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Barriers to Cervical Cancer Screening in Burkina Faso: Needs for Patient and Professional Education

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Abstract

Background—Cervical cancer is among the leading causes of cancer deaths for women in low-income African countries, such as Burkina Faso. Given that cervical cancer is a preventable disease through early detection and vaccination, this study aimed at understanding the barriers to cervical cancer early detection in Ouagadougou, the capital city of Burkina Faso. Women seeking screening and treatment for cervical cancer (n=351) during the period of May-August 2014, at the Yalgado Ouedraogo University Hospital were interviewed about their knowledge, attitudes, and practices toward cervical cancer. Interview questions elicited information about socio-demographic of participants, history of screening, knowledge of cervical cancer, and attitudes toward cervical screening. Scores were assigned to responses of questions and knowledge and tertiles of distributions were used for comparison. A multivariate logistic regression was performed to predict cervical screening.

Results—Study participants were relatively young (37.5 ± 10.7 years), predominately resident of urban areas (83.8%), and over half had no or less than high school education. Over 90% of participants had heard about cervical cancer and about 55% of them had intermediate level

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knowledge of the disease, its screening, and/or risk factors. Knowledge level was lower among rural than urban residents. Predictors of screening included higher level of education (OR=2.2; 95% CI: 1.48–3.23), older age (OR=1.1; 95% CI: 1.06–1.12), higher socioeconomic standard (SES) (OR=1.5; 95% CI: 1–2.37), urban residence (OR= 2.0; 95% CI: 1.19–3.25), encouragement for screening by a healthcare worker (1.98; 95% CI: 1.06–3.69) and employment (OR=1.9; 95% CI: 1.13–3.11).

Conclusion—Low awareness and socioeconomic barriers lead to underutilization of screening services of women. Motivation and education by healthcare workers are important factors for increasing screening rates. Organized patient and professional education programs in gynecologic services are warranted for improving screening in Burkina Faso and other low-resources countries in Africa.

Keywords

Burkina Faso; cervical cancer; screening; barriers; knowledge; attitude; practice developing countries

Background

Approximately 70% of the global burden of cervical cancer is in developing countries [1]. Sub-Saharan Africa is one of the regions with the highest incidence and mortality rates of cervical cancer [2–6] and Burkina Faso is among the countries with highest incidence and mortality rates in West Africa with an estimated mortality rate of 18.6/100,000 women. Cervical cancer is a preventable and curable disease as it has a long pre-invasive phase and could be identified at an early stage by early detection [7].

The implementation of cytology-based screening programs in developed countries has led to significant decrease in the incidence and mortality of cervical cancer in developed countries. However, low-income countries continue to experience high incidence and mortality rates of disease [8]. The Papanicolaou test (PAP test) is the gold standard for cervical cancer screening, however, this technique is not financially or technically feasible for many low-income countries such as Burkina Faso. As an alternative screening test, the visual inspection methods (Visual Inspection with Acetic Acid- VIA- and Visual Inspection with Lugol's Iodine- VILI) have proven to be cost-effective in early detection of cervical cancer in low-income countries [9].

Screening activities in Burkina cover only between 5.1 % to 7.8% of the target population [2] and there is no national cancer control program to fill this significant gap. The knowledge, attitudes, and practices of women who can have access to these screening facilities are not known. In addition, the role of health care providers in educating women about screening is unknown. Only one study was conducted among the general population of women in the city of Ouagadougou to investigate cervical screening [8]. The study found that having heard of cervical cancer, knowing about the role of HPV in cervical cancer, and the using oral contraceptive pills were independently associated with screening but barriers to screening have not been investigated [8]. Screening for cervical cancer is mainly available at the University hospital in the capital city of Ouagadougou. Therefore, the present study

aimed to evaluate barriers to cervical screening among patients in the gynecology department of the University hospital. The study also explored and role of healthcare professionals in encouraging and educating women to pursue screening.

Methods

Study setting and patients referral patterns

This study was conducted in the Obstetrics and Gynecology service of the “Centre Hospitalier Universitaire Yalgado Ouedraogo de Ouagadougou (CHUYO)”, the University Teaching hospital in Ouagadougou, the capital city of Burkina Faso. The CHUYO is one of the two tertiary referral hospitals in Burkina Faso, a landlocked country of the West African region. According to July 2014 estimates, the population of Burkina Faso was 18,365,123 and women older than 15 years were 3.8 million [10]. There is no specific screening or gynecologic oncology units at the CHUYO but patients with gynecologic symptoms seek care in one of the following clinics: a) family planning; b) gynecology clinic, and c) department Chair office clinic. These 3 gynecology clinics are the places for managing cervical disease patients, including cancer. Screening conducted in the family planning clinic is delivered by a midwife for patients who come for the first time or recurrent screening and treatment for cryotherapy of dysplastic lesions. The gynecology clinic is led by an OB/Gyn specialist where referred patients from clinics or hospitals outside CHUYO with suspected screening lesions are referred for confirmatory screening, diagnosis, and follow-up care. The health care professionals in this clinic also conduct second opinion screening and biopsies. Cryotherapy is also performed when appropriate. The office of the Chair of the OB/Gyn department is for advanced cases that need biopsies and resections by the Loop Electrosurgical Excision Procedure (LEEP). This clinic is staffed by the Chair of the department of OB/Gyn, two OB/Gyn doctors, and 3 midwives. Important decisions related to hospitalization for palliative care or referral for radiotherapy are taken in the Chair’s office clinic. Radiotherapy is not available in Burkina Faso and patients in need of radiotherapy are sent to Ghana or Europe depending on their choices and financial abilities.

Internal referrals to the Chair’s clinic from other clinics in CHUYO are mainly from physicians or midwives of the OB/Gyn and regular gynecological care. Women are referred from primary or secondary level public and private hospitals, community healthcare facilities, or Non-Governmental Organizations (NGO) for suspected dysplastic or cancer lesions during gynecologic examination or possible sporadic outreach screening campaigns. The referral patterns to the University Hospital are summarized in Figure 1.

Study design and data collection

This cross-sectional study was carried out by interviewing study participants at the OB/Gyn ward of the CHU/YO from May to August 2014. The study included all women who presented for cervical cancer screening, diagnosis, or treatment during the study period. All screenings were conducted using the visual methods as it is the only method in low resource settings. Visual inspection with acetic acid (VIA) was used for first time screening and lugol iodine (VILI) was used for second opinion screening. Patients who were severely ill to communicate effectively were not approached to participate in the study. A questionnaire to

elicit knowledge, attitudes, and practices was designed based on previous studies from other Sub-Saharan African countries and based on feedback from the CHUYO clinicians [11–14]. Completing the interviewer-administered questionnaire took between 15–20 minutes and the questionnaire included questions about socio-demographic characteristics of participants, their obstetrical and gynecological histories, and screening knowledge. Other questions focused on attitudes and barriers toward screening, results of the screening, payment sources for the care received, having previous screening, age at first screening, and regularity of screening, if screened more than once. Pilot testing of the questionnaire was conducted on 30 patients and final interviews took place after the pilot testing adjustment. Study participants were interviewed before and/or after clinical care in a non-disruptive manner to the clinical care.

Data management and analysis

Following interviews, data was entered into Excel and analyzed using SAS 9.3. All analyses and interpretations used a statistical significance level of 0.05. Most variables were analyzed as such; few other variables were recoded into combined variables. Husbands are often reluctant to share information about their income with their wives in Burkina Faso. Therefore, SES scores were estimated by adding up values of variables in the socio-demographic rubric. Knowledge about the disease and its screening were assessed using 17 questions (13 questions evaluated knowledge of disease and risk factors and 4 questions evaluated knowledge of screening). Each question had 2 possible answers, a correct answer received a score of 1 and a wrong answer received a score of 0. The total score of the answers to the 17 questions was computed for each study participant. The 3 categories, low, medium and high were derived from the total score stemming from the 17 questions divided into tertiles. Other non-knowledge variables that included low, medium, and high were based on the tertiles of the total scores assigned for the components of the respective variable. For example, components of socioeconomic level included housing condition (walls, location in a plotted area or not, running water, and/or electricity), type of toilet in the household (flushed, pit, open-hole, or none) and types of goods owned (car, motorcycles, and/or television).

Descriptive statistics were performed, comparisons were made with screening results and previous screening status as the outcome variables. T-test or chi-square was used when appropriate. Univariate and multivariate logistic regression analyses were performed to identify determinants to screening practice. Having had a previous screening or not was the outcome variable and the independent variables included in the model were: education, age, SES, residence, motivation for screening and participants' employment status. The backward selection model was used to select the model's variables and model goodness of fit was tested by the Hosmer–Lemeshow test.

This study was approved by the Institutional Review Board from the University of Nebraska Medical Center and the National Ethics Committee for Research in Health (CNERS) in Burkina Faso.

Results

A total of 351 respondents participated in the study with 346 nationals of Burkina Faso, 5 from Togo and 1 from Chad. The participants from Burkina Faso were from 22 different ethnic groups largely dominated by the Mossi group (243 individuals, 69.2%) and the remainder (102 participants) was from 21 other ethnic groups making up 29.1% of participants. Residents of urban areas were 83.8% (294 participants) of the study population followed by rural area residents (39 participants or 11.1%) and semi-urban residents (18 participants or 5.1%).

The mean age of participants was 37.5 ± 10.7 years with a range between 18 and 72 years. Those who did not attend any school were 25.4% (89 participants) of the total participants, 21.6% (76 participants) went to school but did not reach high school, while 35.6% of participants (125) had high school level, and the remaining 17.4% (61 individuals) had college or university-level education. For the marital status, 84.3% (296 participants) were married or living with partner and the 15.7% (55 participants) were either not married, separated, divorced or widows.

Employment rate was 58.2% (203 women) for participants and 82.4 % (244 husbands). Residents of urban areas had higher rates of employment compared to semi-urban and rural areas. Unemployment rate was highest for women residing in rural areas; up to 56.4% of them were not involved in any type of income-generating activities.

Table 1 displays the level of knowledge about cervical cancer, its risk factors, and the screening of participants who reported having ever heard about cervical cancer. Knowing about HPV vaccine existence and attitudes toward regular screening is also reported in Table 1. Participants, in general, had a medium level knowledge about cervical cancer. High-level knowledge about cervical cancer and screening was more observed among participants from urban areas and decreased from urban (41.5%) to rural areas (17.2%). Less than one quarter (17.5%) of participants knew about HPV vaccine.

Table 2 shows screening status in relation to factors influencing screening (knowledge, SES, education, employment status, and residence). Participants who were screened prior to the study interviews accounted for 45.3% of the study participants and 54.7% of participants were never screened prior to the study interviews. There was a significant difference in knowledge, SES, education, employment status and residence between the two groups (previous screening vs. no screening) ($p < 0.001$). Respondents who had previous screening tended to have higher knowledge level about cervical cancer and its screening. Their SES and education level were also higher compared to those screened for the first time. Women with prior screening also had higher rates of being employed and most of them lived in urban areas.

Figure 2 depicts the barriers to screening listed by study participants. Almost half the study participants did not identify any reason for why they were never screened or did not have regular screen. The most common barrier to screening was lack of awareness about the disease itself, its screening, or not being aware of being at risk for the disease. Lack of

awareness was followed by not knowing where to get screening, fear of being diagnosed with the disease, distance from the hospital, and financial difficulties.

Table 3 is a summary of the determinants of screening assessed by a multivariate logistic regression. Older age, higher SES, and higher level of education were significant predictors of screening. Likewise, employed women had twice the odds of being screened. The odds of screening decreased by half for women from semi-urban areas compared to women from urban areas. The same decrease is seen from semi-urban areas to rural settings. Women encouraged to have screening by medical reasons (advice from healthcare professional or symptoms) were twice more likely to get screening than those with non-medical encouragement (relatives or friends' advice).

Discussion

The key findings of this study can be summarized as following: 1) the lack of awareness about cervical cancer and its screening was the main barrier to cervical cancer screening in the study participants. 2) Women who were employed tended to seek screening more than those who were not employed. 3) Women with higher education level had higher odds of getting screened compared to those with lower education level. 4) Rural women were less likely to get screened than women living in urban areas.

Lack of awareness about cervical cancer was the most common reason for not seeking screening. This is not uncommon in developing countries, especially in Africa. Many studies in different countries evaluated how knowledge affected cervical cancer screening. In Nigeria, half of women questioned about their screening habits cited lack of knowledge as an important reason they had not been screened [15]. Only 31% of women in a Northern Ethiopian study were knowledgeable about cervical cancer and the need for screening [16]. Lack of awareness about screening was also cited as an important barrier to screening in studies in the Killimanjaro region of Tanzania, Botswana, and Southeast Nigeria [17–19]. This study, specifically found that “not knowing the screening center location” was a common barrier. Many other studies in Africa [12, 14] and in female immigrants and minority groups in the United States [20, 21] found this to also be a common theme in women's lack of awareness regarding screening. Many studies also cited reasons related to husbands not giving consent for screening [12, 22–27] which was very marginal in our study, with only one participant out of the 351 having mentioned this reason as a barrier to her screening for cervical cancer. Other barriers were fear of being diagnosed with cancer, neglect and distance from the screening center. Distance from screening center was common in other studies [14, 20]. Health authorities should make cervical cancer screening financially and geographically accessible to all women on the national territory and put a particular focus on education of healthcare providers.

Additionally, almost half of women in our study had a previous screening. Lower rates were found in Burkina in 2012 [12], Ghana [11] and in Tanzania [14]. The discrepancy between our study and that conducted in 2012 in Burkina is due to the characteristic of the study population. The 2012 study was a population-based study and ours was a hospital-based study. The cost of screening could partly explain the relative high rate of previous screening

in our sample when compared to the Ghanaian study. Screening at the CHUYO was about the tenth of that in Ghana, where a Pap smear was the screening method.

In our study women with higher SES had greater odds of being screened than lower SES participants. These results are supported by several other studies in Africa and elsewhere [11, 28, 29]. Higher SES is related to education, employment status and residence, all of which were found to be associated with screening in our study. Education level could also play a role in the previous screening rates of our study. A study in Ghana found a higher screening rate in college students [30]. Women with higher education tend to have higher knowledge level on the disease and consequently more likely to get screened. Most participants in our study heard about cervical cancer before their interview explaining why knowledge level about cervical cancer and cervical cancer screening was higher in our study compared to the other study conducted in Burkina [12] which found a lower proportion of participants who previously heard about cervical cancer. Awareness about cervical cancer, HPV and HPV vaccination in North West Cameroon also found level of education to be an influencing factor in a parents understanding of the disease and decision to allow their daughters to be vaccinated [31]. In Lagos, Nigeria, education was also related to a woman being willing to have screening for cervical cancer [32].

Employed women were twice as likely to get screened compared to unemployed women. Women's employment relationship to screening status was demonstrated in a Chinese American study as well [29]. Income level and cost of screening, which is related to a patient's or a patient's family's employment, was found to be an important factor in other studies investigating cervical cancer screening barriers. These studies in Northwest Cameroon [31], Southeast Nigeria [19], and Botswana [18] found higher income or reduced costs of screening to be related to better screening rates. Additionally, an assessment of cervical cancer screening in low-income countries found household SES and a country's health expenditure to be determinants of cervical and breast cancer screening rates [33].

Our study also found residence of women to be an important factor in cervical cancer screening in that it either immediately impacting screening or it impacted other factors mentioned including employment and knowledge or awareness. Women living in urban areas had higher odds of screening compared to those living in semi-urban areas; and women in semi-urban areas had greater odds of being screened compared to rural women. Urban women were more likely to be employed than their counterparts in semi-urban and rural areas. Knowledge level was different across residence areas in our study. Knowledge of the disease, its screening and risk factors were higher in urban area compared to semi-urban areas and rural area, respectively. Alternatively in a study in rural Tanzania there was found to be a higher proportion of women with low knowledge levels [14]. Residence and general education in Tanzania could be the culprit for these differences in findings. Our findings, though, were similar to a study in India which took place in a tertiary hospital, like this study [34]. Visual inspection of the cervix is the only method available for cervical screening in Burkina Faso and its cost is believed to be affordable as reported by most women in this study. The government of Burkina Faso is subsidizing the cost of the visual inspection to make it affordable to women in Burkina Faso.

The main strength of our study is that we conducted a primary data collection which assured reliable and accurate data. The sample size was large enough to yield statistically meaningful results. Also, the hospital is a reference hospital where diverse patients are referred. However, our sample may not be fully representative of the female population which could limit the generalizability of our results. In few instances, patients did not complete the interview which was the cause of incomplete data in those circumstances.

In summary this study highlighted low awareness of women in association with low screening. Older age, higher SES, higher level of education and motivation and encouragement by a healthcare professional were predictors of screening. Advising healthcare professional to educate and motivate women to screening for cervical cancer will potentially increase screening rates among women who have access to gynecological care. Future studies should focus on healthcare professionals to assess their delivery of screening services and cervical cancer education.

Intervention and screening services should be developed in setting where education and access to healthcare are low.

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Figure 1.
Cervical cancer screening sites and referral pattern

Figure 2.
Barriers to screening among those screening for the first time

Women's knowledge and regularity of screening among those who ever heard about cervical cancer

Table 1

Variable	Levels	Residence			
		Urban		Rural	
		n	(%)	n	(%)
Knowledge on disease and screening (N=318)	Low-Medium	172	59.3	23	82.1
	Medium	118	40.7	5	17.9
	Total	290	100	28	100
HPV vaccine knowledge (N=317)	True	52	18	6	21.4
	False	237	82	22	78.6
	Total	289	100	28	100
Regularity of screening (N=318)	Regular	93	32.8	3	10.7
	Irregular	191	67.2	25	89.3
	Total	294	100	28	100

Low, medium, and high values were based on tertiles of total scores.

Table 2
Comparison of participants previously screened to those with no previous screening

	No previous screening		Ever screened		p-value
	N	%	N	%	
Education level (N=349)					
Low - Medium	170	59.03	118	40.97	(<0.001) ¹
High	21	34.4	40	65.6	
Knowledge of Disease and screening (N=349)					
Low Medium	145	65.0	78	35.0	(<0.001) ¹
High	46	36.5	80	63.49	
Socio-economic status (N=349)					
Low	68	80	17	20	(<0.001) ¹
Medium	94	53.4	82	46.6	
High	29	32.9	59	67.1	
Women employment status (N=347)					
Unemployed	95	65.5	50	34.5	(<0.001) ¹
Employed	95	47	107	53	
Residence (N=349)					
Rural	33	86.8	5	13.2	(<0.001) ¹
Urban	158	50.8	153	49.2	

Chi-square test of association between each predictor and screening status
Low, medium, and high values were based on tertiles of total scores.

Table 3

Factors associated with screening practice and odds ratios

Effect	OR	95% CI	P-value
Education			
High	3.36	1.63 – 6.93	<0.001
Low to Medium (Reference group)	1.00		
Age			
Estimate for each year increase	1.09	1.06 – 1.12	<0.001
SES			
Medium vs. Low	2.4	1.17–4.91	0.3880.009
High vs. Low	3.65	1.57–8.46	
Low (Reference group)	1.00		
Residence			
Urban	5.33	1.67 – 16.96	0.005
Rural (Reference group)	1.00		
Employment			
Employed	2.16	1.28 – 3.62	0.004
Unemployed (Reference group)	1.00		
Motivation by a healthcare professional	1.90	1.026 – 3.52	0.041
Medical motivation			
Other motives (Reference group)			