in this study, with older women having lower odds of cervical cancer screening uptake compared to younger women. This is consistent with a recent study in Jamaica where young women were more likely to take up cervical cancer screening [26]. Studies conducted in other settings also found similar association between age and service uptake [27,28]. Lower uptake of screening services among older women has been linked to differences in health beliefs, with older women being more influenced by traditional and cultural beliefs and attitudes and more likely to feel emb

Knowledge level and age of sexually active women were associated with use of cervical cancer screening in this study. Knowledge level was very low in this study, with more than 85% having low knowledge about cervical cancer. Compared to women with low knowledge of cervical cancer, women who had a good knowledge of cervical cancer were more likely to undergo cervical cancer screening. This corroborates previous findings of low knowledge of cervical cancer [30–32] as well as a negative influence of low knowledge on cervical cancer screening [33] among sexually active women. Women with good knowledge level would appreciate the importance of early detection of cervical cancer and therefore utilize screening services.

4.3 Limitations of the study

This study might have suffered from information bias (interviewer and respondents). With respect to respondent bias, the tendency for respondents to withhold some information in order to give socially acceptable responses to some questions which may have been very important. On the other hand, the tendency for interviewers to seek out information that substantiate the knowledge of respondents on the causes, predisposing factors, signs and symptoms of cervical cancer and the onset of sexual intercourse might have affected the accuracy of the information collected. However, interviewers were trained to ensure as much privacy as possible to ensure respondents' confidence and encourage their responses. They were also encouraged to be open-minded during data collection. These could help reduce information bias.

5. CONCLUSION

This study found a very low prevalence of cervical cancer screening in the Ejisu-Juaben municipality of Ghana, 7.8%. Knowledge of cervical cancer and screening centers was equally very low. Women who had not had cervical cancer screening had negative perceptions about the service. There is the need for educational interventions to improve knowledge of cervical cancer and the importance of cervical cancer screening as well as demystify perceptions of cervical cancer screening among

sexually active women. This would increase uptake of cervical cancer screening in Ghana to enhance early detection and prevention of cervical cancer deaths among women.

CONSENT

I declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.

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418

Variable	Operational definitions of study variables	Scale of measurement
Dependent variable		
Cervical cancer screening among women.	Screened or not screened	Numeric
Independent variables		
Religion	The religious category of respondent	Nominal
Level of education	The highest level of education the respondent has attained at the time of the study	Nominal
Parity	Number of children of respondent	Numeric
Age	The age of the respondent at the	Numeric

	time of the study	
Marital status	Being married or not married	Ordinal
Knowledge of cervical cancer.	Ability to identify: the causes, mode of transmission, sign and symptoms, predisposing factors and prevention of cervical cancer.	Nominal
Women's Perception about cervical cancer screening,	The respondents reasons for not utilizing cervical cancer screening	Nominal
Accessibility to cervical cancer screening services to respondents	The distance to the screening centre and the cost of transportation to the centre.	Nominal

419 **Supplementary Table 1 Study variables**