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Research Article

Awareness and Attitudes of HIV Positive Women Towards Cervical Cancer Prevention and Control in Ethiopia: A Health Facility Based Cross-Sectional Study

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Abstract

Objective: This study aims to assess awareness and the attitudes of HIV positive women in Ethiopia towards cervical cancer and its screening.

Methods: A cross-sectional study among HIV positive women was conducted from January to October 2021. Six hospitals were selected based on ART burden and the initiation of screening. A total of 578 eligible consented women were consecutively recruited. The data collection was made using ODK Collect v1.29.2. The collected data were analyzed using SPSS version 25. The Likert scale was applied to obtain the attitude score, and Cronbach's alpha used to measure the internal consistency of items. Logistic regression model was used, and P-value less than 5% was taken as statistical significance.

Results: Participants mean age, 38.86 (SD = 5.47). The majority had heard of cervical cancer and 71.8% had heard about its screening. Almost half of the study participants had un-favourable attitude towards cervical cancer and its screening. The odds of having positive attitude towards cervical cancer and its screening was significantly associated with being non-governmental employees [AOR = 1.84, 95% CI (1.071 - 3.158)] or self-employed [AOR = 1.80, 95% CI (1.11 - 2.91)]. Women that do not use modern contraceptive use had reduced odds of having a positive attitude towards cervical cancer and its screening, [AOR = 0.66, 95% CI (0.456 - 0.945)].

Conclusion: Significant proportion of the study participants had un-favourable attitude towards cervical cancer and its screening. The finding highlights the need for the Ministry of Health to work on the strategies to enhance the attitudes of HIV positive women towards cervical cancer and its screening.

Keywords: *Awareness and Attitude; Cervical Cancer; Screening; HIV Positive Women; Ethiopia*

Abbreviations

AOR: Adjusted Odds Ratio; ART: Antiretroviral Therapy; CI: Confidence Interval; CSV: Comma-Separated Values; EPHI: Ethiopian Public Health Institute; HIV: Human Immunodeficiency Virus; HPV: Human Papillomavirus; IT: Information Technology; ODK: Open Data Kit; PI: Principal Investigator; STI: Sexually Transmitted Infection; VIA: Visual Inspection Using Acetic Acid

Introduction

In Ethiopia, cervical cancer is the second commonest cancer next to breast cancer [1]. According to GLOBOCAN, 2020, the number of new cases and deaths from cervical cancer is 7,445 and 5,338, respectively [2].

The recommendation of WHO for the comprehensive prevention and control of cervical cancer, WHO (2013) includes (a) primary prevention using vaccination, and health information and education, (b) secondary prevention using screening and treatment of precancerous lesion, and (c) tertiary prevention through treatment of cervical cancer and palliative care [3]. Cervical cancer screening in low-and middle-income countries (LMIC) is challenged by weak health systems, insufficient financial resources, and limited numbers of trained providers [3].

Significant barriers also exist that include limited access to information, lack of awareness, and an unfavorable attitude towards cervical cancer and its screening [4,5]. Similarly, very poor awareness and un-favorable attitudes of HIV positive females towards cervical cancer screening practices and prevention was reported [6], and lack of awareness about cervical cancer and its screening was the foremost reason stated by the females for not having had cervical screening [7].

Providing information about cervical cancer and public education was vital for cervical cancer prevention [8], and awareness creation for medical experts on different risk factors and cervical cancer screening features a paramount for prevention program [9].

A study recommends community engagement initiatives to raise awareness of cervical cancer and promote screening for early detection [10], and improving the attitudes of women might increase the intention of cervical cancer screening [11]. Though, different studies figure-out about the awareness and attitudes of women in Ethiopia, the existing findings are controversial, and mainly bases on the general population [12-15] than those vulnerable women living with HIV.

The aim of this study is to assess the level of awareness and attitudes of HIV positive women towards cervical cancer and its screening in Ethiopia. The finding will add to the scarce evidence available, providing a more consolidated input for the prevention and control of women cancer.

Methods

Study setting and context

Ethiopia is a country in the horn of Africa, and it has ten Regional States and two City administrations. Addis Ababa is the capital city of the country and it is one of the two city administrations of the country [16]. The city is divided into 11 sub-cities. Addis Ababa is geographically located at the center of Ethiopia, at 9°1′48″N38°44′24″E, covering an approximate land area of 526.46 square km and lying at an elevation of 2,355 meters [16].

This study was conducted in six public hospitals in Addis Ababa, Ethiopia from January to October 2021. The selected hospitals are; Zewditu Memorial hospital, St. Paul hospital Millennium Medical College, Alert hospital, Yekatit-12 hospital, Menelik hospital, and St.

Peter hospital that are located in different sub cities of Addis Ababa as indicated in the map [16] (Figure 1). The selection of hospitals was made based on the ART burden and the initiation of cervical cancer screening in the facility.

Figure 1: *Map showing different sub-cities of Addis Ababa, Ethiopia in which data were collected for this study.*

Study design and participants

A health facility-based cross-sectional study was conducted to measure the level of awareness and attitudes of HIV positive women towards cervical cancer and screening. A total of 578 study participants were included in the study and enrolled consecutively till the sample size was reached. The age of the study participants was 25 years and older per the recommendation of HIV positive women eligible to be screened considering the persistence of the infection due to co-infection with HPV, while for the general population of women, WHO prioritize 30 - 49 years of age for screening [3]. The main eligibility requirements for this study were HIV positive women who visit the facility for diagnosis and ART service and are interested to take cervical cancer pre-screening service and volunteering to participate in the study with age of 25 years and older. All data were collected by trained clinicians. After counseling, those who agreed to participate in the study were included. Data collection was held using open data kit (ODK Collect v1.29.2) after providing training on it. Data were directly submitted to the Ethiopian Public Health Institute (EPHI) server and managed by information technology (IT) professionals in the institute. Day-to-day communication was held between the IT professional and the principal investigator (PI) about collected and entered data. The assigned IT professional downloaded the data and shared to the PI to check the data for any missing information timely and maintain data quality. Apart from site-based supervision, phone calls were made to data collectors to discuss on any issues that arose during the time of data collection.

Data entry, processing and analysis

The final collected data were downloaded from the EPHI server with the responsible IT professional in the form of comma-separated values (CSV) file and converted to an Excel format. The data were cleaned and coded; then, exported to SPSS version 25 for descriptive and

inferential analyses. The attitude was measured using a 5-point Likert scale ranging from strongly agree (5 points) to strongly disagree (1 point). The mean Likert scale score or weighted average was used to categorize the level of attitude as favorable when the score is greater than the mean score while the value below the mean score was taken as un-favorable attitude. The mean rating score for each item was calculated by multiplying the number of answers or responses in each category by its rating value (1 to 5), obtaining a sum and dividing by the total number of responses for that item; that is, the overall rate of attitude by Likert scale was calculated as (strongly agree × 5) + (agree × 4) + (neutral × 3) + (disagree ×2) + (strongly disagree × 1) divided by the total number of responses for the specific item [17]. The internal consistency of items that were used to measure attitude was checked using Cronbach's alpha. The reliability coefficient of Cronbach's alpha normally ranges within 0 and 1, while there is no actual lower limit to the coefficient. The size of alpha is determined by both the number of items in the scale and the mean inter-item correlations [18].

A logistic regression model was used to examine the associations between the outcome variables (the level of attitude towards cervical cancer and its screening) with the various independent factors (socio- demographic and other important variables included in the study). Strength of association was reported using odds ratios (ORs) and confidence intervals (95% CI). In all analyses, $P < 0.05$ was considered to be statistically significant. The results are presented in graph and tables.

Results

Participant characteristics

A total of 578 HIV positive women were participating in the study with 100% response. Nearly half (43.9%) were older than 39 years of age and the mean age of all the study participants was 38.86 (SD = 5.47). Close to one-third (31.3%) of the study participants started their sexual debut when they were younger than 18 years with a median age of 19.0 years. Close to half (49.8%) were married, and 42.5% had a high school level of education. Most study participants (76.7%) are followers of orthodox and urban residents (94.8%). About half (50.7%) gave birth 2-4 infants or multiparous with the gestational age of 24 weeks or more (Table 1).

Participants' characteristics	Frequency	Percent
Age (in years)		
25-29	26	4.5
30-34	79	13.7
35-39	219	37.9
≥ 40	254	43.9
Mean age (SD)	38.86 (5.47)	
Age at the first intercourse (in years) (sexual debut)		
<18	167	31.3
≥18	367	68.7
Median age	19.0	
Marital status		
Un-married	61	10.6
Married	288	49.8
Divorced	105	18.2
Widowed	118	20.4
Separated	5	0.9

Other	1	0.2
Educational level		
No formal education	56	9.7
Read and write	21	3.6
Elementary school	156	27.0
High school	245	42.5
College or university	99	17.2
Religion		
Orthodox	440	76.7
Muslim	56	9.8
Protestant	77	13.4
Catholic	1	.2
Residence		
Urban	546	94.8
Rural	30	5.2
Parity		
Nulliparous (no birth)	114	19.8
Primiparous (give birth once)	161	28.0
Multiparous (given birth 2-4)	292	50.7
A grand multipara (given birth more than 4 infants)	9	1.6
Occupational status		
Unemployed	198	34.3
Government employee	91	15.7
Non-government employee	97	16.8
Self-employee	148	25.6
Other	44	7.6
Monthly income		
0-499	79	14.4
500-999	29	5.3
1000-4999	298	54.3
≥ 5000	143	26.0
Median income	2,500.00 Birr	

Table 1: *Socio-demographic characteristics of the study participants in Addis Ababa, Ethiopia, January to October 2021 (n=578).*

Awareness and attitudes of HIV positive women towards cervical cancer and its screening

The majority (84.9%) heard of cervical cancer and 71.8% heard about its screening. The majority (81.9%) heard VIA as the screening method. Sixty (10.4%) participants did not clearly mention the type of screening they heard. The majority of participants heard about cervical cancer screening from health professionals (77.5%) followed by media (51.4%) (Table 2).

Questions addressed	Number	Percent
Have you heard of cervical cancer?		
Yes	491	84.9
No	84	14.5
Have you heard of screening for cervical cancer?		
Yes	415	71.8
No	157	27.2
What type of screening have you heard?		
VIA	290	81.9
Pap test	109	30.8
HPVDNA	8	2.3
Other	60	10.4
Where did you hear about screening?		
Health professionals	321	77.5
Media	213	51.4
Friends and relatives	14	3.4
Books/newspapers	6	1.4
Other	2	0.35

Table 2: *Awareness of the study participants towards cervical cancer and its screening in Addis Ababa, Ethiopia, January to October 2021 (n = 578).*

The maximum rating value observed in cervical cancer is a killing disease (4.35 points), followed by cervical screening done by female professionals is safe and comfortable (4.22 points), and doing screening regularly helps me to detect the problem and get the appropriate care (4.17 points). The lowest rating value was observed in cervical screening done by male professionals is safe and comfortable (2.74 point). The rating values reported is out of the maximum of 5 points (Table 3). The internal consistency or overall reliability coefficient for all of the 11 variables of attitude was 0.414 that was considered as satisfactory.

Characteristics	Degree of measurement					Weighted average	SD
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree		
	N (%)	N (%)	N (%)	N (%)	N (%)		
A cervical infection will always turn into cancer	56 (9.7)	259 (44.8)	153 (26.5)	92 (15.9)	18 (3.1)	3.42	0.972
Every woman is prone to cervical cancer	79 (13.7)	285 (49.3)	113 (19.6)	89 (15.4)	12 (2.1)	3.57	0.976
There is a possibility that I might get cervical cancer	52 (9.0)	311 (53.8)	91 (15.7)	107 (18.5)	17 (2.9)	3.47	0.989
Cervical cancer is preventable and treatable	117 (20.2)	339 (58.7)	82 (14.2)	32 (5.5)	8 (1.4)	3.91	0.826
Cervical cancer is a killing disease	302 (52.2)	210 (36.3)	35 (35)	27 (4.7)	4 (0.7)	4.35	0.844

Doing screening regularly helps me to detect the problem and get the appropriate care	155 (26.8)	378 (65.4)	36 (6.2)	6 (1.0)	3 (0.5)	4.17	0.625
Cervical screening done by female professionals is safe and comfortable	222 (38.4)	288 (49.8)	50 (8.7)	11 (1.9)	7 (1.2)	4.22	0.779
Cervical screening done by male professionals is safe and comfortable	20 (3.5)	162 (28.0)	152 (26.3)	136 (23.5)	108 (18.7)	2.74	1.156
How do you feel if you take a cervical specimen by yourself for cervical screening?	79 (13.7)	265 (45.8)	117 (20.2)	103 (17.8)	14 (2.4)	3.51	1.013
How do you feel if health professionals take cervical specimens for examination?	113 (19.6)	404 (69.9)	53 (9.2)	7 (1.2)	1 (0.2)	4.07	0.588
Doing cervical examination is uncomfortable	34 (5.9)	197 (34.1)	77 (13.3)	226 (39.1)	44 (7.6)	2.92	1.125
Scale statistics of 11 items						Mean = 40.35	3.85

Table 3: *Average rating score for measuring items of attitude towards cervical cancer and its screening among women living with HIV in Ethiopia, from January to October 2021 (n = 578).*

N=Number, SD=Standard deviation.

The mean attitude score is 40.35, and the value lower than the mean score is 50.9% (294/578). So that, almost half of the study participants have a favourable attitude towards cervical cancer and its screening.

Among the various variables to estimate the predictors of attitude towards cervical cancer and its screening, only educational level, occupational status, income, and modern contraceptive use were crudely associated. However, occupational status and modern contraceptive use were retained after adjusting for confounders. A favourable attitude was observed among non-governmental employee [AOR = 1.84, 95% CI (1.071 - 3.158)] and self-employee [AOR = 1.80, 95% CI (1.11 - 2.91)]. Women who do not use modern contraceptive had un-favourable attitude towards cervical cancer and its screening [AOR = 0.66, 95% CI (0.456 -945)] (Table 4).

Characteristics	Outcome		COR (95% CI)	AOR (95% CI)
	Lower attitude (<=40.35) Freq (%)	Higher attitude (> 40.35) Freq (%)		
Age				
25-29	14 (53.8%)	12 (46.2%)	**1**	
30-34	49 (62.0%)	30 (38.0%)	0.714 (0.292-1.748)	
35-39	105 (47.9%)	114 (52.1%)	1.267 (0.56-2.863)	
>=40	126 (49.6%)	128 (50.4%)	1.185 (0.528-2.662)	
Age at sexual debut				
<18	84 (50.3%)	83 (49.7%)	**1**	
>=18	189 (51.5%)	178 (48.5%)	0.953 (0.661-1.374)	
Marital status				
Un-married	27 (44.3%)	34 (55.7%)	**1**	
Married	156 (54.2%)	132 (45.8%)	0.672 (0.385-1.172)	
Divorced	56 (53.3%)	49 (46.7%)	0.695 (0.369-1.310)	
Widowed	51 (43.2%)	67 (56.8%)	1.043 (0.56-1.945)	
Separated	3 (60.0%)	2 (40.0%)	0.529 (0.082-3.398)	

Educational level				
No formal education	35 (62.5%)	21 (37.5%)	**1**	**1**
Read and write	9 (42.9%)	12 (57.1%)	2.222 (0.802- 6.16)	2.543 (0.856-7.555)
Elementary school	83 (53.2%)	73 (46.8%)	1.466 (0.784-2.74)	1.455 (0.745-2.841)
High school	126 (51.4%)	119 (48.6%)	1.574 (0.867-2.857)	1.478 (0.776-2.818)
College or university	41 (41.4%)	58 (58.6%)	2.358 (1.203-4.62)	1.764 (0.788-3.951)
Residence				
Urban	276 (50.5%)	270 (49.5%)	**1**	**1**
Rural	18 (60.0%)	12 (40.0%)	0.681 (0.322-1.442)	
Parity				
Nulliparous	58 (50.9%)	56 (49.1%)	**1**	**1**
Primiparous	84 (52.2%)	77 (47.8%)	0.949 (0.587-1.534)	
Multiparous	146 (50.0%)	146 (50.0%)	1.036 (0.672-1.597)	
A grand multipara	5 (55.6%)	4 (44.4%)	0.829 (0.212-3.245)	
Occupational status				
Unemployed	120 (60.6%)	78 (39.4%)	**1**	**1**
Government employee	41 (45.1%)	50 (54.9%)	1.876 (1.136-3.099)	1.631 (0.89-2.989)
Non-governmental employee	44 (45.4%)	53 (54.6%)	1.853 (1.134-3.028)	1.839 (1.071-3.158)*
Self-employee	71 (48.0%)	77 (52.0%)	1.668 (1.085-2.566)	1.795 (1.110-2.905)*
Other	18 (40.9%)	26 (59.1%)	2.222 (1.143-4.322)	3.444 (1.406-8.441)*
Income				
0-499	44 (55.7%)	35 (44.3%)	**1**	**1**
500-999	16 (55.2%)	13 (44.8%)	1.021 (0.434-2.404)	0.962 (0.388-2.383)
1000-4999	160 (53.7%)	138 (46.3%)	1.084 (0.658-1.786)	0.851 (0.482-1.499)
>=5000	58 (40.6%)	85 (59.4%)	1.842 (1.057-3.211)	1.348 (0.697-2.607)
VIA result				
Negative	263 (50.2%)	261 (49.8%)	**1**	
Positive	29 (56.9%)	22 (43.1%)	0.764 (0.428-1.365)	
Multiple sexual partner				
Yes	1 (12.5%)	7 (87.5%)	**1**	
No	293 (51.5%)	276 (48.5%)	0.135 (0.016-1.101)	
Condom use during coitus in the past 12 months				
Yes	74 (46.5%)	85 (53.5%)	**1**	
No	218 (52.4%)	198 (47.6%)	0.791 (0.548-1.14)	
Modern contraceptive use				
Yes	98 (44.7%)	121 (55.3%)	**1**	**1**
No	196 (54.6%)	163 (45.4%)	0.674 (0.480-0.944)	0.657 (0.456-.945)*
Prior STI history				
Yes	47 (51.6%)	44 (48.4%)	**1**	
No	247 (50.7%)	240 (49.3%)	1.038 (0.663-1.624)	

Table 4: *Univariate and multivariate analysis to estimate the predictors of attitudes of HIV positive women towards cervical cancer and its screening in Addis Ababa, Ethiopia, 2021 (n = 578).*

**Statistical Significance, 1=Reference Category Other occupational status (44 responses) indicate, 40 responses were housewives, one sex worker, one family help, one merchant, and one participant response was not clearly stated.*

Discussion

In this study, about half of the participants had un-favourable attitude towards cervical cancer and its screening. In previous Ethiopian studies varied results of favourable attitude was reported ranging from 37.0% to 58.1% [12,13,21,22,25-27]. University students having a favourable attitude towards cervical cancer screening is 55.3% [19], and 44.1% [20] which do not differ from the current finding and from other Ethiopian study findings. In Africa, higher favourable attitudes were reported from Nigeria (75.6%) [23], and the favourable attitudes of health workers in Uganda reported 66% on the virtue of cervical cancer prevention [24]. The pooled estimate of the attitudes of cervical cancer screening among HIV positive women in Africa was 38.0% [25]. In addition, the higher favourable attitude towards cervical cancer screening was reported in Pakistan (79.4%) [26] and varies in Nepal 46.6% [27], and 72% [28]. The attributed difference from our current finding, 49.1% might be due to the difference in the study participants and age of participants, sample size and the study settings.

Existing literature in Ethiopia shows that 71.0% of HIV positive women had heard of cervical cancer [29], 54.4% of university students heard about cervical cancer and its risk factors [20], 36% of women in the community were aware of cervical cancer [14], only 4.64% of women attending the outpatient gynaecology clinic in Southwester Ethiopia have heard of cervical cancer [15]. Similarly, 42.2% of women heard of cervical cancer and 41.5% heard about its screening [30]. All these findings are lower than our current finding. In agreement with a previous Ethiopian study [31], and elsewhere [32] the health professionals were the main sources of information about screening for cervical cancer in the current study. The review of existing finding in Ethiopia indicated that one third of the eligible women lack information on cervical cancer screening [33]. About 74.7% Zambian women heard of cervical cancer [34] and 56.2% of HIV positive women are aware of it [35]. Likewise, 42.9% heard of cervical cancer [36], and 19.2% of women understood the Pap test as a screening method of cervical cancer [37]. Our study participants, 30.8% are aware of the Pap test as a screening method for cervical cancer. The study in Morocco indicated that 20% of women had heard about cervical cancer and its screening, and 17.4% of them heard from the mass media [38], indicating poor awareness. Moreover, 88.2% of women participants heard about cervical cancer and 70.2% heard from radio and 15.1% from health facilities [39]. Another study in Uganda among nursing students indicated that 84% were not aware of screening methods except pap smear test [40]. The finding among female University students in Botswana reported 98.2, % awareness about cervical cancer screening and commonly reported screening test was Pap smear 47.8% [41]. The study conducted in Nigeria among pregnant women reported that 47.4% had heard about cervical cancer screening [23]. The study in Tanzania among women attending reproductive and child health clinic indicated that 82.4% were aware about cervical cancer [42]. In contrast, only 15.3% of general practitioners were aware of VIA as a screening method in Burundi [43] which was much lower than our current finding where 81.9% of HIV positive women were aware of VIA as a screening method, though the responses are based on the interpretation of the information raised from participants by data collectors. Asian studies also depicted that, 88.8% of the women had heard of cervical cancer while 70% of them had heard about cervical cancer screening in Nepal [27]. And also, 64.4% of women had heard of cervical cancer and 43.1% heard about Pap test [44]. The study in China among female sex workers indicated that 70.8% ever heard of cervical cancer [45]. The study in Pakistan indicated that 51.3% women aware of cervical cancer and 34.2% knew about pap smear as a screening test [26]. The study in Saudi Arabia reported that 43% of the women were aware of cervical cancer [46].

The aforementioned controversial findings reported towards awareness and the attitudes of cervical cancer and its screening. The attributed difference is probably due to the difference in the study settings, the participants involved in the study and the age difference of the participants. There are different cultural, religious, economical and language barriers that contributed to difference in the cervical cancer screening [47]. Low level of education, participant age disparity, unavailability of female clinicians in the study setting for privacy and confidentiality of women to be screened might have an impact in the controversy of the reported findings in different studies [47].

In a previous study, being a government employee was significantly associated with the odds of having positive attitude for cervical cancer screening [48], unlike our current finding that showed non-governmental and self-employees had such attitude. In addition,

employment status, marital status, and income reported as the predictors of the attitudes of women [27] and [22]. And also, education and income reported as significant predictor of the attitude of women towards cervical cancer screening utilization [21], which is not the predictors of our current finding. Our study revealed that less rating value of attitude was observed in the feelings of women to be screened by male clinicians. Our finding supplement the previous qualitative study among health care providers indicating that women were uncomfortable to talk about the pelvic examination with male doctors and they always preferred to go to female doctors [49]. The same study also add-up the importance of the awareness to increase screening service utilization [49]. Contraceptive use is a predictor of cervical cancer [50] and in our study, women that do not use modern contraceptive had reduced odds of having a positive attitude towards cervical cancer and its screening. Probably due to the fact that those women who didn't visit health facilities or clinics might lack the awareness about the importance and availability of cervical cancer and its screening.

Conclusion

Though, the level of awareness towards cervical cancer and its screening among HIV positive women coming to health facilities in Addis Ababa is encouraging, their attitude towards cervical cancer and its screening was lower. The average weighted score on the items of feeling towards screening by male professionals was also lower. Considering our recent finding, we recommend the Ministry of Health and Addis Ababa City Administration, Health Bureau to work on awareness creation strategy and enhancement of the attitudes of women towards cervical cancer and its screening, and also to assign female clinicians in the cervical cancer screening units for safe and comfortable service utilization. If the information is well addressed to the community and eligible women are screened, there is a chance for Ethiopia to meet the planned elimination program of cervical cancer by 2030.

Summary Box

This summary box is designed to address the research questions:

1) What is the current understanding of this subject?
   Although, a research related to awareness and attitudes of women towards cervical cancer and its screening is reported in Ethiopia, the findings related to awareness and the level of attitude among vulnerable women, meaning, women living with HIV is limited in the country.
2) What does this report add to the literature?
   This report tried to figure out the awareness, the level of attitude, average rating values of each item of attitude and the contributing factors.
3) What are the implications for public health practice?
   This finding has an input for the Ministry of Health in Ethiopia to work on the awareness creation strategy which leads to increase the attitude of women towards cervical cancer and its screening.

Ethics Approval and Consent to Participate

Ethical clearance was obtained from the National Research Ethics (NRERC) (MoSHE/04/246/832/21), Aklilu Lemma Institute of Pathobiology (ALIPB-IRB/35/2013/21), and Ethiopian Public Health Institute (EPHI-IRB-118-2018). Furthermore, a facility-based approval letter was obtained from the City Government of Addis Ababa Health Bureau (A/A/H/6092/227), St. Paul Hospital Millennium Medical College (SPHHMC-IRB/PW/23/398), and Yekatit 12 Hospital Medical College (07/21). The objectives of the study were explained and permissions were obtained from the selected health facilities to collect data. Those volunteer women to participate and signed con-

sent were involved in the study. All information obtained from the study participants was kept confidential, names or personal identifiers were not included in the study. A medical record number was captured to trace back a patient card when needed.

Consent for Publication

Not applicable.

Availability of Data and Materials

All data generated or analysed during this study are included in this published article.

Competing Interests

The authors declare that they have no competing interests.

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Seed money was obtained from Addis Ababa University and the Ethiopian Public Health Institute for data collection.

Authors' Contributions

"AL participated in Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, and Project administration; NB,TT, GMK, JH, and GM participated in Methodology, Data curation, Writing – review and editing, Project administration. All authors read and approved the final manuscript".

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