

Self-Perceived Risk of Cervical Cancer and Associated Factors among HIV Positive Women Attending Adult HIV/AIDS Care and Follow Up Clinic in Gondar University Referral Hospital, Northwest Ethiopia, 2016

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ABSTRACT

Back ground: Cervical cancer is one of the leading causes of death in women worldwide and in Ethiopia; it is the second most frequent cancer among all women. In HIV positive women, precancerous cervical lesion is expected to develop into cervical cancer and invasive cervical disease earlier than women not infected with HIV. Women's perception about their risk of developing the disease is one of the top listed factors affecting cervical cancer screening.

Objective: This study was aimed to assess self-perceived risk of cervical cancer and associated factors among HIV positive women attending adult HIV/AIDS care and follow up clinic in Gondar university referral hospital, Northwest Ethiopia, April to May 2016.

Methods: Institution based cross sectional study was conducted. A total of 460 participants were selected by systematic random sampling technique. Interviewer administered questionnaire. Bivariate and multivariable logistic regression analyses were used to determine the presence and degree of association between dependent and independent variables with P-value of <0.05 and Odds ratio with 95% confidence interval was considered statistically significant.

Results: Among all respondents, 37.8% of women had cervical cancer screening awareness and 53% of women perceived as they were at risk of cervical cancer. Regarding previous screening history, the life time uptake of cervical cancer screening was 10%. In this study, being cigarette smoker(AOR=4.43, 95%CI :1.61-12.18), married(AOR=1.98, 95% CI: 1.28-3.07), initiation of sexual intercourse in the early age(AOR=1.89, 95% CI: 1.19-3.00), attainment of college education and above(AOR=3.12, 95% CI: 1.13-8.56), didn't initiated combined anti-retroviral therapy (AOR=2.27, 95% CI: 1.11-4.65), aware of cervical cancer screening(AOR=1.63, 95% CI: 1.03-2.56) and reported history of previous cervical cancer screening(AOR=3.52, 95% CI: 1.45-8.56) were among the independent variables having statistically significant association with perceived risk of cervical cancer

Conclusion: The women's perceived risk of cervical cancer was found moderate. Therefore, health care providers and organizations working on cervical cancer prevention and controlling programs need to focus on awareness creation about cervical cancer and its screening for HIV positive women.

Key words: Cervical cancer, Perceived risk, HIV/AIDS

INTRODUCTION

Cervical cancer (CC) is one of the primary causes of death worldwide in which

majority of death occur in resource limited countries. ^[1] Although there are a number of risk factors for the development of CC,

Human papilloma virus (HPV) is the primary cause. [2-4] More than half a million CC cases were reported annually in the world in which, 84% of new case and 86% of death occur in developing countries. [5] In developed countries, women who had CC will survive longer unlike women in developing countries. [6]

In Sub-Saharan Africa, CC is the leading cause of cancer death. [7] In the region, lack of skilled man power and infrastructure are the major barriers for comprehensive CC care and treatment. [8] In HIV positive women, precancerous cervical lesion is expected to develop into invasive CC earlier than women not infected with HIV. [2,9] It is due to the immuno suppressive nature of HIV infection in which lower CD4 count and AIDS stage of the disease contributes for the detection of precancerous lesion. [10,11] HIV infection increases the risk of death due to CC, [12] but the death of CC can be prevented significantly with screening and early diagnosis of women. [13] In HIV positive women, the prevalence of pre-cancerous cervical lesion is higher mainly in resource limiting countries. For instance, cross sectional studies in Kenya, Nigeria and Ethiopia showed the 26.7%, 6% and 22% prevalence of pre-cancerous cervical lesion respectively. [14-16]

In Ethiopia, CC is the 2nd most frequent cancer among all women and more than 29 million women are at risk of the disease. The annual numbers of CC cases were about 7,000 and nearly half of them will die at the end of a year. [17] The number of CC cases were generally increased from year to year in the country. [18] Poverty and socio cultural factors were the main reasons identified by Ethiopian women that enhance their risk of CC. On the other hand, health facility, psychological and economical related factors was the main challenges identified for early diagnosis and treatment of CC. [19] World health organization (WHO) recommends that HIV positive women should be screened for precancerous cervical lesion irrespective of their age. [2]

Objectives

To assess the self-perceived risk of cervical cancer among HIV positive women attending adult HIV/AIDS care and follow up clinic in Gondar, April to May, 2016.

To find the associated factors among HIV positive women attending adult HIV/AIDS care and follow up clinic in Gondar, April to May, 2016.

METHODOLOGY

Study design and study setting

Institutional based cross sectional study was conducted at clinic in Gondar University Referral Hospital, Northwest Ethiopia.

Study population

All HIV positive women aged 18 years old and above who were attending adult HIV/AIDS care and follow up clinic for their drug refill, clinical appointment or newly diagnosed clients who have visited the clinic.

Sample technique and size

A total of 460 participants were selected by systematic random sampling technique.

Data collection tools and procedure

For data collection, interviewer administered structured questionnaire adopted from previous studies was used. [21-24] In addition patient's chart or medical record was reviewed to obtain clinical parameters related to their HIV status like WHO clinical staging and recent CD4 cell count. Prior permission was obtained from the concerned authority. Informed consent obtained from the subjects. Four trained nurses were collected the data.

Description of the tool: The tool is divided into mainly 4 parts

Section 1: Socio-demographic characteristics

Section 2: Women's HIV status

Section 3: Women's awareness about CC screening

Section 4: Health seeking behaviors related of CC and perceived risk of CC.

Operational definitions

Perceived risk to cervical cancer: HIV positive women who responded yes to

the question “Do you consider yourself at risk for cervical cancer”. [21]

Awareness of cervical cancer screening: HIV positive women who responded yes to the following two questions i.e. “Have you ever heard about cervical cancer?”, “Have you ever heard about cervical cancer screening?”. [24]

Data processing and Analysis

Descriptive statistics of continuous variables was presented using mean, and discrete variables was presented using tables. Binary logistic regression analysis with odds ratio along with 95% confidence interval was used to assess the degree of association between dependent and independent variables and test significance of the association. In bivariate analysis, variables which have significant association with the dependent variable at p-value of 0.2 and below were entered into multivariable logistic analysis model. Hosmer-lemes how goodness of fit was used to check the appropriateness of the applied models. Level of significance below 0.05 and 95% confidence interval was considered to determine the presence and strength of association between dependent and independent variables.

Ethical Issues

Ethical approval and permission was obtained from university of Gondar, ethical review committee of college of medicine and health sciences. Confidentiality of respondents was maintained throughout the study by excluding their identification in the questionnaire and keeping their privacy by conducting the interview independently.

RESULTS

Socio demographic characteristics of participants

A total of 495 eligible HIV positive women were approached and requested. 460 study subjects were agreed to participate in the study giving a response rate of 92.9%. The mean age of participant was 35.5 years old (SD of 8.4) and about 281(61%) were found in the age group of 18 - 34 years.

From all study participants, 345(75 %) were followers of Orthodox Christianity, 282(61.3%) were Amhara in ethnicity, 193(42%) were married and 311(67.6%) have at least one child. Of all respondents, nearly three-fourth (n=353, 76.7%) of participants were urban dwellers, 126 (27.4%) were accomplished primary education, 154(33.5%) were self employed by occupation and 119(25.9%) participants were getting monthly income below 700 Ethiopian birr (Table 1).

Clinical characteristics of respondents

Table 1: Socio demographic characteristics of HIV positive women attending adult HIV/AIDS care and follow up clinic in Gondar university referral hospital, Northwest Ethiopia, 2016 (n=460).

Variables	Frequency	Percentage
Age category in completed year		
18-34	281	61.0
35-54	164	35.7
>=55	15	3.3
Religion		
Orthodox	345	75.0
Muslim	74	16.1
Catholic	12	2.6
Protestant	23	5.0
Others ^a	6	1.3
Ethnicity		
Amhara	282	61.3
Kimant	78	17.0
Tigray	68	14.8
Oromo	13	2.8
Others	19	4.1
Residence		
Urban	353	76.7
Rural	107	23.3
Educational status		
Unable to read and write	112	24.3
Able to read and write only	105	22.8
Primary school	126	27.4
Secondary school	85	18.5
College/university	32	7.0
Marital status		
Married	193	42.0
Non married	267	58.0
Having child		
No	149	32.4
Yes	311	67.6
Occupation		
Self employed	154	33.5
House wife	102	22.2
Not employed	74	16.1
Government employee	40	8.7
Daily laborer	41	8.9
Employee in private organization	36	7.8
Others ^c	13	2.8
Monthly income(in Ethiopian birr)		
< 700	119	25.8
700-999	110	23.9
1000-1999	113	24.6
>=2000	118	25.7

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Among 460 study subjects, 275(59.8%) of respondents were diagnosed as HIV positive within the last four years and about 88.9% of participants were found on HAART. Regarding to their disease status, 388(84.3%) of the respondents had a recent CD4 cell count of ≥ 200 cell/mm³ and more than half of participants (53.9%) were found in WHO clinical stage I (Table 2).

Table 2: Clinical characteristics of women attending adult HIV/AIDS care and follow up clinic in Gondar University referral hospital, Northwest Ethiopia, 2016 (n=460).

Variables	Frequency	Percentage
Elapsed time since diagnosed as HIV positive (in year)		
≤ 4	274	59.6
5-9	146	31.7
≥ 10	40	8.7
Elapsed time since enrolled in Chronic HIV/AIDS care clinic (in year)		
≤ 4	275	59.8
5-9	157	34.1
≥ 10	28	6.1
Initiation of HAART		
Yes	409	88.9
No	51	11.1
Recent CD4 count		
< 200	72	15.7
≥ 200	388	84.3
WHO clinical staging		
I	248	54
II	147	32
III	51	11
IV	14	3

Cervical cancer screening awareness and related factors of respondents

Among all participants, half of them (49.8%) heard about CC in which, 59(25.7%) and 70(30.5%) of respondents heard from health care providers and mass medias respectively. On the other hand, from those who heard about CC, 174(75.9%) participants heard about CC screening in which 84(48.2%) of participants reported as they heard from health care professionals. In overall, about 37.8% of participants had awareness about CC screening and four women know the screening methods. On the other hand, 10% of women reported as they were screened for CC at least once in their life time (Table 3).

Table 3: Awareness and related factors of HIV positive women attending adult HIV/AIDS care and follow up clinic in Gondar university referral hospital, Northwest Ethiopia, 2016 (n=460).

Variables	Frequency	Percentage
Ever heard about CC?		
Yes	229	49.8
No	231	50.8
Source of information (n=229)		
Mass medias(Television ,Radio, Printed materials)	70	30.5
Health professionals	59	25.7
Family	34	14.8
Friends	37	16.1
Neighbors	24	10.4
Others ^a	5	2.5
Ever heard about CC screening (n=229)?		
Yes	174	75.9
No	55	24.1
Source of information (n=174)		
Mass medias(Television ,Radio, Printed materials)	42	24.0
Health professionals	84	48.2
Family	16	9.6
Friends	28	16.0
Others ^b	4	2.2
Know screening methods (n=174)?		
Yes	4	2.3
No	170	97.7
History of cervical cancer screening?		
Yes	46	10.0
No	408	90.0

^{a,b} from anti-HIV/AIDS clubs

Risk factors of respondents and their perceived risk of cervical cancer

Table 4. Risk factors and perceived risk of cervical cancer among HIV positive women attending adult HIV/AIDS care clinic in Gondar university referral hospital, Northwest Ethiopia, 2016 (n=460).

Variables	Frequency	Percent
History of oral contraceptive usage		
No	221	48.0
Yes	239	52.0
History of STI other than HIV/AIDS		
No	427	92.8
Yes	33	7.2
Smoking		
No	434	94.3
Yes	26	5.7
Age at sexual intercourse was initiated(year)		
< 20 year	298	64.8
≥ 20 year	162	35.2
Life time sexual partner in number		
≤ 1	274	59.6
≥ 2	186	40.4
Practice of condom utilization		
Never use	233	50.7
Occasionally	193	42.0
Always use	34	7.4
Self-perceived risk to CC		
No	216	47.0
Yes	244	53.0

Among all respondents, 239(52%) women have history of oral contraceptive

usage and 26(5.7%) were smokers. Similarly, 427(92.8%) women had no known history of sexually transmitted infection (STI) other than HIV/AIDSs, 298(64.8%) were initiated sexual intercourse below the age of 20 years and about 186(40.4%) of participants have two or more male sexual partners in their life time. Regarding to their behavior of condom utilization, about 50.7% women never used condom during sexual intercourse. Of all respondents about 244(53%) women felt as they were at risk of cervical cancer (95% CI: 48.7-57.6) (table 4).

Factors associated with perceived risk of cervical cancer

In bivariate logistic regression analysis, history of STI other than HIV (OR=2.5, 95% CI: 1.14-5.52), being smoker (OR=2.52, 95% CI: 1.03-6.12), sexual initiation at the early age (OR=1.77, 95% CI: 1.20-2.61), had more than one sexual partner (OR=1.56, 95% CI: 1.07-2.28), urban residency (OR=1.69, 95% CI: 1.09-2.62), older age (OR=2.24, 95% CI: 1.51-3.34), attainment of primary school and above (OR=2.28, 95% CI: 1.35-3.84), (OR=2.29, 95% CI: 1.28-4.07), (OR=4.81, 95% CI: 1.98-11.67), being married (OR=1.96, 95% CI: 1.34-2.87), diagnosed to have HIV five years ago and above (OR=1.73, 95% CI: 1.15-2.60), OR=2.66, 95% CI: 1.30-5.45), not initiated HAART yet (OR=2.09, 95% CI: 1.12-3.90), recent CD4 count of <200cell/mm³ (OR=1.69, 95% CI: 1.009-2.85), aware of CC screening (OR=2.10, 95% CI: 1.43-3.10) and reported history of previous screening (OR=4.11, 95% CI: 1.93-8.73) were factors associated with perceived risk of CC at P-value of less than 0.2. However, religion, ethnicity, occupation, monthly income, use of oral contraceptive, years since enrolled in chronic HIV care and WHO clinical staging has a P-value of greater than 0.2 in bivariate analysis. As a result, those variables associated with perceived risk of CC at P-value of less than 0.2 in bivariate logistic regression analysis were subjected into

multiple logistic regression analysis so as to identify factors associated with perceived risk of CC independently. Thus, after adjusted for confounding variables in multivariable logistic regression model, being cigarette smoker (AOR=4.43, 95% CI: 1.61-12.18), married (AOR=1.98, 95% CI: 1.28-3.07), initiation of sexual intercourse in the early age (AOR=1.89, 95% CI: 1.19-3.00), older age (AOR=2.14, 95% CI: 1.34-3.39), (AOR=4.59, 95% CI: 1.07-19.72), attainment of college education and above (AOR=3.12, 95% CI: 1.13-8.56), being diagnosed as HIV positive more than five years ago (AOR=2.01, 95% CI: 1.25-3.25), (AOR=2.96, 95% CI: 1.31-6.70), not initiated HAART yet (AOR=2.27, 95% CI: 1.11-4.65), aware of CC screening (AOR=1.63, 95% CI: 1.03-2.56) and reported history of previous CC screening (AOR=3.52, 95% CI: 1.45-8.56) had statistically significant association with perceived risk of cervical cancer at P-value of (two-tailed test) less than 0.05. However, history of STI other than HIV, number of life time sexual partner, utilization of condom, residence and recent CD4 count were variables found not to be associated with perceived risk of CC (Table 5).

DISCUSSION

Women's need for precancerous cervical lesion screening is influenced by their perception of risk to the acquisition of the disease. [20] As a result women who perceived themselves at risk of CC has a desire to be screened for the disease. [22] In this study, the proportion of self-perceived risk towards CC was 53%. This finding was lower compared to other similar study findings conducted at different time in Kisumu, Kenya, South Africa, [25] Malaysia [26] and India. [20] This variation could be due to different in socio demographic status of the study participants and years of study conducted. In addition, the type of health care facility where participants enrolled in the study i.e. enrollment of HIV positive women attending health center in Kisumu, Kenya [23] as a study participant versus the

involvement of HIV positive women at teaching and referral hospital in our study might contribute for this discrepancy. On the other hand, our study finding is higher when it is compared with studies at Moi teaching and referral hospital from the other setting of Kenya, [22] northern Ghana [27] and in rural El Salvador [28] where the study populations were not HIV positive women unlike ours. This might indicate the higher perception of CC risk in HIV positive women than other group of populations.

There are a number of evidence showing that HIV positive women are at risk of CC than non- HIV infected individuals and the detection rate of precancerous cervical lesion is higher in HIV positive women. [29-32] Due to this, HIV positive women are expected to be screened routinely for precancerous cervical lesion in order to reduce their morbidity and mortality. In this study, 10% of HIV positive women reported as they were screened for CC previously at least once in their life time, which is nearly similar to the study conducted in Addis Ababa, Ethiopia and Nigeria. [24] However, it was lower than the reported findings in Kenya [23] and South Africa. [33] This variation could be due to difference in socio demographic characteristics of study subjects and disparity of the study period. Especially in Kenya, availability of free cervical cancer screening program and continuous provision of health education about CC and screening in the area could be the main reason for the high screening uptake.

In Ethiopia, CC screening sites are mostly found at tertiary and secondary level health care facilities and family guidance associations. In our study area, CC screening service was initiated in 2014 which serves for both HIV positive and non-positive women.

In our study, smokers were 4.4 times felt at risk of CC compared to non-smokers. It is supported by the fact that, tobacco smoking, engagement of sexual intercourse in the early life, immune suppression, parity, STIs and prolonged use of oral

contraceptive plays a significant role for HPV infection to progress in to CC, despite of the exact predisposing factors is unknown. [2,34] Related to this, our study also revealed that women initiated sexual intercourse in the early age were felt at risk of CC 1.9 times higher compared to those who initiated sex at and above 20 years of age. Although it was supported by the above evidence, this finding is contradict with the study of Kenya [23] for which, felt at risk of CC is higher in women who started sex at the age of 18 years old and above. This discrepancy might be due to difference in sociodemographic characteristics of study subjects and the small sample size used in Kenya. Our finding was also explained by the direct link between detection of precancerous cervical lesion and women's early engagement in sexual intercourse. [35,36]

In this study, perceived risk of CC was two times higher in women found in the age group of 35-54 years compared to young aged women. Similarly, it was 4.5 times higher in women ≥ 55 years of age compared to young aged women. This finding was in line with the study conducted in Kisumu, Kenya by the year 2007. [21] However, it was not coincided with the study conducted in the same setting Kenya [23] in which, perceived risk towards CC was lower in older aged individuals. Educational level is found to be associated with perceived risk of CC. Perceived risk of CC in women who attend college was more than three times higher compared to those who are unable to read and write. It was supported by the study done in Kenya [23] and Ghana. [27] This could be explained by the fact that, women who were educated would have better awareness about cervical cancer than illiterates, evidenced by our finding that women having awareness of CC and its screening were 1.6 times higher felt at risk of CC than women without having awareness.

On the other hand, the perceived risk of married women towards CC was nearly two times higher compared with non-

married, which is in line with study finding from Kenya. [21] The other variable significantly associated with perceived risk of CC was number of years since diagnosed as HIV positive. Women who diagnosed as HIV positive 5-9 years ago and more than ten years ago were two and three times higher felt at risk of CC respectively than those who know their HIV sero status recently. This finding is in line with the study conducted from Kenya. [23] Women not initiated HAART yet were felt at risk of CC by 2.2 times higher than those who were on HAART. This finding could be supported by the higher detection rate of precancerous cervical lesion in HIV positive women who were not initiated HAART. [10] Lastly, previous history of CC screening was also found to be significantly associated with perception of risk, that women who have previous screening history were 3.5 times higher felt at risk of CC compared to those who have no previous screening history. This could be due to the health information they were provided by their health care providers at the time of initial screening. As a limitation for this study, data was collected through interview so that there could be a potential for recall and social desirability biases.

CONCLUSION

In this study, women's perceived risk of cervical cancer was found moderate. Smokers, sexual initiation in early age, older age, higher educational level, diagnosed as HIV positive five years ago and above, having screening awareness, reported history of previous screening and being on HAART were variables significantly and positively associated with perceived risk of CC. Therefore, Organizations working on CC prevention and control programs need to focus on awareness creation about the disease and screening importance for HIV positive individuals. Health care workers need to provide health education targeted at increasing the awareness of HIV positive women towards CC and its screening particularly for young aged women, non-

married, and illiterates as well as for those who diagnosed to have HIV more recently.

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Authors' contributions-

ADN brought the research idea, coordinated data collection, performed the statistical analysis, prepare. SGA & PK performed the statistical analysis and drafted the manuscript.

Competing interests- we have no competing interests

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