

Cervical cancer screening utilisation and associated factors among women aged 30 years and above in southern Ethiopia, cross-sectional study, 2020

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Background: Cervical cancer is a sexually transmitted disease caused by the human papillomavirus (HPV), especially HPV-16 and HPV-18. It is a health crisis impacting women and their families across the world – especially in low-resource settings. Despite acknowledging the importance of cervical cancer screening for early prevention, there is limited information available to the people of Wolaita Zone, Sodo Town, about utilising the cervical cancer screening service. This study aimed to assess cervical cancer screening utilisation and its associated factors among women aged 30 years and above in Wolaita Zone, Sodo Town, southern Ethiopia, during 2020.

Methods: A community-based cross-sectional study was conducted among 574 women aged 30 years and older from 1 May 2020 to 30 June 2020. A systematic random sampling technique was used to select the study participants. Data entry was done using EpiData (version 3.1) and exported to IBM SPSS Statistics (version 23) for analysis. Bivariable and multivariable logistic regression analyses were done to identify variables that have a significant association with cervical cancer screening utilisation.

Results: The overall proportion of cervical cancer screening utilisation among participants was 15.2% with a 95% CI of 13.9–16.7. This finding also revealed that a higher educational level (AOR = 3.74, 95% CI 1.39–10.07), a better average monthly income (AOR = 4.54, 95% CI 1.86–11.07), a history of STD in a participant's lifetime (AOR = 2.85, 95% CI 1.22–6.66), family history of cervical cancer (AOR = 4.37, 95% CI 1.75–10.92), having good knowledge about cervical cancer screening (AOR = 2.53, 95% CI 1.42–4.50) and having a favourable attitude towards cervical cancer screening (AOR = 2.50, 95% CI 1.34–4.66) were aspects significantly associated with cervical cancer screening utilisation.

Conclusion: This study showed that the level of cervical cancer screening utilisation was low. There is thus a need for stakeholders to create awareness about cervical cancer screening utilisation at the community level, particularly for women 30 years and older.

Keywords: cervical cancer, women, screening, utilisation, Wolaita Zone, Ethiopia

Introduction

Cervical cancer is a sexually transmitted disease caused by the human papillomavirus (HPV), especially HPV-16 and HPV-18.¹ It is a health crisis impacting women and their families across the world – especially in low-resource settings. In 2020, an estimated 604 237 women were diagnosed with cervical cancer globally, representing 6.5% of all female cancers.² Cervical cancer is the second most common cancer and the leading cause of cancer deaths in women in sub-Saharan Africa (SSA).³ In Ethiopia, an estimated 20.9 million women were at risk of developing cervical cancer, with an estimated 4 648 new cases and 3 235 deaths annually.⁴

The World Health Organization's (WHO) global strategy to accelerate the elimination of cervical cancer as a public health problem officially launched on 17 November 2020.⁵ And the American Cancer Society (ACS) recommended that all age-eligible women (21 years and older) should have cervical cancer screening at least once every three years since cervical cancer is one of the cancers for which screening and early detection are the most effective.⁶ The primary underlying cause of cervical

cancer is infection with one or more high-risk types of HPV, a common virus that is sexually transmitted.⁷

In Ethiopia, however, only 1% of age-eligible women receive screening for cervical cancer, and 90% of women have never had a pelvic examination.⁸ Therefore, this study aimed to assess cervical cancer screening service utilisation and associated factors among age-eligible women (30 years and older) in Wolaita Zone, Sodo Town, southern Ethiopia.

Methods

Study area

This study was conducted in Wolaita Zone, Sodo Town, southern Ethiopia. Sodo Town is one of six city administrations in Wolaita Zone and currently works as a zonal administrative town, located 326 kilometres south of Addis Ababa, the capital of Ethiopia. Based on the 2018 Population Projection by the Central Statistics Agency CSA, this town has a total population of 254 294 (125 855 men and 128 439 women).⁹ Currently, Sodo Town serves as the centre of Wolaita Zone and there are 14 health posts, three health centres, and one referral and one general hospital. Cervical cancer screening using visual inspection of the cervix

with acetic acid (VIA) is done at the Wolaita Sodo University Comprehensive Specialized Hospital and selected health centres in the town under the health office.

Populations

Source population

The source population was all women aged 30 years and older who resided in Sodo Town during the study period.

Study population

The study population consisted of randomly selected women aged 30 years and older in selected kebeles (the smallest administrative units of Ethiopia) of Sodo Town.

Sample size determination

The sample size was determined with a single population proportion formula by considering the proportion of cervical cancer screening utilisation among childbearing women from a previous study ($p = 17.6\%$)¹⁰ with precision (margin of error) of 5% between sample and population parameters and a confidence level (CI) of 95%, which gives a calculated sample size of 348 participants.

After using a design effect of 1.5 and adding a 10% non-response rate, the final sample size was 574 participants.

Data collection instrument and sampling procedures

A multistage sampling technique was used in this study. Kebeles were the primary sampling units, while households were the secondary sampling units. Three kebeles, out of a total of 11, were selected using a simple random sampling method. A total sample size was allocated to each of the selected kebeles using proportional allocation. Thereafter, a systematic random sampling method was used to select households for an interview. The first household was selected with a lottery method and then

every k -interval was included in the study. A woman 30 years and older from each selected household was interviewed, and if there was more than one eligible woman in the selected household the lottery method was used to select who to interview (Figure 1). Data were collected using a structured, interviewer-administered questionnaire which was prepared from similar, previously published studies. The questionnaire was initially developed in English, then translated into the local language Amharic after the proposal was accepted, and then backwards translated to English to check its consistency.

The questionnaire included sociodemographic characteristics, obstetric and gynaecological characteristics, knowledge about cervical cancer screening, attitude towards cervical cancer screening, and practice of cervical cancer screening. The data were collected by five trained diploma nurses who were supervised by two health officers. A pretest was conducted using 5% of the sample size among women aged 30 years and older in the study area from randomly selected kebeles, which were not included in the actual study. Findings from the pretest were used to modify the data collection tool. Training was given to the nurses (data collectors) and supervisors for two days regarding the aim of the study, the data collection tool, and procedures regarding the interview.

Variables of this study

Outcome variable

Cervical cancer screening utilisation.

Predictors

Sociodemographic characteristics were age, residence, marital status, educational status, ethnicity, income and religion.

Obstetric and gynaecological characteristics were age at first sexual intercourse, age at menarche and age at first marriage.

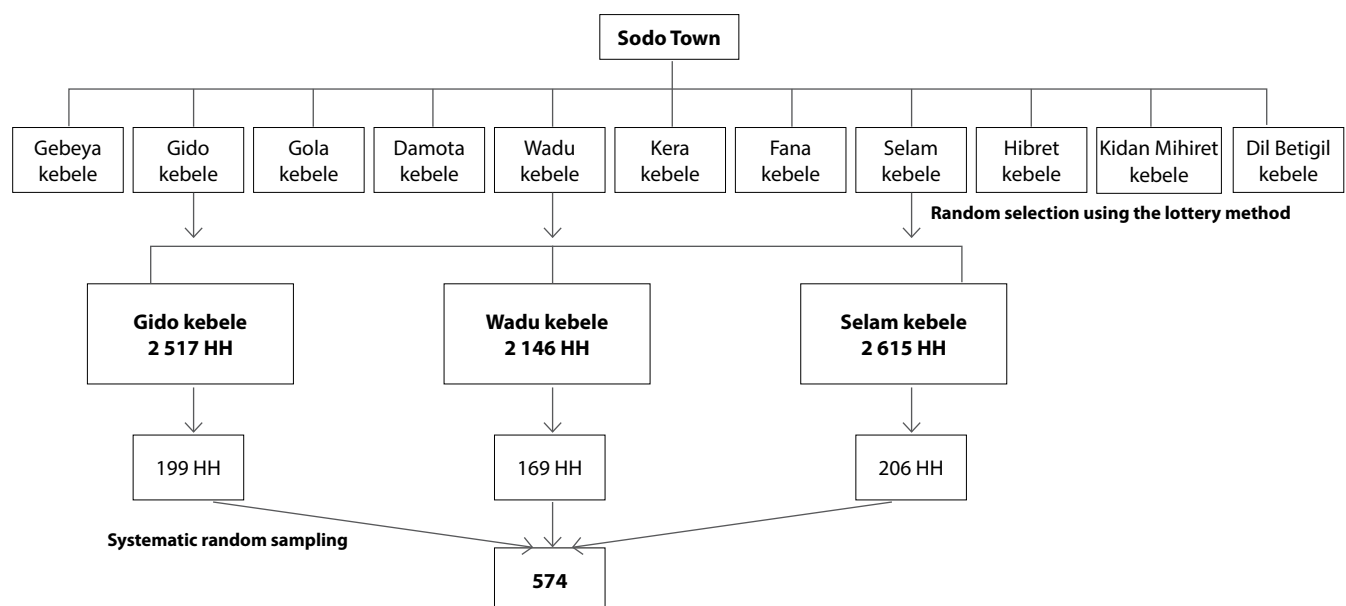


Figure 1: Schematic representation of the sampling procedure
HH – households

Knowledge of and attitude towards cervical cancer screening – operational definitions

Cervical cancer screening utilisation: Those participants who had received cervical cancer screening using a VIA test once in their lifetime were considered as utilising the screening service, whether regularly or not. Those participants who have never been screened were regarded as not utilising the service.¹¹

Data quality management

The data collection tool (questionnaire) was examined for completeness and consistency before and during the data collection period. The supervisors and principal investigator reviewed each questionnaire to ensure completeness and further editions were compiled.

Data processing and analysis

Data were captured using EpiData software (version 3.1) and exported to IBM SPSS Statistics (version 23) for analysis. Frequencies, percentages, tables and graphs were used to describe the relevant variables in terms of the study population. Furthermore, summary statistics such as mean and standard deviation (SD) were computed. Binary logistic regression (BLR) was used to assess the association between exposure and outcome variables. Variables with a p -value < 0.25 in the bivariable logistic regression analysis were included in the multivariable logistic regression analysis to control for possible confusion effect. Statistically, significance was determined using crude and adjusted odds ratios (AOR) with CI 95% and a p -value of < 0.05 .

Results

Sociodemographic characteristics

A total of 551 subjects whose age ≥ 30 years were interviewed resulting in a response rate of 99%. About 43% of the respondents were in the age group 30–35 years. More than 2/3 of the respondents were Wolaita (427; 77.5%) by ethnicity. The majority (209; 37.9%) of the respondents were protestant by religion, while 176 (31.9%) of them were orthodox and 385 (69.9%) were married. Approximately 141 (25.6 %) of study participants attended college and above educational level, while 101 (18.3%) were unable to read and write. Regarding the occupation of the study participants, 212 (38.5%) were housewives. Nearly 30% (165) of the respondents earned a monthly income $< 1\,000$ Ethiopian birr. See Table I for all the sociodemographic characteristics.

Reproductive health characteristics

Approximately 140 (25.4%) of the respondents had sexual intercourse for the first time before the age of 18. Of the respondents, 410 (74.4%) had given birth at least once. More than a quarter of the respondents (145; 26.3%), indicated that they had a history of more than one sexual partner during the last three years. One-third of the participants (182; 33%), had done HIV tests and 37 (6.7%) of them tested positive (Table II).

Table I: Sociodemographic characteristics of women aged 30 and above in Wolaita Zone, Sodo Town, 2020 ($n = 551$)

Variables	Categories	Count (n)	Per cent (%)
Age	30–35	236	42.8
	36–40	108	19.6
	41–45	60	12.9
	46–50	51	10.9
	51–60	2	9.3
	> 60	427	4.4
Ethnicity	Wolaita	26	77.5
	Gamo	31	4.7
	Dawuro	37	5.6
	Gurage	37	6.7
	Others	30	5.4
Religion	Protestant	200	37.9
	Orthodox	176	31.9
	Muslim	77	14.0
	Catholic	55	10.0
	Others	34	6.2
Marital status	Married	385	69.9
	Single	45	8.2
	Divorced	66	12.0
	Widowed	55	10.0
Educational level	Unable to read and write	101	18.3
	Read and write only	84	15.2
	Primary (Grade 1–8)	106	19.2
	Secondary (Grade 9–12)	119	21.6
	College and above	141	25.6
Occupation	Farmer	65	11.8
	Housewife	179	32.5
	Government employee	212	38.5
	Merchant	56	10.2
	Others	39	7.1
Average monthly income	$< 1\,000$ Eth. birr	165	29.9
	1 001–2 000 Eth. birr	165	29.9
	2 001–3 000 Eth. birr	131	23.8
	$> 3\,000$ Eth. birr	90	16.3

Health facility and health provider related characteristics

Approximately 298 (54.1%) of the respondents had visited health institutions once or more within the last year, while 198 (36%) of the respondents had visited health institutions once or more within the last two years. Although 36 (6.5%) of the respondents knew a person with cervical cancer, 55 (10%) of the respondents had not visited a health institution. Of the respondents, however, 194 (35.2%) were informed by a health professional about cervical cancer and cervical cancer screening.

Table II: Reproductive health characteristics of women aged 30 years and older in Wolaita Zone, Sodo Town, 2020 (*n* = 551)

Variables	Categories	Count (n)	Per cent (%)
Ever given birth	Yes	410	74.4
	No	141	25.6
Total number of live births	1–3	192	34.8
	4–6	195	35.4
	> 6	23	4.2
Ever tested for HIV	Yes	182	33.0
	No	369	67.0
HIV test results	Positive	37	6.7
	Negative	145	26.3
Lifetime history of STI	Yes	87	15.8
	No	464	84.2
Family history of cervical cancer	Yes	34	6.2
	No	517	93.8
Estimated number of sexual partners	1	406	73.7
	> 1	145	26.3
Used contraception	Yes	383	69.5
	No	168	30.5
Have a history of smoking	Yes	18	3.3
	No	533	96.7

STI – sexually transmitted infection

Knowledge, attitudes and perceived benefits regarding cervical cancer screening utilisation

Nearly half of the respondents (49.4%) had good knowledge about cervical cancer and cervical cancer screening. However, only 41% of the respondents think that they are susceptible to cervical cancer. Almost 220 (40%) respondents have a negative attitude towards cervical cancer screening. A quarter of the respondents (136; 24.7%) perceived cervical cancer as not being severe, while nearly half of the respondents (256; 46.5%) think that cervical cancer screening is not beneficial (Table III).

Factors associated with cervical cancer screening utilisation

From the multivariate logistic regression analysis, higher educational level, higher average monthly income, history of an STD in a lifetime, a family history of cancer, good knowledge about cervical cancer, a positive attitude about cervical cancer screening, and a good perception about the benefit of cervical cancer screening showed a significant association with cervical cancer screening utilisation when adjusted for all other variables.

The odds of cervical cancer screening utilisation is 3.7 times more likely among women who had at least a secondary level of education than those who were unable to read and write (AOR 3.74, 95% CI 1.39–10.07). Similarly, the odds of cervical cancer screening utilisation is 4.5 times more likely among women who had an average monthly income of more than 1 000 ETB compared to those who had an average monthly income of less than 1 000 ETB (AOR 4.54, 95% CI 1.86–11.07). Those women

Table III: Knowledge, attitudes and perceived benefits of cervical cancer screening utilisation, as well as perceived severity of cervical cancer in Wolaita Zone, Sodo Town, 2022 (*n* = 551)

Variables	Categories	Count (n)	Per cent (%)
Knowledge	Poor	279	50.6
	Good	272	49.4
Do you think you are susceptible to cervical cancer	Yes	229	41.6
	No	322	58.4
Attitude	Favourable	220	39.9
	Not favourable	331	60.1
Perceived severity of cervical cancer	Severe	415	75.3
	Not severe	136	24.7
Perceived benefit of cervical cancer screening	Beneficial	295	53.5
	No benefit	256	46.5
Status of cervical cancer screening utilisation	Utilised cervical cancer screening	84	15.25
	Not utilised cervical cancer screening	467	84.75

who had a history of an STD in their lifetime were 2.9 times more likely to utilise cervical cancer screening than their counterparts (AOR 2.85, 95% CI 1.22–6.66). Those women who had a family history of cervical cancer were 4.4 times more likely to utilise cervical cancer screening than their counterparts (AOR 4.37, 95% CI 1.75–10.92).

The odds of cervical cancer screening utilisation are 2.5 times more likely among women who had good knowledge about cervical cancer and screening utilisation compared to those who do not have good knowledge about the screening utilisation (AOR 2.53, 95% CI 1.42–4.50). Similarly, the odds of cervical cancer screening utilisation are 2.5 times more likely among women who had a positive attitude than those who had a negative attitude about cervical cancer screening utilisation (AOR 2.50, 95% CI 1.34–4.66). Likewise, the odds of cervical cancer screening utilisation is 2.6 times more likely among women who perceived that cervical cancer screening has benefits compared to those who did not perceive any benefits thereof (AOR 2.60, 95% CI 1.45–4.67) (Table IV).

Discussion

Cervical cancer screening utilisation determined in this study was 15.2%, which is consistent with the study conducted in the Hadiya Zone, Hosanna Town (14.2%).¹² This finding is also consistent with studies conducted in Kenya (17.5%).¹³ However, this is higher than the studies done in Addis Ababa (12.79%)¹⁴ and DireDawa (4%).¹⁵ This might be due to differences in the study area, period or study participants. For example, in Addis Ababa, the local health extension programme made the community aware of the availability of the service, which might

Table IV: Factors associated with cervical cancer screening utilisation in Wolaita Zone, Sodo Town, 2020 (n = 551)

Variables	Category	Cervical cancer screening utilisation		COR (95% CI)	AOR (95% CI)	p-value
Average monthly income	< 1 000	20	145	1	1	
	1 001–2 000	16	148	0.78 (0.39–1.56)	1.36 (0.53–3.53)	0.524
	2 001–3 000	34	97	2.54 (1.38–4.67)	4.45 (1.86–11.07)	0.001
	> 3 000	14	76	1.33 (0.64–2.79)	3.56 (1.27–9.95)	0.015
Ever tested for HIV	Yes	39	143	1.96 (1.23–3.15)	2.48 (1.39–4.44)	0.002
	No	45	324	1	1	
Lifetime history of STD	Yes	21	66	2.03 (1.16–3.54)	2.85 (1.22–6.66)	0.015
	No	63	401	1	1	
Family history of cervical cancer	Yes	13	21	3.89 (1.87–8.12)	4.37 (1.75–10.92)	0.002
	No	71	446	1	1	
Knowledge	Poor knowledge	30	249	1	1	
	Good knowledge	54	218	2.06 (1.27–3.33)	2.53 (1.42–4.50)	0.002
Perceived benefit of cancer screening	Not beneficial	231	25	1	1	
	Beneficial	236	59	2.31 (1.40–3.82)	2.60 (1.34–4.66)	0.001
Attitude towards cancer screening	Negative attitude	201	20	1	1	
	Positive attitude	266	64	2.42 (1.42–4.13)	2.50 (1.34–4.66)	0.004

STD – sexually transmitted disease, AOR – adjusted odd ratio, COR – crude odd ratio

have contributed to the enhanced utilisation of the screening service.

In this study, the odds of cervical cancer screening utilisation were six times higher among women who were informed about cervical cancer and cervical cancer screening than those who were not informed by healthcare professionals. This finding is consistent with studies done in Uganda¹⁶ and the United States of America.¹⁷ This could possibly be explained by the fact that women who frequently visit health institutions may have better opportunities to discuss various health concerns regarding reproductive health with health professionals. This study indicated that the odds of cervical cancer screening utilisation are 2.5 times higher among women who had good knowledge about cervical cancer and cervical cancer screening compared to those who had poor knowledge. This can be explained by the fact that an increased awareness level of women regarding cervical cancer and cervical cancer screening enable them to analyse the risks and benefits of utilising the screening service, while simultaneously increasing their intention to utilise the screening service. This is consistent with studies done in Addis Ababa,¹⁸ Mekelle,¹⁹ and Botswana,²⁰ but lower than the finding of a study done in Hosanna Town.¹²

This study again showed that the odds of cervical cancer screening are 2.5 times more likely among women who had a positive attitude towards cervical cancer screening compared to those who had a negative attitude. This might be explained by the fact that when women's knowledge regarding cervical cancer screening is good their attitudes towards utilising the screening service increases, as well as the inverse.

This was also observed in other studies where negative attitudes towards screening services had a strong association with poor knowledge.¹² A similar finding was obtained in a study conducted in Adama²¹ [unpublished], while a study done in

the United Kingdom showed that the majority of women had a negative attitude towards cervical cancer screening.¹⁷

This study indicated that the odds of cervical cancer screening are 2.6 times higher among women who had a good perception about the benefits of cervical cancer screening (perceived benefits of cervical cancer screening) which indicates that the low uptake of cervical cancer screening among women in Sodo Town could be attributed to the perceived benefits of cervical cancer screening. A meta-analysis concluded that cervical cancer screening offers substantial protective benefits to women, especially when screening is done for women aged 30 years and older.^{22,23}

Strengths and limitations of the study

Use of a community-based data collection method with a valid and standardised instrument is a strength of this study. Conversely, this study cannot ascertain cause and effect relationships among variables which is a limitation.

Conclusion

According to this study, cervical cancer screening utilisation was low. Furthermore, respondents' educational level, monthly income, history of an STD, family history of cervical cancer, level of knowledge and attitude towards cervical cancer screening were found to be predictors. It was also indicated that more than half of the respondents have poor knowledge about cervical cancer screening utilisation, as well as poor perception about cervical cancer screening.

Conflict of interest

The authors declare no conflict of interest.

Funding source

No funding was received from anybody for this particular work.

Ethical approval and consent to participate

Ethical approval was obtained from the institutional review board (IRB) of Pharma Health Science College with ethical approval number (PMC/ERB/ECL/023/2019). Written informed consent was obtained from each study subject before the interview. A letter of cooperation was obtained from the health institution's medical director of the hospital and head of the respective health center. Confidentiality was maintained anonymously and not communicated for other purposes.

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