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Utilisation of cervical cancer screening and factors associated with screening utilisation among women aged 30–49 years in Mertule Mariam Town, East Gojjam Zone, Ethiopia, in 2021: a cross-sectional survey

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ABSTRACT

Objective To assess the practice of cervical cancer screening and its associated factors among women aged 30–49 years.

Design Community-based cross-sectional survey.

Setting Mertule Mariam Town, Northwest Ethiopia, 1 May–20 June 2021.

Participants Women aged 30–49 years who were living in the study area were eligible for inclusion. A systematic random sampling technique was used to select study participants. A total of 488 respondents participated in the study. Data were collected by using interviewer-administered structured questionnaires. Data were entered into EpiData V.3.1 and then exported to SPSS V.25 for analysis. Bivariable and multivariable logistic regression analyses were done.

Outcome measures Prevalence of cervical cancer screening and factors associated with screening utilisation.

Results The prevalence of cervical cancer screening was found to be 14.1%. Age (≤16 years) at first sexual intercourse (adjusted OR 14.89, 95% CI 6.21 to 35.74), history of sexually transmitted disease (11.65, 4.56 to 29.78), having multiple sexual partners (11.65, 4.56 to 29.78), having good knowledge about cervical cancer screening (4.72, 2.33 to 9.56) and having a family history of cervical cancer (4.72, 2.33 to 9.56) were statistically significantly associated factors for utilisation of cervical cancer screening.

Conclusion Utilisation of cervical cancer screening was low in Northwest Ethiopia. Educational status, age at first sexual intercourse, history of multiple sexual partners, sexually transmitted disease, family history of cervical cancer and knowledge about cervical cancer screening were significant factors for utilisation of cervical cancer screening.

INTRODUCTION

Cervical cancer is uncontrolled multiplication of normal cells of the cervix that arises from the squamous columnar junction. Various strains

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ To generate a representative sample, study participants were selected randomly.

⇒ An important limitation of the study was its limited scope in terms of participant age range (30–49 years) and location (single-town setting).

⇒ Since the study was cross-sectional, it cannot be used to demonstrate direct cause and effect between dependent and independent variables.

⇒ Another limitation was the lack of consideration of other possible associated factors such as HIV status, attitudes, family planning usage and number of childbirths.

⇒ Social desirability bias may have impacted the findings.

of the human papillomavirus (HPV), a sexually transmitted infection, play a role in causing most cervical cancers.[1] It may be completely asymptomatic in the early stages. In advanced stages, it may present as persistent pelvic pain, unexplained weight loss, bleeding between periods, unusual vaginal discharge, bleeding and pain after sexual intercourse.[2]

Cervical cancer has a dramatically uneven impact across the globe; more than 85% of all cervical cancers and cervical cancer-related deaths occur in developing countries.[3] Cervical cancer can often be successfully treated when detected early.[3] The current 5-year survival rates for women with early-stage, locally advanced, and metastatic cervical cancers are 91%, 57%, and 16%, respectively.[3]

Cervical cancer is a leading public health concern globally. Although a decline has been observed in cervical cancer incidence and deaths in the developed countries over the past 20 years, there has not been a

significant change in the same key indicators in poor-resource settings.[4] Cervical cancer is the second most common cancer affecting women worldwide, and 86% of cases occur in developing countries; in fact, these cases actually represent approximately 13% of female cancers overall.[5]

Statistically, cervical cancer is one of the leading causes of morbidity and mortality among gynaecological cancers worldwide, especially in the developing countries.[6] The American Cancer Society estimated that in over 12 000 cases of invasive cervical cancer diagnosed, approximately 3000 of the women will die from the disease.[7] Although cervical cancer is considered one of the most preventable cancers,[4] most women who seek help for cancer-related illnesses usually do so when the disease has advanced and is no longer treatable.[8]

In sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100 000 women annually, and 22.5 per 100 000 women die from the disease.[9] Cervical cancer is the second most common female cancer, which is why Ethiopia has set a strategic goal to reduce its incidence and mortality by 2020.[10]

A study in Ethiopia shows that cervical cancer affects patients' quality of life, and screening of cervical cancer is recommended.[1] Primary prevention measures, vaccination against HPV and screening should be initiated and expanded to reduce morbidity from cervical cancer and subsequent costs in both human lives and money resources.[11]

In Ethiopia, visual inspection with acetic acid (VIA) screening combined with access to cryotherapy service was introduced in 2009 as a single-visit approach to cervical cancer prevention. Ethiopia practised cervical cancer screening between 30 and 49 years of age at least every 3 years based on the WHO recommendation. Nowadays, the Ethiopian Ministry of Health has developed this comprehensive cervical cancer prevention and control guideline along with the preparation of VIA and cryotherapy training materials. The cervical cancer screening service was integrated within the existing health service delivery. Primary healthcare, particularly the health extension programme, and health centres play a central role in promoting the health of the community via health promotion and disease prevention to address risk factors for cervical cancer.[12]

For the past many years, high-income countries have seen a dramatic drop in cervical cancer incidence and mortality. However, similar success has not yet been achieved in low/middle-income countries like Ethiopia. This is largely due to little information about pre-cervical cancer screening.[13] The purpose of this study was to assess the prevalence of cervical cancer screening practice and associated factors in order to address the aforementioned gap in the area.

METHODS

Study design and setting

A community-based cross-sectional study design was conducted from 1 May to 20 June 2021, among women aged 30–49 years, who were residents of Mertule Mariam Town, which is in Northwest Ethiopia. Mertule Mariam Town is an urban area. It is 365 km away from Addis Ababa, the capital city of Ethiopia and 180 km away from Bahir Dar, a regional state of Amhara. Mertule Mariam Town is the administrative centre of Enebse Sar Midir Woreda.

Participants and sampling

All women aged 30–49 years old who live in Mertule Mariam Town were the source of population and all selected women aged 30–49 years old who live in Mertule Mariam Town during data collection were the study population. Women aged 30–49 years old who live in Mertule Mariam Town for ≥6 months during data collection were included in the study, whereas women not aged 30–49 years old, who were critically ill during the data collection period, having advanced cervical cancer and had a history of total abdominal hysterectomy were excluded from the study.

The sample size was calculated by considering the two specific objectives: using the formula for estimation of single population proportion and using Epi Info V.7 to identify the factors. Considering 10% of outcomes in exposed, which is educational status as predictors of cervical cancer screening,[14] margin of error (0.05) and critical value at 95% confidence level and power of 80%, the final sample size was 488 after adding 10% non-respondents.

Systematic random sampling was applied to select study participants. The total number of women aged 30–49 years who live in Mertule Mariam Town was 1864, which was obtained by referring to the kebele administrative and health post-registration book/record prior to data collection. All four kebeles found in Mertule Mariam Town were included in the study. The size of households consisting of eligible populations to be selected from each kebele was determined proportionally based on the size of the study units found in each kebele. The sampling interval (kth unit) was obtained by dividing the entire women aged 30–49 years (1864) by the total sample size (488), and it was approximately 4. The first woman was randomly chosen for the survey by a lottery method, and then every four women who were recruited for the study.

Data collection and measurements

Data were collected using an interviewer-administered structured questionnaire. Data were collected by five trained BSc nurses. The questionnaire was adapted from previous literature and it was modified to the context of this study.[14] Questionnaires were categorised into socio-demographic characteristics, knowledge and cervical cancer screening practice (online supplemental file 1). Women who had a score on knowledge questions of mean value or above were considered as knowledgeable.[14]

Cervical cancer screening utilisation: participants who had screened at least once in their lifetime were considered to have used cervical cancer screening. In this study,

we assessed cervical cancer screening by asking a question: 'Have you ever had cervical cancer screening in your lifetime?' Those study participants who answered 'Yes' are coded as using cervical cancer screening service and those study participants who answered 'No' are coded as didn't use cervical cancer screening service.[14]

Data quality assurance

The training was given to both supervisors and data collectors. The pretest was conducted on 5% of the sample size in Bahir Dar City before the actual data collection period. A necessary correction was done based on the results of the pretest data. The questionnaire was translated to the local language (Amharic) and back to English by fluent speakers of the two languages. Strict supervision was done by supervisors, and the overall quality of the data collection was also monitored by the principal investigator. The collected data were checked for completeness and consistency before starting, processing and analysing data.

Data management and analysis

The data were coded and entered using EpiData V.3.1 and exported to SPSS V.25 for analysis. A binary logistic regression model was fitted to analyse the association. Both the bivariable and multivariable logistic regression analyses were performed to assess the association between dependent and independent variables. All covariates with a p value less than 0.25 during bivariable analysis were considered for further multivariable analysis to control for all possible confounders.

Then, those variables that show a p value less than 0.05 and an adjusted OR (AOR) with a 95% CI were used to set the statistically significant level and to identify factors associated with cervical cancer screening practice. Model fitness was checked using Hosmer-Lemeshow goodness-of-fit tests. Hosmer-Lemeshow goodness-of-fit test statistics showed the model as a best-fitted model with a p value of 0.694. Finally, results were presented using frequencies, proportions and tables.

Patient and public involvement

None.

RESULTS

Sociodemographic characteristics of the respondents

A total of 488 study participants were interviewed with a response rate of 100%. The mean age of the study participants was 38.92 years. The majority (478, 98.4%) of women were Amhara and 466 (95.5%) were Orthodox Christian followers. Two hundred forty-seven (50.6%) of the women have not attended formal education (table 1).

Reproductive characteristics of the respondents

Seventy-one (14.5%) of the study participants had first sexual intercourse at age 16 years and below. Forty (8.2%) women had a history of sexually transmitted disease (STD), and 29 (5.9%) had a history of abortion at least

Table 1 Sociodemographic characteristics of (n=488) women aged 30–49 years in Mertule Mariam Town, Northwest Ethiopia, 2021

Variable	Category	Frequency	Percentage
Age of women (in years)	30–39	234	48
	40–49	254	52
Marital status of women	Married	455	93.2
	Other*	33	6.8
Religion	Orthodox	466	95.5
	Muslim	3	0.6
	Protestant	19	3.9
Educational status	No formal education	247	50.6
	Primary education	107	21.9
	Secondary education	77	15.8
	Above secondary education	57	11.7
Ethnicity	Amhara	478	98
	Oromo	3	0.6
	Tigray	7	1.4
Occupation	Housewife	266	54.5
	Merchant	132	27
	Government employee	90	18.4
Monthly income†	<900	37	7.6
	900–1600	24	4.9
	1601–2699	46	9.4
	≥2700	381	78.1

*Single, divorced and widowed.
†In Ethiopian birr.

once in their lifetime. About 35 (7.2%) of the respondents had a family history of cervical cancer (table 2).

Knowledge of the respondents about cervical cancer screening

The majority (381, 78.1%) of the respondents heard about cervical cancer. About 265 (54.3%) of the participants got the information about cervical cancer from mass media; the rest heard it from health personnel (88, 18.0%), partners (24, 4.9%) and newspapers (4, 0.8%), respectively.

About 99 (20.3%) of the study participants know about cervical cancer screening, and majority (333, 68.2%) of them know cervical cancer is a killer disease. About 148 (30.3%) respondents had good knowledge about cervical cancer (table 3).

Cervical cancer screening practices of the respondents

About 69 (14.1%) of the participants were screened for cervical cancer in their life at least once. From these, 56 participants need to repeat screening. The reasons for not having cervical cancer screening were having no health education programmes to promote screening (99, 20.3%), others were afraid a screening test would reveal cervical cancer positive results (185, 37.9%) and some (135, 27.7%) of them think the costs of screening are possibly expensive (table 4).

Table 2 Reproductive characteristics of women (n=488) in Mertule Mariam Town, Northwest Ethiopia, 2021

Variable	Category	Frequency	Percentage
Age started sexual intercourse (in years)	≤16	71	14.5
	>16	417	85.5
History of STD	No	448	91.8
	Yes	40	8.2
History of abortion	No	459	94.1
	Yes	29	5.9
Family history of cervical cancer	No	453	92.8
	Yes	35	7.2
No of sexual partners	One	475	97.3
	Two or more	13	2.7

STD, sexually transmitted disease.

Factors associated with utilisation of cervical cancer screening

In binary logistic regression analysis, cervical cancer screening was significantly associated with monthly income, occupation, age at first sexual intercourse, number of sexual partners, family history of cervical

Table 3 Knowledge about cervical cancer screening among women aged 30–49 years (n=488) in Mertule Mariam Town, Northwest Ethiopia, 2021

Variable	Category	Frequency	Percentage
Heard about cervical cancer	No	107	21.9
	Yes	381	78.1
Source of information	Radio and TV	265	54.3
	Health personnel	88	18.0
	Newspaper	4	0.8
	Partners	24	4.9
Post-coital bleeding as one of the signs of cervical cancer	No	483	99.0
	Yes	5	1.0
May have cervical cancer without any signs and symptoms	No	457	93.6
	Yes	31	6.4
Do you know about cervical cancer screening?	Yes	99	20.3
	No	389	79.7
Is cervical cancer preventable?	No	465	95.3
	Yes	23	4.7
Can cervical cancer be cured?	No	440	90.2
	Yes	48	9.8
Is cervical cancer a killer disease?	No	155	31.8
	Yes	333	68.2
Main advantage of cervical cancer screening/early treatment	No	407	83.4
	Yes	81	16.6
Knowledge of cervical cancer screening	Good	148	30.3
	Poor	340	69.7

Table 4 Practice of cervical cancer screening among women (n=488) in Mertule Mariam Town, Northwest Ethiopia, 2021

Variable	Category	Frequency	Percentage
Practice of cervical cancer screening	Yes	69	14.1
	No	419	85.9
If yes, how many times screened?	1	65	94.2
	2 and more	4	5.8
	Total	69	100
Barriers to not having cervical cancer screening	I think the price is expensive	99	23.6
	I am afraid a screening test would reveal cervical cancer positive	185	44.2
	There are no health education programmes to promote screening	135	32.2
	Total	419	100

cancer, history of abortion, history of STD and knowledge about cervical cancer screening.

In the multivariate logistic regression analysis, age at first sexual intercourse, number of sexual partners, family history of cervical cancer, history of abortion, history of STD and knowledge about cervical cancer screening were significantly associated with utilisation of cervical cancer screening.

Participants with age ≤16 years at first sexual intercourse were 14 times more likely to use cervical cancer screening as compared with those with age >16 years at first sexual intercourse. Women who had a history of STD were 11 times more likely to screen for cervical cancer than those who had no history of STD. Women who had multiple sexual partners were seven times more likely to screen for cervical cancer than those who had no multiple sexual partners. Women who had good knowledge about cervical cancer screening were four times more likely to use cervical cancer screening than those who had poor knowledge. Women who had a family history of cervical cancer were eight times more likely to use cervical cancer screening as compared with those who had no family history of cervical cancer (table 5).

DISCUSSION

In this study, the prevalence of cervical cancer screening is about 14.1% with 95% CI (10.9% to 17.6%). This is in line with the studies conducted in Dessie (11%),[15] in Gondar University (10.9%),[16] in Kenya (16%)[17] and in Nigeria (11%).[18] The practice of cervical cancer screening is lower than the studies conducted in Debre Markos Town (20.9%)[19] and Mekele, Ethiopia (19.8%).[20] This difference might be due to a lack of awareness on health status screening and fear of being positive for cancer after screening.[15]

The finding of this study is higher than the studies conducted in Debre Markos, Ethiopia (5.4%),[14] in

Table 5 Bivariable and multivariable analyses of factors associated with utilisation of cervical cancer screening among women 30–49 years in Mertule Mariam Town, Northwest Ethiopia, 2021

Variables	Cervical cancer screening		Crude OR (95% CI)	AOR (95% CI)	P value
Age of women*					
30–39	34	210	1		
40–49	35	209	1.034 (0.622 to 1.721)	1.220 (0.487 to 3.052)	0.671
Educational status					
No formal education	28	219	1		
Primary education	17	90	1.477 (0.771 to 2.832)	3.429 (1.303 to 9.022)*	0.013
Secondary education	11	66	1.304 (0.616 to 2.759)	2.039 (0.708 to 5.874)	0.187
Above secondary education	13	44	2.311 (1.110 to 4.8109)	5.810 (1.939 to 17.404)*	0.002
Occupation					
Housewife	29	237	1		
Merchant	24	108	1.808 (1.006 to, 3.252)	0.813 (0.262 to 2.529)	0.721
Government employee	16	74	1.760 (0.906 to 3.418)	0.922 (0.160 to 5.322)	0.927
Monthly household income†					
<900	5	25	1		
900–1600	6	25	1.200 (0.324 to 4.447)	1.498 (0.251 to 8.933)	0.658
1601–2699	5	41	.610 (0.160 to 2.319)	0.887 (0.130 to 6.065)	0.903
≥2700	53	328	0.808 (0.29 6 to 2.203)	0.675 (0.153 to 2.973)	0.603
Age at first sexual intercourse					
≤16	35	35	11.294 (6.291 to 20.278)	14.894 (6.206 to 35.744)*	<0.001
>16	34	384	1		
Sexual partners					
One	63	412	1		
Two or more	6	7	5.605 (1.825 to 17.218)	7.042 (1.367 to 36.285)*	0.02
History of STD					
Yes	25	15	15.303 (7.511 to 31.180)	11.653 (4.560 to 29.779)*	<0.001
No	44	404	1		
History of abortion					
Yes	7	22	0.491 (0.201 to 1.197)	0.210 (0.066 to 0.669)*	0.008
No	62	497	1		
Family history of cervical cancer					
Yes	22	13	14.619 (6.911 to 30.923)	8.912 (3.312 to 23.982)*	<0.001
No	47	406	1		
Knowledge of cervical cancer screening					
Good	43	105	4.946 (2.897 to 8.442)	4.716 (2.326 to 9.563)*	<0.001
Poor	26	314	1		

*Year.
†In Ethiopian birr.
AOR, adjusted OR; 95% CIs, 95% Confidence Intervals; STD, sexually transmitted disease.

Gondar University,[16] in Garage Zone, South Ethiopia (3.8%)[21] and in Arba Minch (5.9%).[22] The difference might be due to well-organised health education given by health workers and good coverage of doing a campaign on screening of cervical cancer 1 year ago in Mertule Mariam Town.[22]

Women who took college and above education were five times more likely to use cervical cancer screening service as compared with women who did not take formal education (AOR: 5.810 (95% CI: 1.939 to 17.404)). Similarly, women who attended primary education were three times more likely to use cervical cancer screening service as compared with women who did not attend formal education (AOR: 3.429 (95% CI: 1.303 to 9.022)). These findings were supported by results from a previous study done in Debre Markos.[14] This finding could be explained

by the fact that women have greater opportunity to learn about cervical cancer and its screening as their education level rises.

Women who had sexual intercourse at age of 16 years and below were 14 times more likely to screen as compared with those women who had sexual intercourse at age above 16 years (AOR: 14.894 (95% CI: 6.206 to 35.744)). This is supported by the studies conducted in Debre Markos[14] and in Gondar University.[16] The possible explanation for this finding might be women who began sexual activity at a young age may have more lifetime sexual partners, which in turn increases the risk of contracting STDs, and therefore increases their chance of attending medical facilities when experiencing symptoms.

Women who had a history of STD were 11 times more likely to screen for cancer compared with those who had no STD history (AOR: 11.653 (95% CI: 4.560 to 29.779)). This result was supported by a study done in Debre Markos.[14] The above association might be explained by the fact that women who have STDs and a history of STD will have an increased chance of visiting health institutions for treatment and other medical help.[14]

Women who had a family history of cervical cancer were eight times more likely to use cervical cancer screening as compared with those who had no family history of cervical cancer (AOR: 8.912 (95% CI: 3.312 to 23.982)). This finding is supported by the studies done in Debre Markos[14] and in Finote Selam.[22] The possible explanation for this study could be that women who had a family history of cervical cancer will have information on cervical cancer screening from their partner for this, thus, they may have a chance for screening.[22]

Women who were knowledgeable about cervical cancer screening were four times more likely to be screened for cervical cancer as compared with those who were not knowledgeable (AOR: 4.716 (95% CI: 2.326 to 9.563)). This finding was supported by the result of studies done in Debre Markos[14] and in Mekele.[20] The possible explanation might be that the increasing level of women's knowledge about the benefits of screening directly leads them to using cervical cancer screening. In general, it has been proven that providing target persons with information on certain topics reinforces desired attitudes and encourages healthy behaviour. Therefore, the good knowledge of the study participants in our study may have thus positively influenced the targeted participants' behaviour to use the cervical cancer screening services.

Women who had a history of multiple sexual partners were seven times more likely to screen for cervical cancer as compared with those who had one sexual partner (AOR: 7.042 (95% CI: 1.367 to 36.285)). This finding is supported by results of studies done in Debre Markos,[14] Mekele,[20] Gurage Zone[21] and Hossana Town.[10] This may be explained by the association between having multiple sexual partners and greater risk of STDs (and associated symptoms). The more sexual partners a woman has, the higher her risk of contracting STDs, including HPV, which is the most prevalent risk factor for cervical cancer

development. Women exhibit symptoms of sexually transmitted infections more frequently as the risk increases. Once the woman develops symptoms for any STD, there is an increased likelihood of seeking medical help.[14]

LIMITATIONS

Limitations of this study were the age of study participants was only in the range of 30–49 years and the study was conducted for those who live only in the town. Since the study is cross-sectional, it may not demonstrate direct cause and effect between dependent and independent variables. Another limitation was the lack of consideration of other possible associated factors such as HIV status, attitudes, family planning usage and number of childbirths. Moreover, social desirability bias may be introduced since the topic remains a sensitive issue.

CONCLUSIONS

This study showed that the magnitude of utilisation of cervical cancer screening was low in Mertule Mariam Town, Northwest Ethiopia. Educational status, age at first sexual intercourse, history of multiple sexual partners and STD, family history of cervical cancer and knowledge about cervical cancer screening were statistically significant factors of utilisation of cervical cancer screening. Hence, to improve utilisation of cervical cancer screening services, there should be health information dissemination about cervical cancer to increase community awareness and improve women's educational status.

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Ethics approval This study involves human participants and ethical approval was obtained from the Institutional Review Board of Bahir Dar University (approval number: CMHS/IRB/ 26/005/2021). Participants gave informed consent to participate in the study before taking part.

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