




## Research



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## Utilization of cervical cancer screening services and associated factors among HIV positive women receiving care at an antiretroviral therapy clinic in Gulu Regional Referral Hospital

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## Abstract

**Introduction:** cervical cancer is the 3<sup>rd</sup> most common cancer among women globally, accounting for 7.9% of all cancers in women, and the leading cause of gynecological cancer deaths in low to middle-income countries, resulting in 85% of cancer-related deaths in sub-Saharan Africa. It is known to be caused by the human papillomavirus (HPV). Co-infection with HIV makes women more susceptible to premalignant lesions of the cervix and faster progression to cervical cancer. Screening services are relatively low among women living with HIV despite this elevated risk. This study aimed to assess the level of utilization of cervical cancer screening services and associated factors among HIV-positive women receiving care at Gulu Regional Referral Hospital. **Methods:** a cross-sectional study was conducted among HIV-positive women receiving care at Gulu Regional Referral Hospital antiretroviral therapy clinic. **Results:** a total of 160 women were recruited; 70 (43.75%) had screened at least once and almost half 34 (48.5%) of those that had screened did so because they were aware of being at risk of getting cervical cancer, 33 (47.14%) or knew of someone suffering from cervical cancer. Half 45 (50%) of those that had not screened was due to a lack of knowledge about cervical cancer screening. However, 83 (92%) of those who had not screened were willing to screen if services were integrated into the ART clinic. The main source of the screening information was from health workers, 47 (67.14%), and more than half got screened from government health facilities and 42 (60%). **Conclusion:** there is a generally low level of utilization of cervical cancer screening services among HIV-positive women. Healthcare providers were the main source of information, this can form the basis of health education including information related to the national cervical cancer screening program among HIV-positive women. Integration of cervical cancer screening services within the ART clinic will promote utilization among this highly susceptible group.

## Introduction

Cervical cancer is the 3<sup>rd</sup> most common cancer among women globally, accounting for 7.9% of all cancers in women, and the leading cause of gynecological cancer deaths in low to middle-income countries [1] accounting for 85% of cancer-related deaths in sub-Saharan Africa [2]. In Uganda, the mortality rate is at 15.6%, compared to 13.8% in East Africa, and 8.2% worldwide [3]. HIV positive women are at high risk of getting cervical cancer because both HIV and HPV infection are sexually transmitted and due to HIV induced immunosuppression, there's an increased probability that HPV infection will become persistent in these women [4] Uganda's cervical cancer screening rates have been low, at 4.8-30% [5]. This study was aimed at assessing the utilization of cervical cancer screening services and associated factors among HIV-positive women receiving care at ART clinics in Gulu Regional Referral Hospital (GRRH).

## Methods

**Design and setting:** this was a cross-sectional study carried out at the Antiretroviral Therapy (ART) clinic of Gulu Regional Referral Hospital in Gulu district, Northern Uganda. Gulu district is located approximately 343 kilometers by road, north of Kampala, Uganda's capital city. It is a rapidly developing district, and most residents engage in subsistence farming and a few operate small-scale businesses in the trading centers. Cervical cancer screening services are provided by Gulu Regional Referral Hospital (government), St. Mary's Hospital Lacor (private not for profit) which serve Gulu district and other neighboring districts. In addition, Gulu independent hospital (private for profit) and NGO health facilities; Marie Stopes, FLAMA Uganda, Reproductive Health Uganda, and Good Hope Medical Services also offer cervical cancer screening.

**Participants and sampling:** the target population was HIV-positive women of reproductive age

(21-49 years) receiving care at the ART clinic of GRRH. The accessible population was women receiving care from the ART clinic of GRRH during the time of the study. We excluded women who were dumb, very ill, had a total abdominal hysterectomy done, and had a confirmed Ca Cx. A systematic random sampling method was used to select our study subjects as they came to the ART clinic. Based on the inclusion criteria and using formula:  $K = N/n$ ; where:  $N$ = accessible population (240),  $n$ = sample size (99)  $K = 242$ , therefore the  $k^{\text{th}}$  interval was 3. We randomly selected a starting point using the ballot paper system. Then number 1 was randomly chosen. Since our interval was 3, we kept selecting every 3<sup>rd</sup> person on each of the days we collected data.

**Study variables:** the independent variables included socio-demographic characteristics that are; age, religion, tribe, occupation, level of education, marital status, parity, and the dependent variables utilization of cervical cancer screening services. In this study, utilization referred to accessing and undertaking the cervical cancer screening service.

**Data collection management and analysis:** we collected quantitative data using a researcher-administered semi-structured questionnaire. Although psychometric testing was not done for this questionnaire, the questions were developed specifically based on conceptual frameworks proposed by the researchers and pretested on 10 patients to rid out redundant questions. The questionnaires were given unique numbers, checked for completeness at the end of data collection. Data were entered into a password-protected computer using EpiData Version 3.1. exported into STATA Version 12, a computer statistical software for data analysis. Bivariate and multivariate analyses were used to determine the relationship between each of the different independent variables and outcome variables. The independent variables considered were the participants' social demographic factors such as age, marital status, distance from the screening site, duration of HIV diagnosis among others. The

outcome variable of interest was being screened for cervical cancer or not. The level of significance was fixed at P-value less or equal to 0.2 and 0.05 for bivariate and multivariate analysis respectively.

**Ethical considerations:** ethical approval was given by Gulu University Research and Ethics Committee (GUREC)-GUREC-087-17 as well as GRRH ethics and research committee ADM/2017-18/001. Participation in the research was voluntary and the names of the respondents were not used to ensure anonymity and confidentiality. An informed consent, from each participant, after explaining to them the study aims, benefits, and potential risks. The consent forms were in Acholi, English and they were kept separate from questionnaires.

## Results

This study involved 160 HIV-positive women receiving care at the ART clinic of GRRH. The study shows that the majority of the respondents were aged 21-25 years (23.75%), were Christians (96.88%), and from Bardege Division (23.75%), have a primary level (55%) as their highest level of education and mainly engaged in business (39.38%). Most of these women (64.38%) were having four (4) children and below and from monogamous (65.05%) marriages. Table 1 shows the socio-demographic details of the respondents. Although a majority (52.5%) of the sampled women had been diagnosed with HIV/AIDS more than five (5) KM from the nearest health facility, the utilization of cervical cancer screening services stands at 43.75%. In addition, the majority of those who managed to screen; 60% did it once and were informed about the screening services from medical personnel (54.29%). The screening sites were in government health facilities (67.14%) as seen in (Table 2).

The study further showed that respondents who didn't go to school 0.29 (0.04-0.729) and secondary level of education 0.1 (0.02-0.46) are less likely to screen for cervical cancer as compared to those who have tertiary level of

education. This is statistically insignificant at multivariate levels. In regard to the number of children, the study shows that respondents with 4 children and above, 2 (1.04-3.76) are twice more likely to screen for cervical cancer as compared to those with less than 4 children but it's not statistically significant. In addition, respondents with no children 0.35 (0.12-0.98) are less likely to screen for cervical cancer as compared to those with children, and it's not statistically significant. The study further found that those respondents who had been diagnosed with HIV >5 years 1.7 (0.96-3.00) age are 1.7 times more likely to screen for cervical cancer compared to those who were diagnosed 1-3 years ago. However, this is not statistically significant at multivariate analysis (Table 3).

## Discussion

To the best of our knowledge, this study is the first to assess the level of utilization of cervical cancer screening services and associated factors among HIV-positive women receiving care at the ART clinic in GRRH. The level of utilization was low among the participants, majorly because most women had no knowledge about cervical cancer screening and are unaware of places for screening. Many of our respondents who had screened had done so from government health facilities, probably because of free service at government health facilities and also these facilities are near to people as seen by [5]. Among those who had screened, a majority had done it once, and even those who did it more than once had it in a period of more than two years. This does not conform to the Uganda national guidelines for this special group [6] that recommends yearly screening. There was no association between duration since when HIV was diagnosed and screening for cervical cancer. This is contrary to the findings in which women who had lived with HIV for a long duration, knew that they had low immunity and were more at risk of getting CaCx, so this prompted them to screen [7]. This study replicates a study conducted by [7] most participants

screened because they are aware of being at risk of cervical cancer or had knowledge of someone with cervical cancer. Knowledge about cervical cancer was found to be an important facilitator to be screened as was seen in a similar study in Uganda in which poor knowledge is a negative predictive factor for being screened, while some knowledge significantly improves the uptake of screening [8]. Integration of screening for cervical cancer screening was seen to be a facilitating factor to increase in the uptake of the screening, consistent with a finding in Uganda by [9] Our findings revealed that those with secondary levels of education are less likely to screen for cervical cancer. This could be because of the level of technicalities related to the promotional messages for cervical screening. Educational levels have been seen to affect the uptake and level of adherence to breast and cervical cancer screening in another study [10].

## Conclusion

In conclusion, there is generally low level of utilization of cervical cancer screening services among HIV positive women, and very few follow or know about the national recommendation by the Ministry of Health of annual screening. Health workers were the main source of information for those who had screened, and a majority of those who had not screened were willing to do so if these services were integrated into the ART clinic. The findings should help to inform the following interventions; integration of cervical cancer information sharing during health education for HIV-positive mothers, integration of cervical cancer screening services within the ART clinic to promote utilization and emphasis should be to adhere to the national guidelines on cervical cancer screening services. The limitation in this study relates to the intrinsic nature of a survey that may not be indicative of the actual behavior, particularly regarding current and future intentions and behavior. Furthermore, external issues, such as facility-based constraints preventing cervical cancer awareness restrains

access to cervical cancer screening services now and in the future, despite the providers' attitude and willingness to offer them. The limitation could be related to the validity of the study questionnaires that were not tested except for a pretesting that was done to rid out redundant questions.

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### What is known about this topic

- *Yearly cervical cancer screening among HIV positive women;*
- *The risk associated with faster progression of premalignant lesions into invasive cancer in HIV positive women.*

### What this study adds

- *Low level of utilization of cervical cancer screening among HIV positive in Gulu Regional Referral Hospital;*
- *Factors associated with utilization of cervical cancer screening in Gulu Regional Referral Hospital;*
- *Integration of cervical cancer screening services into ART clinics to increase uptake.*

## Competing interests

The authors declare no competing interests.

## Authors' contributions

All authors contributed significantly to this work; GGB, AA, KC, and NS conceived, designed the study, participated in data collection, analysis, and discussion. FPP; supervised the study, drafted the manuscript. All authors read and approved the manuscript.

## Tables

**Table 1:** respondents' socio-demographic factors

**Table 2:** utilization of cervical cancer screening services

**Table 3:** logistic regression of screening for cervical cancer and associated factors

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**Table 1:** respondents' socio-demographic factors

Parameters	Frequency (N=160)	Percentage (%)
<b>Age groups</b>		
21-25yrs	38	23.75
26-30yrs	36	22.50
31-35yrs	32	20.00
36-40yrs	24	15.00
41-45yrs	16	10.00
46-49yrs	14	8.75
<b>Religion</b>		
Christian	155	96.88
Moslem	05	3.12
Others	00	0.00
<b>Address</b>		
Bardege	38	23.75
Layibi	30	18.75
Pece	25	15.63
Laroo	20	12.50
Others	47	29.78
<b>Occupation</b>		
Business women	63	39.38
Peasant farmer	58	36.25
Housewife	27	16.88
Others	12	7.50
<b>Marital status</b>		
Married	103	64.38
Single	46	28.75
Others	11	6.90
<b>Level of formal education</b>		
Primary	88	55.00
Secondary	39	24.38
None	21	13.13
University	06	3.75
Tertiary	06	3.75
<b>Number of children</b>		
4 children & below	112	70.00
4+ Children	34	21.25
None	14	8.75
<b>Nature of marriage</b>		
Monogamous	67	65.05
Polygamous	36	34.95
Source: primary data, 2018		

**Table 2: utilization of cervical cancer screening services**

Parameters	Frequency (N)	Percentage (%)
<b>When HIV was diagnosed</b>	<b>Freq=160</b>	
Greater than 5yrs	84	52.50
In 3-5yrs	22	13.75
In 1-3yrs	28	17.50
Less than 12 months	26	16.25
<b>Distance of homes from the nearest health facility</b>	<b>N=160</b>	
5km & below	113	70.63
5km & above	47	29.38
<b>Ever screened for cervical cancer</b>	<b>N=160</b>	
No	90	56.25
Yes	70	43.75
<b>How did you know about cervical cancer screening</b>	<b>Frequency =70</b>	
Through medical personnel	38	54.29
Media	27	38.57
Others	05	7.14
<b>Screening venue</b>	<b>N=70</b>	
Gov't health facility	47	67.14
Medical outreach/NGO facility	14	20.00
Private health facility	9	12.86
<b>Distance of home from the nearest screening center</b>	<b>N=70</b>	
5km & above	40	57.14
5km & below	30	42.86
<b>Number of times screened</b>	<b>N=70</b>	
Once	42	60.00
More than once	28	40.00
<b>How often do you screen/adherence</b>	<b>N=70</b>	
Once in more than 2yrs	35	50.00
Once a year	19	27.14
Once in 2yrs	16	22.86
<b>Source: primary data, 2018</b>		



**Table 3:** logistic regression of screening for cervical cancer and associated factors

Parameters	Screened for CaCx	Didn't screen for CaCx	COR (80 % CI)	P-value	AOR (95% CI)	p-value
<b>Age groups (N=160)</b>						
21-25yrs	11 (16)	27 (30)	1			
26-30yrs	14 (20)	22 (24))	1.5 (0.82-2.94)	0.367	1.16(0.57-2.40)	0.781
31-35yrs	19 (27)	13 (14)	3.5 (1.88-6.88)	0.012**	2.66(1.31-5.42)	0.077
36-40yrs	12 (17)	12 (13)	2.45(1.22-4.91)	0.098**	1.53(0.69-3.40)	0.495
41-45yrs	7 (10)	9 (10)	2 (0.86-4.22)	0.295	1.04(0.41-2.52)	0.984
46-49yrs	7 (10)	7 (8)	2.45 (1.07-5.60)	0.163**	1.10(0.40-2.84)	0.927
<b>Religion (N=160)</b>						
Christian	68(97)	87 (97)	1			
Moslem	02(3)	03(3)	0.85 (0.25-2.81)	0.864	0.46(0.12-1.72)	0.450
<b>Educational level (N=160)</b>						
Primary	41 (59)	47 (52)	0.2 (0.03-1.15)	0.239	0.19(0.03-1.27)	0.264
Secondary	14 (20)	25 (28)	0.1 (0.02-0.46)	0.053**	0.05(0.01-0.29)	<b>0.023+</b>
None	7 (10)	14 (16)	0.2 (0.04-0.729)	0.118**	0.11(0.03-0.54)	0.069
University	3 (4)	3 (3)	0.11 (0.02-0.49)	0.056**	0.11(0.02-0.49)	0.060
Tertiary	5 (7)	1 (1)	1			
<b>Number of children (N=160)</b>						
4 children & below	49 (70)	63 (70)	1			
4+ children	18 (26)	16 (18)	1.4(0.87-2.39)	0.347	2 (1.04-3.76)	0.171
None	3 (4)	11 (12)	0.35(0.14-0.84)	0.147**	0.34(0.12-0.98)	0.191
<b>Nature of marriage (N=103)</b>						
Monogamous	34(71)	33 (60)	1		1	
Polygamous	14 (29)	22 (40)	1.4(0.88-2.25)	0.340	0.66(0.35-1.27)	0.419
<b>When was HIV diagnosed (N=160)</b>						
<12mnths	8 (11)	17 (19)	0.7(0.33-1.55)	0.586	0.60(0.26-1.40)	0.439
1-3yrs	11 (16)		1			
3-5yrs	7 (10)	18 (20) 15 (17)	0.68(0.33-1.43)	0.513	0.77(0.34-1.74)	0.678
>5yrs	44 (63)	40 (44)	1.7(0.96-3.00)	0.232	1.64(0.86-3.13)	0.328
<b>Distance from the health center (N=160)</b>						
5km & below	49 (70)	64 (71)	1.0 (0.61-1.48)	0.878	1.00(0.61-1.65)	0.994
5km & above	21 (30)	26 (29)	1			

† Significant association