BMJ Public Health

Integrated cervical cancer screening uptake and associated factors among women attending primary care services at public health centres in Addis Ababa, Ethiopia: a multicentre cross-sectional study

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To cite: Kassa RN, Gelaye KA, Omigbodun A. Integrated cervical cancer screening uptake and associated factors among women attending primary care services at public health centres in Addis Ababa, Ethiopia: a multicentre cross-sectional study. *BMJ Public Health* 2024;**2**:e001511. doi:10.1136/bmjph-2024-001511

► Additional supplemental material is published online only. To view, please visit the journal online (https://doi.org/10.1136/bmjph-2024-001511).

Received 26 May 2024
Accepted 30 September 2024

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ABSTRACT

Background Cervical cancer (CC) is a major health problem in Ethiopia. Integrated healthcare approaches have been suggested as a way to increase access to and utilisation of screening services. Limited data exists on integrated CC screening (CCS) uptake at the primary care facilities where most women access healthcare. This study aimed to determine integrated CCS uptake and associated factors among women attending primary care services at health centres (HCs) in Addis Ababa, Ethiopia.

Methods A multicentred cross-sectional study design was conducted among 1366 women attending primary care services at HCs in Addis Ababa. A systematic random sampling method was used to reach the study participants. Sexually active women aged 30–49 years attending primary care services in HCs were included in the study. A multivariable logistic regression model, with Stata/MP V.17.0 software, was used to identify the factors associated with integrated CCS service utilisation at a p value<0.05. Findings were presented using adjusted OR (AORs) with 95% CI.

Result Only 15.6% (95% CI: 13.7 to 17.6) of women used the CCS that was integrated into the primary care services that they initially sought. Being single (AOR: 4.10; 95% CI: 2.19 to 7.68), divorced (AOR: 2.33; 95% CI: 1.04 to 5.21), attending college and above (AOR: 5.86; 95% CI: 2.32 to 14.79), being in the richest wealth index (AOR: 2.76; 95% CI: 1.46 to 5.22), husband's sexual behaviour (AOR: 6.8; 95% CI: 4.09 to 11.21), having a favourable attitude towards CCS (AOR: 2.24; 95% CI: 1.52 to 3.29) and visiting postnatal clinic (AOR: 8.06; 95% CI: 2.33 to 27.8) were associated with utilisation of CCS services, while preference of a specific gender of healthcare provider (HCP) (AOR: 0.04; 95% CI: 0.02 to 0.13) was associated with non-utilisation of CCS.

Conclusion The study found low integrated CCS uptake among women in Addis Ababa, influenced by factors like marital status, education, wealth, husband's sexual behaviour, attitude towards CCS, postnatal clinic visits and preferred gender of HCPs. Taking these factors into consideration by stakeholders could promote CCS utilisation.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Cervical cancer (CC) is a major health problem in Ethiopia. The WHO and Federal Ministry of Health (FMOH) launched integrating CC screening (CCS) into existing primary healthcare services as a strategy to improve access to and utilisation of screening services to tackle this burden.

WHAT THIS STUDY ADDS

⇒ Despite the introduction of integrated CCS service, the uptake of the service has remained low. Sociodemographic and institutional factors influenced the uptake of the service.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Stakeholders should consider the aforementioned factors to promote integrated CCS utilisation.

INTRODUCTION

Cervical cancer (CC) is the fourth most common cancer in women worldwide with 90% of the estimated 342 000 CC deaths in 2020 in low-income and middle-income countries like Ethiopia, where it ranks second most common cancer in adults.[1–3] Ethiopian women face high rates of precancerous lesions,[4] while many with CC are diagnosed late.[5 6]

On the contrary, CC screening (CCS) uptake is low among women in Ethiopia.[7–9] The prevalence of CCS among women who attended gynaecology outpatient and maternal and child health clinics, at Mettu Hospital in Ethiopia, was 29.9% in 2019.[8] A study in the Gurage zone, in 2020, indicated that a significantly lower number (3.8%) of women were screened, while a study in Dire

Dawa town showed that only 4.0% of women used CCS services in 2020, compared with 5.4% in Debre Markos town in 2020. Besides, only 25% of women in Addis Ababa had ever screened for CC in a study conducted in 2019,[10] while nearly two-thirds (60.4%) of them were diagnosed at an advanced stage.[5] Knowledge of CC and screening, sexual history, age, perceived susceptibility, getting advice from healthcare providers (HCPs), educational level and attitude towards CC and screening were determinant factors of CCS uptake.[7 8 10 11]

The WHO has recommended the 90–70–90 strategy, aiming to achieve global elimination of CC by 2030 through human papillomavirus vaccination, screening and treatment.[2 12 13] Ethiopia has also developed national guidelines that include the integration of CCS into existing healthcare services.[14–16] Integrating CCS service into the existing primary care services has plenty of benefits such as increasing the uptake of the screening service among women and preventing loss to follow-up, thus leading to decreased morbidity and mortality rates associated with the disease.[17–22] However, the national coverage of CCS and treatment for women aged 30–49 years hit only 5%.[15 23]

Ethiopia has organised its healthcare system into three tiers: primary, secondary and tertiary care facilities.[24] CCS service is being offered across all levels, with health centres (HCs) and primary hospitals expected to use visual inspection with acetic acid for screening as it is a promising alternative to cytology in a place where resources are limited. The initiative began in 2009 with screening available at 14 pilot hospitals for individuals with HIV. Later, it expanded to 25 healthcare facilities by 2014 to make it accessible to the general public.[15 25] Public HCs in Ethiopia play a crucial for maternal health services, serving as the first contact point and supporting the achievement of universal health coverage.[26–28] Hence, HCs have a role in addressing CC risk factors using integrated services and comprehensive guidelines established by the Ministry of Health.[15] Despite existing efforts, there is limited information available regarding the uptake of CCS integrated with existing primary care services in public HCs. Therefore, this study aimed to determine the uptake of integrated CCS services and associated factors among age-eligible women attending primary care services at public HCs in Addis Ababa, Ethiopia.

METHODS

Study area and period

The study was conducted in Addis Ababa, Ethiopia, from 5 September to 26 November 2023. Addis Ababa is the capital city of Ethiopia which has 11 sub-cities.[29] There are 102 HCs in Addis Ababa, and only 22 of them were providing CCS service in 2019.[30] Almost 17% of women in Addis Ababa were in the reproductive age group, out of which 40% of them were women aged 30–49 years.[31 32]

Study design

A multicentre cross-sectional study design was implemented.

Source population

All age-eligible and sexually active women visiting the HCs in Addis Ababa, Ethiopia.

Study population

All randomly selected sexually active women aged 30–49 years visiting selected HCs in Addis Ababa, Ethiopia.

Eligibility criteria

Sexually active women aged 30–49 years attending primary care services in selected HCs were included. Women with a full hysterectomy and serious illness, screened less than 3 years ago, pregnant and menstruating were excluded.

Sample size and sampling technique

A two-sided confidence level of 95%, 80% power, the ratio of unexposed to exposed and a non-response rate of 10% were considered to calculate the sample size. A design effect of 2 was considered, since a multistage sampling technique was used. An adjusted OR (AOR) of 4.45 was taken from a previous study,[33] which resulted in a sample size of 1368.

Four sub-cities with 14 HCs were randomly selected for this study (figure 1). The total number of sexually active age-eligible women who visited the HCs in the last months was 3906. Women were allocated to each HC based on previous client flow. A systematic random sampling technique was utilised to approach the study participants with a sampling interval of 3, K=3906/1368, ~3. A face-to-face interview was conducted, and the first woman to be interviewed was selected using the lottery method.

Data collection instrument

A face-to-face interview was conducted using a structured questionnaire which was developed based on literature review and related WHO standards.[33 34] Kobo Collect V.2023.2.4 was used to conduct the interview. The data collection tool included parts like sociodemographic characteristics, sexual and reproductive characteristics, knowledge and attitude towards CCS and items related to uptake of CCS. The tool used the health belief model (HBM) as a guiding framework to increase the validity and reliability of the tool. The model is formulated based on the theory that a person's willingness to change their health behaviours is primarily due to their health perceptions.[34 35]

Study variables

Integrated CCS service uptake was the dependent variable of the study, while the sociodemographic factors, reproductive health characteristics, knowledge about CC and CCS, attitude towards CC and CCS, recommendations from HCPs, etc were the independent variables.

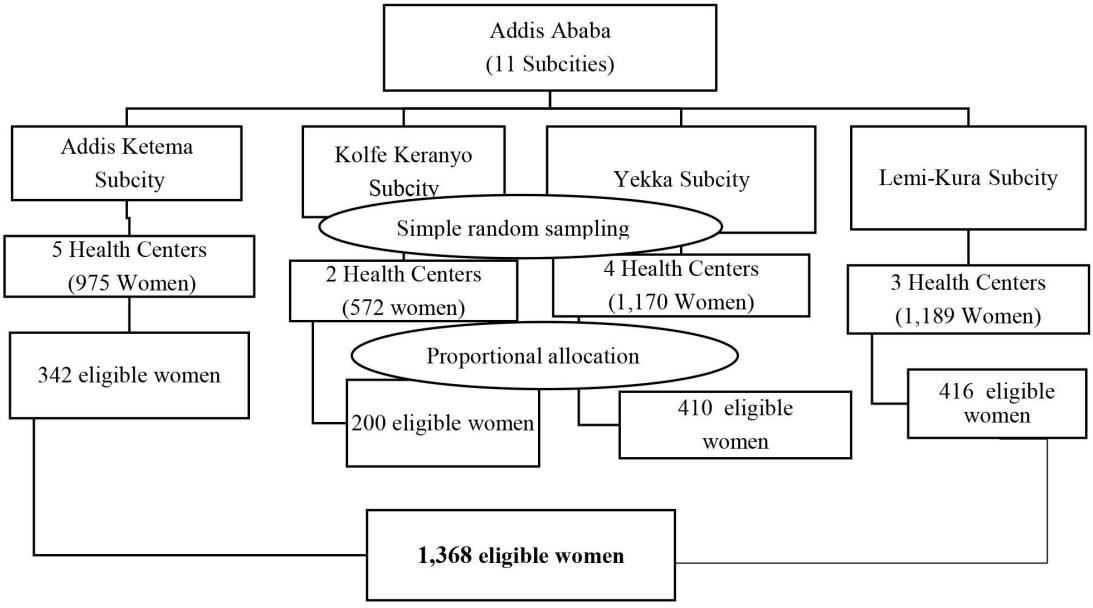

Figure 1 Schematic presentation of the sampling procedure of the study.

Operational definitions

CC: it is a type of cancer that arises in the cells of the cervix, which is the lower part of the uterus (womb) connecting to the vagina.[36]

CCS: it is the practice of identifying precancerous abnormalities or early indicators of CC, using visual inspection with acetic acid, in women who do not yet exhibit any symptoms.[37]

Integrated CCS service uptake: CCS services, which have been integrated into existing primary care services visits, received by eligible women with the HCPs initiation during the data collection period.[38 39]

HCs: public primary healthcare facilities that provide primary care services to populations of up to 40 000 in urban areas and serve as referrals for health posts.[24]

Primary care services: services that include family planning, postnatal care, immunisation, routine outpatient department (OPD) services and OPD for chronic illness follow-up.

Knowledge: we measured the level of knowledge using 14 questions, with a maximum score of 12 and a minimum score of 5. First, the mean score of knowledge of participants about CC was calculated, and the mean score was used to classify into good knowledge (those women who scored the mean and above the mean) and poor knowledge (those study participants who scored below the mean).[40 41]

Attitude: we used a Likert scale to assess the attitude with a scoring system ranging from strongly disagree to strongly agree. Accordingly, strongly disagree=1, disagree=2, neutral=3, agree=4 and strongly agree=5. The responses were summed, a total score was gained and the mean score was calculated. Participants who scored the mean and above the mean were considered as having a favourable attitude, while those women who scored below the mean value were labelled as having a non-favourable attitude.[42]

Data management

The quality of the data was assured by using a validated questionnaire, translation and retranslation of the questionnaire. The questionnaire was translated from English language to the local language, which is Amharic, and retranslated to English. A pretest was conducted on 5% of the total sample size, which comprised 68 eligible women, at Kolfe HC. The data was collected by trained health professionals with master of public health (MPH) degree. Besides, the principal investigator and skilled supervisors with MPH degrees managed the process.

Data analysis

Data from the Kobo collect V.2023.2.4 was imported to Stata/MP V.17.0 for analysis. Descriptive statistics like frequency, percentage, mean, SD, median and IQR were computed. Principal component analysis was performed to calculate the wealth index. A χ^2 test was also computed. A multivariable logistic regression analysis was used to identify factors associated with the uptake of integrated CCS. Bivariable logistic regression was conducted to identify the association between the outcome variable and independent variables separately. Variables with a p value<0.25 were included in multivariable logistic regression. A p value of <0.05 was considered to declare a statistically significant association. Results were presented with crude OR[22] and AOR with 95% CI. Variance inflation factor (VIF) analysis was used to check the multicollinearity, and variables with a VIF Score<5 were included in the final model analysis. Study findings were visualised using tables, figures and charts.

Table 1 Sociodemographic characteristics of women attending primary care services at health centres in Addis Ababa, Ethiopia, 2023

Variables	Responses	N (%)
Age (years)	Median (IQR)	34 (30–39)
Religion	Orthodox Christian	804 (58.86)
	Muslim	319 (23.35)
	Protestant	226 (16.54)
	Catholic	17 (1.24)
Marital status	Married	772 (56.52)
	Single	416 (30.45)
	Widowed	90 (6.59)
	Divorced	88 (6.44
Educational status	Cannot read and write	38 (2.78)
	Primary education	224 (16.40)
	Secondary education	443 (32.43)
	College and above	661 (48.39)
Occupational status	Private business	516 (37.77)
	Government employee	360 (26.35)
	Housewife	328 (24.01)
	Daily labourer	113 (8.27)
	Other*	49 (3.59)
Wealth index	Poorest	268 (19.62)
	Poorer	271 (19.84)
	Middle	284 (20.79)
	Richer	311 (22.77)
	Richest	232 (16.98)

*Student=33; vendor=15; and waitress=1.

RESULTS

Sociodemographic characteristics of the study participants

A total of 1366 age-eligible women, with 99.85% response rate, participated in this study. The median age of the respondents was 34 years,[27 29–37] while above half (53.22%) of the respondents were in the age group of 30–34 years. The pluralities (56.52%) of the women were married, while 38% of them were engaged in private business. Nearly half (48.4%) of the respondents had attended college and above. 6 out of 10 (58.86%) respondents followed Orthodox Christianity, followed by Muslims (23.35%) (table 1). Regarding the wealth index, most (22.77%) of the respondents were categorised in the richer category.

Sexual and reproductive health history of eligible women

The mean age at first sexual intercourse in the study participants was 22.18±3.86, while the mean age at menarche was 15.58±2.98. Almost one-third (30.53%) of the women had a history of abortion, whereas 53.88% of them used modern contraceptives. One-fifth (19.7%) of the study participants' husbands had more than one sexual partner. 8% of the women included in this study had a family history of CC and above half (52.17%) of the victims were dead (online supplemental material I).

Knowledge and attitude of participants about CC and screening

More than half (54.47%) of the respondents never heard of CC. Similarly, 52.03% of women included in this study did not know about the preventive measures of CC. Three-fourths (61%) of the study participants did not know that CC is curable at its earliest stage. Pluralities (56.88%) of the respondents had poor knowledge regarding CCS (table 2).

Attitude towards CCS based on the HBM

Three-fourth (66%) of women included in this study had low perceived susceptibility, while 55.6% of them had low perceived severity towards CC. 57% of the respondents had low perceived benefits, whereas 40% of them felt that they had high perceived barriers. Besides, only 21.9% of the study participants felt they were confident to get screened if they were well informed about CC and CCS. Eventually, more than half (54.76%) of the study participants had an unfavourable attitude towards CCS.

Uptake of integrated CCS service

CCS uptake was 15.59% (95% CI: 13.71 to 17.62) among women attending other primary care services at HCs in Addis Ababa. The service utilisation was higher among women between the age of 35 and 39 years, followed by 30 and 34 years, 20.91% and 15.13%, respectively. Most (45.90%) of the women included in this study visited OPD for chronic illness follow-up, followed by a family planning clinic (22.11%). The highest number (44.44%) of women who visited the postnatal clinic were screened for CC, while the childhood immunisation clinic had the least number (8.85%) of women who got screened.

The integrated CCS uptake was higher among women attended at HCs found in Lemikura sub-city (21.63%), followed by Addis Ketema sub-city (16.37%) compared with the rest three sub-cities. The service was relatively higher among women who visited Mikeliland and Hidase HCs, 30.69% and 27.83%, respectively (table 3).

Factors associated with integrated CCS service uptake

In the bivariable analysis, age, marital status, educational status, occupation, wealth index, having more than one sexual partner by the husband, a family history of CC, preference of HCP, preference of sex of HCP, attitude towards CC and CCS and type of visited primary care clinic were significantly associated variables. After adjusting these variables in the multivariable analysis, marital status, educational status, wealth index, having more than one sexual partner by the husband, a family history of CC, preference of HCP, preference of sex of HCP, attitude towards CC and CCS and visited primary care clinic were significantly associated with uptake of integrated CCS among age-eligible women in Addis Ababa, Ethiopia.

Table 2 Cervical cancer (CC) and CC screening (CCS) knowledge of women attending primary care services at health centres in Addis Ababa, Ethiopia, 2023

Variables	Responses	N (%)
Ever heard of CC	No	744 (54.47)
	Yes	622 (45.53)
Source of information (n=622)	Media	365 (58.68)
	Broachers and printed materials	22 (3.54)
	Health professionals	433 (69.61)
	Family, friends and neighbours	139 (22.35)
	Magazine	11 (1.77)
	Other*	2 (0.32)
Causative agent	Virus	380 (27.18)
	I do not know	980 (72.83)
Symptoms of CC	No	810 (59.30)
	Yes	556 (40.70)
Symptoms of CC (n=556)	Vaginal bleeding	435 (78.24)
	Foul smelling	376 (67.63)
	Postcoital bleeding	148 (26.62)
Knowledge of risk factors of CC	No	940 (68.81)
	Yes	426 (31.19)
Risk factors (426)	Having multiple sexual partners	334 (78.40)
	Early sexual intercourse	230 (53.99)
	Cigarette smoking	50 (3.66)
	I do not know	13 (3.05)
Preventive measures	Avoid multiple sexual partners	265 (19.40)
	Avoid early sexual intercourse	204 (14.93)
	HPV vaccination	438 (32.06)
	Early CCS	202 (14.79)
	Quit cigarette smoking	50 (3.66)
	I do not know	768 (56.22)
CC is curable at the earliest stages	No	63 (4.61)
	Yes	475 (34.77)
	I do not know	757 (60.75)
Knowledge of treatment for CC (n=1371)	Surgery	317 (23.21)
	Chemotherapy	371 (27.16)
	Radiotherapy	39 (2.86)
	I do not know	776 (56.81)
Knowledge of CCS service exists	No	766 (56.08)
	Yes	600 (43.92)
Knowledge of the frequency of CCS	Once every 5 years	42 (3.07)
	Once every 3 years	272 (19.91)
	Once every year	127 (9.30)
	Once every 6 months	116 (8.49)
	I do not know	809 (59.22)
Knowledge of CC and CCS	Poor knowledge	777 (56.88)
	Good knowledge	589 (43.12)

*Formal education=2.
HPV, human papillomavirus.

Accordingly, single and divorced women were times four times (AOR: 4.41; 95% CI: 2.19 to 7.68) and two times (AOR: 2.34; 95% CI: 1.04 to 5.21), respectively, more likely to get screened compared with married ones. Women who attended college and above had six times (AOR: 5.86; 95% CI: 2.32 to 14.79) higher chance of getting the screening service compared with women who attended primary school. Regarding the wealth index, the richest women were three times (AOR: 2.76; 95% CI: 1.46 to 5.22) more likely to use the service compared with richer ones. Those women whose husband had more than one sexual partner had seven times (AOR: 6.78; 95% CI: 4.09 to 11.21) higher odds of getting CCS service compared with their counterparts.

Women who had a family history of CC had nine times (AOR: 9.03; 95% CI: 5.03 to 16.21) higher odds of the screening service uptake. Besides, women who had a favourable attitude towards CC and CCS were two times (AOR: 2.24; 95% CI: 1.52 to 3.29) more likely to have the screening service, whereas women who had visited postnatal clinic had eight times (AOR: 8.06; 95% CI: 2.33 to 27.83) higher odds of using the screening service.

Additionally, women who preferred another HCP than the HCP who attended them in the first primary care clinic had three times (AOR: 3.77; 95% CI: 2.46 to 5.79) higher odds of using the screening service. On the other hand, women who favoured male HCPs for CCS were found to have a 95.5% lower likelihood (AOR: 0.039; 95% CI: 0.013 to 0.115) of using the service compared with their counterparts (table 4).

DISCUSSION

This study revealed that the uptake of integrated CCS among age-eligible women was low (15.59%; 95% CI: 13.70% to 17.62%) in Addis Ababa, Ethiopia. Marital status, educational status, wealth index, number of sexual partners of the husband, a family history of CC, attitude

Table 3 Integrated cervical cancer screening (CCS) uptake by selected variables among women who visited health centres (HCs) in Addis Ababa, Ethiopia, 2023

Variables	Integrated CCS uptake		P value
	No (n (%))	Yes (n (%))	
Age (years)			
30–34	617 (84.87)	110 (15.13)	
35–39	261 (79.09)	69 (20.91)	0.002
40–44	158 (86.34)	25 (13.66)	
45–49	117 (92.86)	9 (7.14)	
Name of sub-cities			
Addis Ketema	286 (83.63)	56 (16.37)	
Kolfe Keranio	184 (92.93)	14 (7.07)	<0.001
Lemi Kura	326 (78.37)	90 (21.63)	
Yeka	357 (87.07)	53 (12.93)	
Name of HCs			
Addis Ketema	82 (94.25)	5 (5.75)	
Alembank	81 (91.01)	8 (8.99)	
Amoraw	133 (81.60)	30 (18.40)	
Entoto number 2	82 (98.80)	1 (1.20)	
Hidase	83 (72.17)	32 (27.83)	
Keranio	103 (94.50)	6 (5.50)	
Kuasmeda	48 (84.21)	9 (15.79)	< 0.001
Meri	110 (79.71)	28 (20.29)	
Mikileland	70 (69.31)	31 (30.69)	
Millennium	39 (86.67)	6 (13.33)	
Woreda 3	47 (90.38)	5 (9.62)	
Woreda 4	77 (78.57)	21 (21.43)	
Woreda 7	96 (81.36)	22 (18.64)	
Yeka HC	102 (91.89)	9 (8.11)	
Visited clinic			
Family planning	237 (78.48)	65 (21.52)	
Immunisation	175 (91.15)	17 (8.85)	
Routine OPD	182 (83.49)	36 (16.51)	<0.001
OPD for chronic illness	544 (86.76)	83 (13.24)	
PNC	15 (55.56)	12 (44.44)	

OPD, outpatient department; PNC, postnatal clinic.

towards CC and CCS, preferred HCPs and preferred sex of HCPs were the significantly associated factors with CCS in this study.

The finding of this study was comparable to those conducted at Jimma (13.5%) and Sidama (17.8%) zones in Ethiopia.[33 43] However, it was higher than what was found in Butajira (2.3%), Wolaita (3.8%), Dire Dawa (4%), Debre Markos (5.4%) and Shabadino district (10.3%).[33 44–47] This could be due to the difference in design and the place where the studies had been conducted. Most of the previous studies were in rural areas where poor information sources and poor infrastructure are available.

In relation to this, the present study was found to be higher than what was found in other countries like in Uganda (4.8%) and Pakistan (5.9%).[48 49] The disparity might be due to difference in study period, study settings and way of delivering CCS in terms of payment. Because, 64% of women included in a study done in Pakistan revealed that they would have used the service if the service was given without payment, whereas women in the present study had 100% chance of getting CCS without financial cost.[15]

In contrast, the present study reported a lower integrated CCS service uptake compared to other studies in Uganda where the acceptability of integrated CCS among women with HIV and women attending childhood immunisation clinic reached 64.5% and 91.4%, respectively.[50 51] This might be due to the statistically significant association of perceived risk and benefit towards CC and CCS in the prior study, while these variables were not significantly associated in the present study. The additional reason for this could be 100% of eligible women in studies conducted in Uganda were recommended to have CCS, while only 37% of women were recommended to have the screening service in the present study, which could contribute to the lower uptake.

Besides, other studies done in Ethiopia like in Mekelle (19.8%), Debre Tabor (20.1%), Debre Markos (20.9%), Wolaita (22.9%), Gurage zone (30.5%), Adigrat (38.1%), Gomma district (38.7%) and Hawassa (40.1%)[42 52–58] showed higher prevalence rate of CCS uptake compared with the present study. The difference for this could be because of the finding, which suggests that a significant proportion of women (62.28%) in the present study were not recommended to have the screening service. Besides, most of the other studies focused on the lifetime experience of CCS utilisation which could contribute to the higher utilisation of CCS, while the current study directed only to women's CCS experience during the data collection period.

Additionally, the present study revealed lower utilisation of CCS compared with international studies in Nigeria (22.9%), Saudi (26%), Malaysia (27.2%), Kenya (35.6%), Nigeria (39.4%), Bahrain (40.7%), Kenya (44%), German (50.1%), South Africa (52.0%), Tanzania (64%) and Texas (82%).[59–69] The variation could be due to the difference in study setting and level of awareness about CC and CCS among women who participated across the studies. Additionally, 43.8% of women included in the present study were unaware of the place where CCS is available in the HCs, which may have contributed to the lower uptake. This is supported by a study done in Jamaica where women who did not know where to go for screening were 85% less likely to have CCS service[70]; furthermore, a study conducted in Uganda also confirmed that those who knew where CCS services were provided were six times more likely to have undergone the procedure.[48]

Table 4 Factors associated with integrated cervical cancer screening (CCS) uptake among age-eligible women attending primary care services in Addis Ababa, Ethiopia, 2023

Variable	Integrated CCS uptake, n (%)		COR (95% CI)	AOR (95% CI)
	Yes	No		
Marital status				
Married	103 (13.34)	669 (86.66)	1	1
Single	85 (20.43)	331 (79.57)	1.67 (1.216 to 2.28)*	4.10 (2.19 to 7.68)
Widowed	9 (10.00)	81 (90.00)	0.72 (0.35 to 1.48)	2.26 (0.87 to 5.89)
Divorced	16 (18.18)	72 (8182)	1.44 (0.81 to 2.57)	2.34 (1.04 to 5.22)
Educational status				
Cannot read and write	4 (10.53)	34 (89.47)	2.27 (0.68 to 7.56)*	1.16 (0.21 to 6.31)
Primary education	11 (4.91)	213 (95.09)	1	1
Secondary education	53 (11.96)	390 (88.04)	2.63 (1.34 to 5.14)*	2.17 (0.87 to 5.42)
College and above	145 (21.94)	516 (78.06)	5.44 (2.88 to 10.25)*	5.86 (2.32 to 14.79)†
Wealth Index				
Poorest	34 (12.69)	234 (87.31)	0.63 (0.40 to 1.00)*	1.87 (0.75 to 4.65)
Poorer	36 (13.28)	235 (86.72)	0.67 (0.42 to 1.05)*	1.92 (0.93 to 3.98)
Middle	40 (12.99)	244 (85.92)	0.71 (0.46 to 1.11)*	1.79 (0.98 to 3.26)
Richer	58 (18.65)	253 (81.35)	1	1
Richest	45 (19.40)	187 (80.60)	1.04 (0.68 to 1.62)	2.76 (1.45 to 5.22)†
Sexual partner of the husband				
No	113 (10.29)	985 (89.71)	1	1
Yes	100 (37.31)	168 (62.69)	5.18 (3.78 to 7.11)*	6.78 (4.09 to 11.21)†
Family history				
No	138 (14.37)	822 (85.63)	1	1
Yes	56 (48.70)	59 (51.30)	5.65 (3.76 to 8.49)*	9.03 (5.03 to 16.20)†
I do not know	19 (6.53)	272 (93.47)	0.42 (0.25 to 0.68)*	0.89 (0.48 to 1.63)
Attitude towards CC and CCS				
Unfavourable attitude	77 (10.29)	671 (89.71)	1	1
Favourable attitude	136 (22.01)	482 (77.99)	2.45 (1.81 to 3.32)*	2.2 (1.52 to 3.3)†
Visited clinic				
Family planning	65 (21.52)	237 (78.48)	2.82 (1.599 to 4.98)	1.36 (0.63 to 2.95)
Immunisation	17 (8.85)	175 (91.15)	1	1
OPD	36 (16.51)	182 (83.49)	2.03 (1.10 to 4.98)*	1.42 (0.60 to 3.31)
Chronic illness OPD	83 (13.24)	544 (86.76)	1.57 (0.91 to 2.71)*	1.30 (0.63 to 2.67)
Postnatal care	12 (44.44)	15 (55.56)	8.23 (3.32 to 20.41)*	8.06 (2.33 to 27.83)†
Preferred HCP				
Another HCP	145 (25.80)	417 (74.20)	3.76 (2.75 to 5.14)*	3.77 (2.45 to 5.79)†
The same HCP	68 (8.46)	736 (91.54)	1	1
Preferred sex of HCP				
Female	209 (19.44)	866 (80.56)	1	1
Male	4 (1.37)	287 (98.63)	0.057 (0.02 to 0.15)*	0.039 (0.013 to 0.11)†

*Shows statistically significant variables.
AOR, adjusted OR; COR, crude OR; HCPs, Healthcare providers; OPD, outpatient department.

This study showed that single and divorced women were approximately four and two times more likely to get screened, respectively, compared with married women. This may be because unmarried and divorced women might perceive themselves to be more susceptible to CC, leading them to actively seek out screening services. This may be also attributed to higher autonomy among single women in decision-making regarding their own health.

Similarly, a study in Wolaita reported higher screening uptake among unmarried women, highlighting the importance of marital status as a determinant of CCS utilisation.[42 69] In the contrary, other studies conducted in Ethiopia, Kenya and Texas revealed that the odds of CCS were lower among single women.[58 63 68] In general, this finding is supported by previous literature which has shown that marital status can influence healthcare-seeking behaviour.[61]

Educational level also had a significant association with the uptake of CCS services in this study. Women who attended college and above had six times higher chance of getting screened compared with women who attended primary school. This finding is consistent with previous studies that have shown a positive association between educational level and health-seeking behaviour.[42 55 58 63 66 71–73] This could be because women with higher educational attainment may have a better understanding of the importance of CCS and the benefits it can provide, leading to higher uptake of the service.

The present study also revealed that wealth index was found to be associated with CCS uptake. Richest women were 2.8 times more likely to use CCS compared with those who were merely richer. This could be due to the fact that being in the highest socioeconomic status plays a significant role in healthcare utilisation. Additionally, majority (80.56%) of women in the richest category in this study attended college and above, while 71.76% of them ever had heard about CC which could contribute to their knowledge about the benefits of CCS that in turn contributed to increased utilisation of the service. Previous studies[55 71] also found a positive association between higher socioeconomic status and increased utilisation of preventive services, including CCS.

The husband's sexual behaviour was another important factor associated with the uptake of CCS services. Women whose husbands had more than one known sexual partner had nearly seven times higher odds of getting screened compared with their counterparts who believed that their husbands had no other sexual partners. This may be due to the fact that women in such relationships may perceive themselves to be at a higher risk and therefore seek out screening services more actively.

Having a family history of CC was strongly associated with the uptake of screening services. Women with a family history of CC had nine times higher odds of using the screening service compared with those without a family history. This finding is supported by previous study conducted in Debre Markos where women who had a history of CC in their family were 4.95 times more likely to be screened as compared with their counterparts. The anticipated reason could be women with a family history may be more aware of the risk of CC and the importance of screening, leading to increased uptake of the service. The present study also confirmed that only 6% of families with a diagnosis of CC survived, which may prompt study participants with a family history of CC to undergo screening due to the high perceived threat of the disease.

Attitude towards CCS also played a significant role in the utilisation of screening services. Women who had a favourable attitude towards CCS were two times more likely to have the screening service compared with their counterparts. This finding highlights the importance of promoting positive attitudes and awareness about CCS among women to encourage uptake of the service. This is supported by previous studies conducted in different countries.[72 74 75]

Visiting a postnatal clinic was another factor associated with higher odds of using the screening service. This could be due to the fact that postnatal clinics provide an opportunity for HCPs to educate women about CC and the importance of screening during the postnatal period so that women attending these clinics may be more informed about the benefits of screening and therefore more likely to use the service. This is congruent with a previous study done in Nigeria, which revealed that postnatal clinic visit provides an effective opportunity for routine CC information and screening.[76]

HCP preference also had a significant impact on the utilisation of screening services. Women who preferred another HCP than the one who attended them in the first primary care clinic had nearly times higher odds of using the screening service. This finding suggests that women may have preferences for specific HCPs who they trust or feel more comfortable with.

This study also revealed that women who favoured male HCPs for CCS procedures were found to have a lower likelihood of using the service compared with their counterparts. This finding may reflect persistent preferences for female HCPs for intimate procedures. Addressing these issues and ensuring access to diverse gender preferences among HCPs may help increase the uptake of screening services among women who prefer male providers. This is supported by studies[69 77] which revealed female HCPs were more likely to ask new patients about components of prevention, to feel more personal responsibility for ensuring that their patients received screening and to report more comfort in performing CCS. Hence, differences in beliefs of male and female HCPs and patient preference for a female provider contribute to the higher rate of CCS among women who favoured female HCPs.

To sum up, the findings of the current research highlight the need for improvements in the integration of the CCS programme into primary care services as the initiative was introduced by both national and international stakeholders to boost uptake among women, ultimately leading to improved well-being and progress towards achieving the Sustainable Development Goals by 2030, particularly SDG 3.7, which aims to ensure universal access to sexual and reproductive healthcare services.[78]

Limitations

Recall bias and use of cross-sectional study design which hinders identifying the cause-and-effect relationships between variables are the limitations.

Conclusion

Integrated CCS uptake among women attending primary care services in HCs found in Addis Ababa was low. Marital status, educational level, wealth index, husband's sexual behaviour, a family history of CC, attitude towards CCS, type of visited primary care clinic, HCP preference and gender preference were the factors found to significantly influence the utilisation of the screening service

Recommendations

The uptake of CCS among women could be improved by escalating postnatal services in HCs, empowering women in socioeconomic status and considering spousal sexual behaviours. It is also important for healthcare facilities to take HCPs preferences into consideration to promote increased utilisation of CCS services.

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Acknowledgements We would like to thank African Union Commission and the Pan African University Life and Earth Science Institute for the support given by providing necessary materials while doing this study. We would also like to thank the directors of the health centres, data collectors and study participants.

Contributors RNK was in charge for developing the research concept, designing and conducting the study, drafting the proposal, collecting data, performing statistical analysis and writing the manuscript. AO and KAG provided approval for the proposal with revisions and contributed to drafting, writing, reviewing and approving the manuscript for publication. They also were actively involved in interpreting the data. All authors reviewed and approved the final version of the manuscript, accept full responsibility for the finished work and/or the conduct of the study, had access to the data and controlled the decision to publish. Yes, we have used AI to help me edit language error or grammar edition. In short, we used AI to check whether we wrote grammatically correct statements after narrating or writing texts in the manuscript in our own words if we feel discomfort with our English.

Funding This research was supported by the African Union Commission (with grant number PAULESI/1644), Addis Ababa, Ethiopia, through the Pan African University Life and Earth Science Institute, University of Ibadan, Nigeria.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval Prior to the beginning of the study, ethical clearance was obtained from the Institute for Advanced Medical Research and Training (IAMRAT), College of Medicine, University of Ibadan, with institutional review board number UI/EC/23/0037, and Addis Ababa Public Health Research and Emergency Management Directorate, with reference number A/A/H/13021/227. Permission letters were obtained from the selected sub-cities to access the HCs. Written informed consent was taken from the study participants. The anonymity of data was maintained throughout the study.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request.

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