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Cervical Cancer Screening among Patients Receiving ARVs in a Resource-Limited Environment

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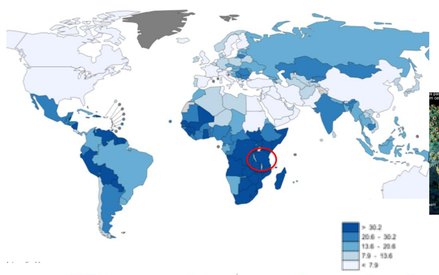
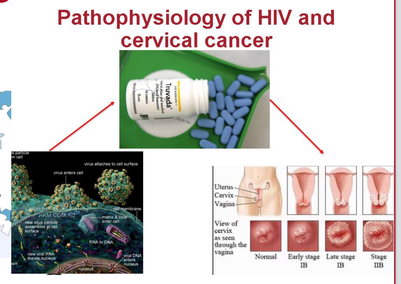
Background

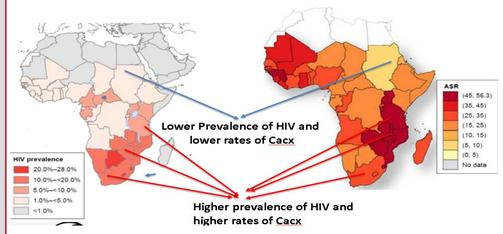
Global burden of cervical cancer at a glance



Pathophysiology of HIV and cervical cancer



HIV prevalence and cervical cancer incidence



Objectives

- Evaluate the uptake of cervical cancer screening of women receiving ARV treatment in HIV Care and Treatment Center (CTC), Dodoma, and to identify the characteristics of patients who were screened.
- Examine the willingness to be screened for cervical cancer by women receiving ARV treatment at HIV (CTC).
- Determine factors associated with the willingness to be screened and the uptake of cervical cancer screening among women receiving ARV treatment in Dodoma.

Methods

Study Design

This is a cross-sectional study. A study questionnaire was developed based on previous studies (Ezechi et al., 2013, Getahun et. al., 2013, and Sichanh et. al., 2014).

Inclusion criteria

The study population included all women diagnosed as HIV positive and attending the HIV CTC in Dodoma Regional Referral Hospital (DRRH). Women older than 17 years and younger than 51 years old were eligible because cervical cancer screening services are only available for individuals within this age range (18-50) in Tanzania.

Exclusion criteria

Patients who were traveling through Dodoma and needed to visit HIV CTC DRRH for refills were described as patient in-transit and were excluded from the study.

Data collection

Data were collected for a period of 3 weeks from July 21 to August 11, 2017. The questionnaires were designed on an Open Data Kit (ODK) using a platform called Kobo Toolbox (Heunis et. al., 2014).

Statistical analysis

- A total of 421 women participated in the study. Statistical software used was SAS 9.4
- The outcome variables used in the analysis were:

Awareness
Prior uptake of cervical cancer screening
Willingness to screen

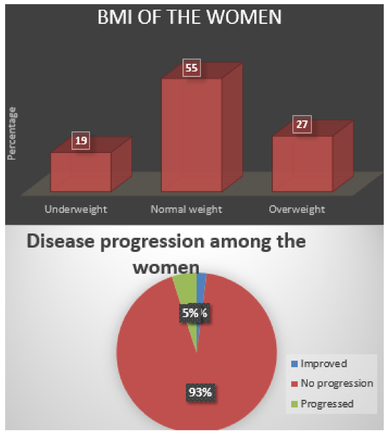
- Associations between the participant characteristics and the outcomes were determined using Pearson chi-square or Fischer exact test
- Factors with p value<=0.2 were included in a logistic regression model
- Model fit was determined using Hosmer Lemeshow goodness of fit.

Findings

Study population

- The mean age of the population was 44.10 years (standard deviation (SD) =10.65) years old.
- The majority (n=372, 88%) of the participants had a primary education or higher.
- Average monthly income was $39.45 (US dollars, SD=8.9). The majority (n=390, 93%) of the participants have no regular monthly income.
- Most (n=295, 70%) of the subjects were unmarried; they were either never married (n=68, 16), divorced, widowed or separated (n=227, 54%).
- A total of n=137 (35%) have at least three live births; n=150 (36%) had sexual intercourse at ages younger than 18 years
- The mean length of HIV infection since diagnosis was 5.4 (SD=4)years. Most of the participants (n=140, 33%) have been diagnosed as having HIV at least 0-2 years ago

Fig 1. Treatment outcomes



Findings

Table 1: Predictors of awareness of CxCa (n=419)

Characteristics	Crude odds ratio	95% Confidence Interval		Adjusted odds ratio	95% Confidence Interval		Reduced Model		
		Lower	Upper		Lower	Upper	Odds ratio	95% Confidence Interval Lower	Upper
Age group									
30-39 Vs. 18-29	1.78	1.26	2.52	2.02	1.38	2.96	2.02	1.40	2.91
≥40 Vs. 18-29	0.46	0.33	0.63	0.43	0.29	0.62	0.43	0.31	0.61
≥40 Vs.30-39	0.26	0.14	0.46	0.21	0.11	0.41	0.21	0.12	0.39
Years since HIV diagnosis									
3-5 Vs. 0-2	0.78	0.54	1.15	0.77	0.51	1.18			
6-9 Vs. 0-2	1.39	0.89	2.17	1.39	0.86	2.26			
≥ 10 Vs. 0-2	1.26	0.75	2.10	1.42	0.79	2.54			
6-9 Vs. 3-5	1.77	0.91	3.44	1.79	0.87	3.73			
≥ 10 Vs. 3-5	1.60	0.75	3.40	1.84	0.78	4.33			
≥ 10 Vs. 6-9	0.91	0.40	2.06	1.02	0.41	2.54			
Area of Residence Urban vs. Rural	3.12	1.87	5.20	4.02	2.26	7.14	3.68	2.12	6.38
Livebirths									
1-2 Vs. None	1.32	0.94	1.84	1.38	0.96	2.95			
≥ 3 Vs. None	0.75	0.55	1.03	0.90	0.63	1.28			
≥ 3 Vs. 1-2	0.57	0.33	0.99	0.65	0.35	1.21			
Monthly Income (USD)									
≥ 53.37 vs. < 53.37	2.14	1.04	4.38	1.72	0.79	3.77			

Fig 2: Cervical cancer screening among the participants

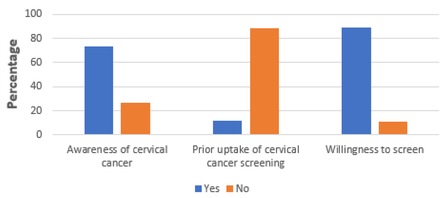


Table 2:Factors associated with prior uptake of CxCa screening (n=306)

Factors	Crude OR	95% Confidence Interval		Adjusted OR	95% Confidence Interval		Reduced Model		
		Lower	Upper		Lower	Upper	Odds ratio	95% confidence Interval Lower	Upper
Age (Per 1 year increase)	0.98	0.95	1.01	0.98	0.94	1.02			
Years since HIV diagnosis(per 1-year increase)	0.99	0.91	1.07	1.02	0.93	1.11			
Religion Islam vs. Christian	1.58	0.83	3.00	1.40	0.69	2.85			
Area of Residence Urban vs. Rural	3.43	1.02	11.51	3.72	1.05	12.50	3.59	1.04	12.40
Livebirths									
1-2 vs. None	2.25	1.06	4.76	2.52	1.16	5.47	2.46	1.15	5.25
≥ 3 vs. None	0.52	0.20	1.40	0.55	0.17	1.39	0.47	0.17	1.33
≥ 3 vs. 1-2	0.23	0.10	0.56	0.22	0.07	0.50	0.19	0.08	0.50

Table 3:Factors associated with willingness to screen among those aware (N=257)

Factors	Crude OR	95% Confidence Interval		Adjusted OR	95% Confidence Interval		Odds ratio	95% CI	
		Lower	Upper		Lower	Upper		Lower	Upper
Age	0.93	0.89	0.97	0.93	0.88	0.97	0.93	0.89	0.97
Years since HIV diagnosis	0.96	0.87	1.06	1.01	0.90	1.14			
Area of Residence Urban vs.Rural	1.09	0.35	3.41	1.08	0.32	3.65			

Discussions

- Good treatment outcomes among participants was observed based on the BMI and disease progression of the participants (Fig 1)
- Low uptake level of cervical cancer screening was observed despite high level of awareness (Fig 2). This was observed in a similar study in Dar es Salaam (Lukorito et al. 2017)
- Awareness of cervical cancer were higher among urban dwellers and participants age 30-39 compared to other age groups (18-29 and ≥ 40) (Table 1)
- Prior uptake of screening was higher for urban dwellers vs. rural dwellers and women with 1-2 livebirths vs. no live births(Table 2). This was validated by a similar finding in Nigeria (Nwankwo et al., 2011)
- Participants who were recently diagnosed of HIV were more likely to be willing to screen compared to those diagnosed longer (Table 3). Similar findings was observed in Nigeria (Ezechi et al.,2013)
- Willingness to screen was found higher for younger participants vs. older participants (Table 3)

Limitations

- Possibility of interview bias
- Different approaches to data collection was not specified during data collection
- Access to screening

Conclusion and Future Directions

- 90% of patients in this study receiving antiretroviral drugs (ARVs) for HIV expressed willingness to participate in cervical cancer screening
- Although willingness was higher among younger than older participants
- The older patients should be targeted when strategizing prevention plans and education.
- We recommend additional education for both patients and providers on cervical cancer
- Integration of cervical cancer screening services at the HIV clinic

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