Original Article

Uptake of Cervical Cancer Screening and Associated Factors Among Women Attending Outpatient Services in Rwamagana Hospital, Rwanda

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Abstract

Background

Cervical cancer is a global public health threat for women. Rwanda Ministry of Health recommends screening as preventive strategy. However, the screening remains low in Rwanda.

Objective

To determine the uptake level of cervical cancer screening and associated factors among Rwandan women.

Methods

A quantitative analytical cross-sectional study design was used. We recruited 178 participants using convenience sampling from an estimated 320 women who attended outpatient department in the previous month. The sample size was calculated using the Yamane's formula. We used chi-square test, t-test and multiple logistic regression analysis to analyse data.

Results

A total of 178 (100%) participants completed the survey. Forty-one (23%) participants had undertaken cervical cancer screening. Knowledge (OR: 1.26,95% CI:1.069-1.485, p=.006) and income were predictors of cervical cancer screening uptake. Participants earning RWF ≥ 63,751 were more likely to uptake cervical cancer screening (OR:11.141, 95% CI:3.136-39.571, p< .001) compared to those earning less than RWF 25,500 monthly.

Conclusion

Cervical cancer screening uptake among study population was low. Participants with more knowledge and high-income were more likely to uptake cervical cancer screening. Improving women's knowledge and socioeconomic situation would improve the uptake of cervical cancer screening.

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Introduction

Cervical cancer is one of the leading causes of maternal mortality in both developed and developing countries [1–3] and it is the second most common cancer in women living in developing countries.[4] An estimate of 570,000 new cases were reported worldwide with 84% being from developing countries in 2018.[4] An estimated 311,000 women died from cervical cancer worldwide in 2018, and 85% of these deaths occurred in low-and-middle income countries (LMIC) with Sub-Sahara Africa being the most affected.[4,5]

High cancer-related mortality rate in LMIC is attributed to the inadequate access to effective screening services which results in low awareness of the diseases during its early stages and late diagnosis at the advanced stages with poor treatment outcomes.[6–9] Cervical cancer is preventable and curable if detected early enough and treated with available cost-effective technologies.[6–9] However, the uptake of cervical cancer screening is quite low in African countries. [8] About 80% of women with cervical cancer in sub-Sahara Africa are detected at the late stages of diseases with poor prognosis.[7,10]

A study conducted in one tertiary hospital in Rwanda indicated that 5.3% of the participants had cervical cancer in 2017.[11] About 1,366 cases of cervical cancer were reported in 2014, and this disease accounted for 25.2% of 3,200 cancer-related deaths reported in the same year.[12] This makes cervical cancer the leading cause of cancer-related deaths among Rwandan women [12–14] and the second common cancer in Rwandan women of 15-49 years old.[13,14]

A qualitative research conducted in a selected hospital in Rwanda among women with cervical cancer indicated that lack of knowledge (ignorance), cultural practices (feeling ashamed for exposing sexual body parts to another person), older age, fear of rejection and stigmatization, and poverty constituted the main reasons of late diagnosis of cervical cancer.[10] In addition, healthcare system barriers such as inadequate knowledge of providers regarding cervical cancer, poor communication, false diagnosis, and ineffective referral system were the reasons for late diagnosis. These studies highlight the increasing burden of cervical cancer in Rwanda. [10] However, most of the studies that were conducted in Rwanda focused on patients with cervical cancer [10] and prevalence of cervical cancer.[11,15] Little is known about the uptake of cervical cancer screening in Rwanda. Therefore, this study aimed to determine the uptake of cervical cancer screening and associated factors among women attending outpatient department at Rwamagana hospital in Rwanda.

Methods

Design

A quantitative analytical cross-sectional study design was used to determine the uptake of cervical cancer screening and associated factors among women attending outpatient department at Rwamagana hospital in July 2019.

Participants' recruitment

The study population consisted of all women aged 25 years and above who attended outpatient department for seeking health care services at Rwamagana hospital. The study population was estimated based on 320 women who sought health care services from outpatient department in the previous month. The women aged below 25 years, hospitalized, and sought emergency services were excluded in the study. We have used Yamane's formula to determine sample size, with a 0.05 margin error at 95% confidence interval.[16]

Using this formula, we got a sample of approximately 178 participants. A non-probability convenience sampling strategy was used to recruit participants. The participants were approached by researchers in the waiting room. The researcher explained the nature of the study to the participants and requested their consent to participate in the study. Data were collected until the target sample size of 178 participants was reached.

Measures

The study used a questionnaire that was developed to assess the knowledge, attitude, and practice regarding cervical cancer screening among women attending primary health care centres.[17] This instrument was developed by Al-Meer and colleagues and was found to be valid and reliable (k:.85).[17,18] It was used by other researchers and found to be valid and reliable in the previous studies.[17,18] The instrument was translated in Kinyarwanda, the mother tongue of respondents to ensure that the tool was understandable. The tool was also tested and Cronbach's alpha was found to be .83, indicating that the tool was reliable. [19] The instrument comprised three sections: (a) Sociodemographic variables, (b) knowledge, and (c) cervical cancer screening uptake status. Outcome variable was categorical-binary measuring whether the woman was screened with Pap smear test within the previous three years. Independent variables had different measurement levels.

Data Collection

Data were collected every day in July 2019 until the sample size of 178 was reached. The self-administered questionnaires with closed-ended questions were distributed in the waiting room to those who voluntarily accepted to participate. The non-literate participants were interviewed by the researcher who completed the questionnaire on their behalf. The completed questionnaires were distributed in the waiting room and completed questionnaires were immediately submitted to the researchers.

Data Analysis

Data were entered into the Statistical Package for Social Sciences (SPSS) version 21 using codes, checked, and cleaned. Correct answer for knowledge was assigned one point (1) while incorrect answer and "I do not know" were assigned zero (0). All knowledge item scores were summed up to get the overall score for knowledge-continuous variable. Descriptive and inferential statistics were used to analyze the data.

Knowledge scores were summarized using the mean and standard deviation while categorical data were summarized using frequency and percentage. Minimum knowledge score was 0 while maximum was 14. Cervical cancer screening uptake as outcome of interest was binary variable. The independent t-test was used to test an association between knowledge and cervical cancer screening uptake while the Chi-square (X2) test was used to test an association between independent categorical variables and uptake of cervical cancer screening. The significance level was set at p <.05 at 95%CI (2-sided). The variables which were statistically significant in the bivariate analysis were entered into simultaneous logistic regression analysis, except employment status as it indicated collinearity between other socioeconomic variables.

Ethical Considerations

University of Rwanda, College of Medicine and Health Sciences Institutional Review Board approved the study (Ref: CMHS/IRB/233/2019). Rwamagana hospital also issued the permission prior to data collection. Participation in the study was voluntary and consent was obtained from the participant before completing the questionnaire.

Results

Participants' characteristics

A total of 178 (100%) participants which consisted of 112 (62.9%) married women completed the questionnaire survey. Of the participants, 65 (36.5%) were aged between 36-45 years old while 56 (31.5%) were aged between 25-35 years old. Furthermore,119 (66.9%) had low education with only primary school or non-schooling while 59 (33.1%) had high education (secondary and higher). Most of the participants, 106 (59.6%) were farmers and 108 (60.7%) were living in rural area. It was also found that 147(82.6%) were poor with 119 (66.9%) having RWF ≤ 25,499 (<US 1$ per day) and 28 (15.6%) having RWF 25,500RWF-63,750 (US$1-2.3). Moreover,78 (43.8%) were in poor category (Ubudehe 1&2). The study showed that only 41(23%) of the participants had undertaken cervical cancer screening (Table1).

Table 1. Participants' characteristics

Variable	Characteristics	Freq (%)
Age	[25-35]	56(31.5)
	[36-45]	65(36.5)
	[46-55]	29(16.3)
	[56-65]	22(12.4)
	≥66	6(3.4)
Marital status	Single	32 (18)
	Married	112(62.9)
	Divorced/Separated	11(6.2)
	Widowed	23(12.9)
Education status	Low education (Primary or no schooling)	119(66.9)
	High education (Secondary and higher)	59(33.1)
Employment status	Farmer	106(59.6)
	Self employed	30(16.9)
	Civil Servant/ NGO employee	20(11.1)
	Unemployed	22 (12.4)
Monthly income	RWF 0-25,499	119(66.9)
	RWF 25,500- 63,750	28(15.7)
	RWF ≥63,751	31(17.4)
Family with cervical cancer	Yes	14(7.9)
	No	164(92.1)
Ubudehe Category	Ubudehe1&2(poor)	78(43.8)
	Ubudehe 3&4(not poor)	100 (56.2)
Residence	Urban	70(39.3)
	Rural	108 (60.7)
Cervical cancer screening Uptake	Yes	41(23)
	No	137(77)

Participants' knowledge

Eight-five (47.8%) of the participants had ever heard about Pap smear test and 80 (44.9%) knew that cervical cancer is not a genetic disease. Most of the participants, 108 (60.7%) knew that cervical cancer is curable if early detected while 72 (40.4%) knew that postmenopausal women still have the risk of getting cervical cancer. It was also found that only 41(23%) knew that HPV infection is a necessary factor inducing cervical cancer. Furthermore,33 (18.5%) knew that HPV positive women may not have cervical cancer while 69 (38.8%) knew that cervical cancer has no symptoms in the pre-cancerous lesions period. Furthermore,87(49.9%) knew that postcoital bleeding is one of the symptoms of cervical cancer. In addition, a big number of the participants, 117 (65.7%) knew that early sexual activity (<16 years old) is one of the risk factors of cervical cancer. The study revealed that 87 (48.8%) participants knew that cervical precancerous lesions may be detected by screening and 68 (38.2%) knew that cervical smear cytological examination is a major method for cervical cancer screening. Moreover, 80 (44.9%) knew that the main aim of cervical cancer screening is to discover precancerous lesions early, 48(27%) knew a person with cervical cancer and 121(68%) knew that having multiple sex partners is a risk factor of cervical cancer (Table2). In average, the participants' knowledge was low with average knowledge score of 6.16 over possible 14 score [(M=6.16 (SD=3.39)].

Table 2. Participants' knowledge of cervical cancer

Variables	Yes	No	Don't know
	Freq. (%)	Freq. (%)	Freq. (%)
Have you ever heard about the Pap smear?	85(47.8)	87(48.9)	6(3.4)
Cervical cancer is not a genetic disease	80(44.9)	25(14)	73(41.1)
Cervical cancer is curable if detected early	108(60.7)	7(3.9)	63(35.4)
Postmenopausal women still have the risk of getting cervical cancer	72(40.4)	23(12.9)	83(46.6)
HPV infection is a necessary factor inducing cervical cancer	41(23.0)	23(12.9)	114(64.1)
HPV-positive women may not have cervical cancer	33(18.5)	28(15.8)	117(65.7)
Cervical cancer has no symptoms in the precancerous lesions period	69(38.8)	37(20.8)	72(40.4)
Postcoital bleeding is one of the symptoms of cervical cancer	87(49.9)	28(15.7)	63(35.4)
Early sexual activity (<16 years old) is one of the risk factors of cervical cancer.	117(65.7)	22(12.4)	39(21.9)
Cervical precancerous lesions may be detected by screening.	87(48.8)	42(23.6)	49(27.6)
Cervical smear cytological examination is a major method for cervical cancer screening.	68(38.2)	29(16.3)	81(45.5)
The main aim of cervical cancer screening is to discover precancerous lesion early.	80(44.9)	27(15.2)	71(39.9)
Multiple sex partners are risk factors of cervical cancer	121(68.0)	15(8.4)	42(23.6)
Do you know a person with cervical cancer?	48(27)	118(66.3)	12(6.7)

Factors associated with cervical cancer screening uptake

Bivariate analysis showed that educational status was associated with cervical cancer screening uptake. It showed that 35.6% of the participants with high education (secondary and higher) did cervical cancer screening compared to 16.8% of those with low education (primary schooling or not schooling), and this difference was statistically significant (X2 =7.852, df:2, p=.005). Furthermore, employment status was significantly associated with cervical cancer screening uptake. Sixty percent of the self-employed participants did cervical cancer screening compared to 55% of civil servants/ NGO employee participants and 10.4% of the farmers (X2=48.472; df:3, p<.001).

Moreover, it was found that monthly income was significantly associated with cervical cancer screening. Fifty eight percent of the participants who earned more than 63,750 RwF per month did uptake cervical cancer screening compared to 42.9% and 9.2% of those who earned 25,500-63,750 RwF and 0-25,499RwF respectively (X2=40.430, df:2; p<.001). In addition, 50% of the participants with history of cervical cancer in their family did uptake of cervical cancer screening compared to 20.7% of those who did not have a history of cervical cancer in their family, and this difference was statistically significant (X2 =6.233, df:1, p<.013). The study showed that 31% of the participants in higher Ubudehe (socio-economic) category (Ubudehe category3&4) did cervical cancer screening compared to 12.8% of those in poor Ubudehe category (1&2) with difference statistically significant (X2=8.169, df:1, p<.004).

The study results indicated that 35.7% of the participants in urban residence did cervical cancer screening compared to 14.8% of those living in rural residence and this difference was statistically significant (X^2=10.464, df:1; p=.001). It was finally found that knowledge of the participants was associated with cervical cancer screening uptake. The knowledge level was significantly higher among the participants who did uptake of cervical cancer screening (M=8.66; SD=2.74) compared to those who did not (M=5.42; SD=3.62), t (85.909) =-6.150, p<.001(Table3). In summary, bivariate analysis indicated that participants with high education, higher monthly income, self-employed and civil servants/NGOs employees, urban residence, high knowledge about cervical cancer, high level of Ubudehe category and those with history of cervical cancer in their family were more likely to uptake cervical cancer screening.

Table 3. Factors associated with cervical cancer screening uptake (N=178)

Variables	Cervical cancer screening Uptake			df		
	N				χ^2	*p-value*
		Yes (%)	No (%)			
Age				4	1.775	.777
[25-35]	56	13(23.2)	43(76.8)			
[36-45]	65	18(27.7)	47(72.3)			
[46-55]	29	5(17.2)	24(82.8)			
[56-65]	22	4(18.2)	18(81.8)			
≥66	6	1(16.7)	5(83.3)			
Marital status						
Single	32	4 (12.5)	28(87.5)			
Married	112	31(27.7)	81(72.3)	3	3.925	.270
Divorced/Separated	11	9 (81.8)	2(18.2)			
Widowed	23	19 (82.6)	4(17.4)			
Education status				2	7.852	**< .005****
Low school (Primary or no schooling	119	20(16.8)	99(83.2)			
>=high education	59	21(35.6)	38(64.5)			
University/college						
Employment status				3	48.472	**< .001*****
Farmer	106	11(10.4)	95(89.6)			
Self-employed	30	18(60)	12(40)			
Civil servant/NGO employee	20	11(55)	9(45)			
Unemployed	22	1(4.5)	21(95.5)			
Monthly income				2	40.430	**< .001*****
0-25,499 RwF	119	11(9.2)	108(90.8)			
25,500-63,750 RwF	28	12(42.9)	16(57.1)			
>= 63,751 RwF	31	18(58.1)	13(41.9)			
Family with cervical cancer history						**.013***
Yes	14	7(50)	7(50)	1	6.233	
No	164	34(20.7)	130(79.3)			
Ubudehe category				1	8.169	**.004****
Ubudehe1&2/Poor	78	10(12.8)	68(87.2)			
Ubudehe3&4/Not poor	100	31(31)	69(69)			
Residence				1	10.464	**.001*****
Urban	70	25(35.7)	45(64.3)			
Rural	108	16(14.8)	92(85.2)			
					t-test	***p*-value**
Knowledge score: Mean (SD)	178	8.66 (2.74)	5.42(3.62)	85.909	***-6.150***	**< .001*****

Note: *: Statistically significant at p<.05; **: Statistically significant at p<.01; ***: Statistically significant at p<.001; df: degree of freedom

Predictors of cervical cancer screening uptake

Education and employment were highly correlated which implied collinearity between employment and education resulting to the exclusion of employment into multiple logistic regression model. Multiple logistic regression model explained 41% (Nagelkerke R Square=.410) of variation in uptake of cervical cancer screening. The multiple logistic regression analysis indicated that only knowledge and income remained statistically significant associated with cervical cancer screening uptake. As knowledge increases of one unit, odds of cervical cancer screening uptake increase by 26% with other variables held constant (OR:1.26, 95% CI:1.069-1.485, p=.006), highlighting that the participants with more knowledge on cervical cancer are more likely to uptake cervical cancer screening compared to those with less knowledge.

Furthermore, odds of cervical cancer screening uptake among participants with income of RWF25,500-RWF63,750 per month were 5.7 times more compared to those with income of less than RWF25,500 per month (OR:5.661;95%CI:.1.878-17.057, p =.002). In addition, the participants with income of RWF63,751 and above were 11.1 times more likely to uptake cervical cancer screening compared to those with income of less than RWF25,500 per month (OR: 11.141, 95% CI: 3.136-39.571, p < .001) (Table 4). Education, residence, and history of cancer in family were no longer statistically significant in multivariable analysis.

Table 4. Predictors of Cervical Cancer Screening Uptake: Simultaneous Multiple Logistic Regression Results

Variables	B	S. E	Wald	df	Exp(B)	95% CI for Exp.		*p*-value
						Lower	Upper	
Education	-.582	.553	1.105	1	.559	.189	1.653	.293
Ubudehe	.077	.527	.021	1	1.080	.385	3.030	.884
income			16.155	2				< .**001***
Income (1)	1.734	.563	9.488	1	5.661	1.878	17.057	**.002****
Income (2)	2.411	.647	13.895	1	11.141	3.136	39.571	**< .001****
Residence	.597	.456	1.713	1	1.817	.743	4.445	.191
Cancer in family	1.040	.692	2.258	1	2.828	.729	10.973	**.**133
Knowledge score	.231	.084	7.623	1	1.260	1.069	1.485	**.006****
Constant	-4.050	.694	34.113	1	.017			**< .001**

Note: *: Statistically significant at p < .05; **: Statistically significant at p< .01; ***: Statistically significant at p <.001; Family history of cancer_reference (No:0); Education_reference (Low education-no schooling and primary school=0); Residence_reference: rural (0) and Ubudehe-local socioeconomic category_ reference (0=ubudehe1&2/poor) and income_reference (0= RWF < 25,500 per month or less than US $ per day). Income (1) = RWF 25,500- RWF 63,750; income (2) ≥ RWF 63,750

Discussion

The study was conducted in one rural hospital in Rwanda among 178 women seeking health care services from the outpatient department. Rwanda non-communicable diseases national strategic plan 2014-2019 prioritized screening of non-communicable diseases including cervical cancer screening as prevention and control measures among Rwandans.[20] Cervical cancer screening helps its early detection and early treatment for those diagnosed with cervical cancer which results in favorable outcomes and survival.[5,21]

When pre-cancerous lesions are detected, they can be treated with available cost-effective technologies such as cryotherapy or Loop Electrosurgical Excision Procedure (LEEP) which can decrease cervical cancer occurrence and its-related mortality in LMIC.[22] Rwanda has integrated non-communicable diseases prevention and control programs in primary health care services in the purpose to improve NCD care including screening and treatment services.[20]

Despite these political initiatives, our study found that cervical cancer screening was low with only 23% of the participants reported to have undergone for cervical cancer screening.

The results of our study indicate that cervical cancer screening among participants is lower compared to the goal of global community which aims to screen 70% of women.[23] The results of this study are consistent with other studies conducted in African countries which reported low uptake of cervical cancer screening ranging from 2.9% to 21%.[2,7,24,25] Although these studies reported low cervical cancer screening uptake like the current study, slight differences are noted from one context to the other. The results of our study showed a slightly higher cervical cancer screening uptake compared to the studies conducted in Uganda and Nigeria which showed that 20.6% and 17.6% of Ugandan and Nigerian women had undergone cervical cancer screening, respectively [2,25] while the Tanzanian study found that 21% underwent cervical cancer screening test.[24] In addition, the study carried out in Ethiopia showed that only 2.9% of the participants underwent for cervical cancer screening,[26] which is very low compared to the current study. The similarity of low cervical cancer screening uptake between these studies and ours could reflect common challenges for cervical cancer screening in developing countries.

The results of our study show that cervical cancer screening uptake are very low compared to Swedish study which indicated that 82% of women were screened for cervical cancer in 2014-2016.[27] High uptake of cervical cancer screening in Sweden could reflect easy access to preventive health services compared to LMIC. Furthermore, low cervical cancer screening uptake in our research could be explained by the lack of access to screening services, lack of awareness about cervical cancer and limited scale up of the prevention and control programmes services in Rwanda.

Adequate knowledge about risk factors and health conditions plays a critical role in influencing the people to manage their own health and engage in healthy behaviours such as participation in screening practice to prevent diseases and improve their health status.[28] The results of our study confirmed that knowledge was positively associated with cervical cancer screening uptake with more knowledgeable participants more likely to uptake cervical cancer screening compared to those with less knowledgeable. Similar results were reported in the Japanese and Nigerian studies which found an association between knowledge and uptake of cervical cancer screening.[29,30]

Our study indicated that income was associated with cervical cancer screening uptake with high income being associated with the uptake of cervical cancer screening. This is consistent with other studies conducted in Japan and Ethiopia which showed that high income was associated higher cervical cancer screening.[25,28,29]

Although education and Ubudehe category (socio-economic category in Rwandan context) did not remain statistically significant in multivariable analysis; bivariate analysis indicated that the participants with higher level of education and those in third and fourth Ubudehe categories (comfortable socioeconomic status) were more likely to uptake cervical cancer screening compared to those with lower or no education and those in poor Ubudehe category, respectively. This indicates the role of socioeconomic status in influencing cervical cancer screening.

Similar conclusion was drawn from the WHO's study on Global Ageing and Adult Health (SAGE) conducted in China, India, Mexico, Ghana, South Africa and Russia.[28] In this multi-country study, socioeconomic status entails income and education, and found that the participants with lower socioeconomic status were less likely to uptake cervical cancer screening. Socioeconomic status is a stronger social determinant of health as it determines the women's ability to control their health.[31] The women with lower income struggle with their daily basic needs and face multiple challenges of accessing health care services such as cervical cancer screening.[31] In our study, bivariate analysis showed that women living in rural areas were less likely to uptake cervical cancer screening compared with their counterparts from urban areas. However, multivariable analysis failed to demonstrate that rural women had lower cervical cancer screening compared to their counterparts living in urban areas. In addition to poverty, rural women may face multiple challenges of accessing health care services as high proportion of qualified health professionals tend to work in urban areas.[32] The findings of this study indicate that the uptake of cervical cancer screening among women attending outpatient department at Rwamagana hospital is low and there is a need to develop and implement innovative programmes to promote cervical cancer screening in Rwandan women and improve women' health and well-being.

Recommendations

Uptake of cervical cancer screening in Rwamagana hospital is low. Developing innovative interventions to improve cervical cancer screening uptake is urgent in Rwanda. Policymakers and health practitioners should develop and implement tailored interventions to increase awareness of women about cervical cancer and increase uptake of cervical cancer screening. Primary health care centres and community could be ideal settings for implementing these interventions. Developing accessible health information tools for low educated women to improve women's awareness about cervical cancer would be a valuable contribution to improve cervical cancer screening among women. It is important to consider comprehensive and intersectoral approach in cervical cancer prevention. Working with other sectors in multisectoral collaboration approach would contribute to the improvement of cervical cancer screening uptake and improve women's health in general. It should be valuable to initiate research program to understand cervical cancer screening practice and prevention at primary health care and community levels.

Future research should also focus on large representative sample to identify predictors of cervical cancer screening uptake among women in rural areas using community-based surveys. Furthermore, large study countrywide would be beneficial for policy-makers and strategic planning purposes for quality health care delivery in general. The future research programs could focus on different sectors and develop complex interventions to increase cervical cancer screening in Rwanda. In addition, future research should investigate about availability and accessibility of cervical cancer screening services in both hospitals and primary health care centres, barriers that might hinder the uptake of cervical cancer screening uptake. Using mixed research studies would yield valuable findings to guide policy making to address issues around cervical cancer screening in Rwanda.

Limitations

The study used an analytical cross-sectional survey design with a convenience sampling technique. In addition, our sample size is small, therefore; the results cannot be generalized to the whole Rwamagana district and Rwandan population. The non-randomization process may have resulted in selection bias since we were unable to measure characteristics of those who did not participate. However, the results provide information about cervical cancer screening uptake among women and can be used to develop a large-scale study to investigate the practice of cervical cancer screening and factors that are implicated in the uptake of cervical cancer screening in Rwanda.

Conclusions

Cervical cancer screening uptake among women attending outpatient department at Rwamagana hospital was low. Only 41(23%) of the participants have undertaken cervical cancer screening. Knowledge and income were the main factors associated with cervical cancer screening uptake with high knowledge and high income being associated with the uptake of cervical cancer screening.

Conflict of interests

There is no conflict of interest in this study either personal or financial from any organization that could influence the results of this work.

Authors contributions

IN: Contributed to the conception of the study, design the study, supervise data collection, data analysis, interpretation of results, drafting the work, revising it critically and approved the submission of the work. AK: Contributed to drafting a paper, critically reviewing the content of paper and approved the submission of the paper. EN: Contributed to drafting a paper, critically reviewing the content of paper and approved the submission of the paper.

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