



# Women's Satisfaction with Cervical Cancer Screening Services and Associated Factors in Maternal Health Clinics of Jimma Town Public Health Facilities, Southwest Ethiopia

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**Background:** Despite the existence of proven interventions for cervical cancer, low coverage and uptake of existing screening and treatment services remains the main challenge to prevention and control of cervical cancer in developing countries. This study aimed to assess women's satisfaction with cervical cancer screening services and factors associated with it in public health facilities of Jimma town, Southwest Ethiopia.

**Methods:** A facility-based cross-sectional study was conducted from March 20 to May 20, 2020. All women aged between 30 and 49 years who visited health facilities during the data collection period were interviewed consecutively. Composite variables were computed from existing data for satisfaction, knowledge, and attitude. A 95% confidence interval was constructed for all outcome variables and multivariate logistic regression was used to identify predictors of satisfaction.

**Results:** Out of 205 interviewed women, 41% (95% CI: 34–47) were satisfied with cervical cancer screening services. One-hundred and seventeen (57%, 95% CI: 50–64) women had good comprehensive knowledge of cervical cancer screening and 121 (59%, 95% CI: 52–66) had favorable attitude. Satisfaction with cervical cancer screening service was statistically associated with occupational status, religion, perceived length of waiting time to see a provider, and knowledge of cervical cancer.

**Conclusion:** Satisfaction with cervical cancer screening services was low in public health facilities of Jimma town. Slightly more than half of women had good knowledge and favorable attitude regarding cervical cancer screening. Among the clinical factors, only perceived length of waiting time to see a provider and women's knowledge of cervical cancer were statistically associated with satisfaction with screening services. Therefore, efforts should be made to improve level of satisfaction, knowledge and attitude of women toward cervical cancer and screening services.

**Keywords:** satisfaction, knowledge, attitude, cervical cancer screening, Ethiopia

## Introduction

Cervical cancer remains a major public health problem worldwide, ranking as the fourth most common cancer in women after breast cancer, colorectal cancer, and lung cancer. The global estimated age-standardized incidence rate (ASIR) of cervical cancer is 13.1 per 100,000 women and the rate varies among countries with a range of 2 to 75 per 100,000 women. In 2018 alone, there were 570,000 cases and 311,000 deaths worldwide, an increase of 8% in cases and 13% in deaths from

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2008. The majority of cervical cancer cases and deaths (84 to 90%) occur in low- and-middle income countries including South Africa, India, China, and Brazil. Cervical cancer was the leading cause of cancer-related death of women in eastern, western, middle, and southern Africa. It continues to affect middle-aged women particularly in low resource settings.<sup>1-3</sup>

Primary and secondary prevention of cervical cancer has been found to be an effective strategy in averting deaths attributed to it. Human papillomavirus vaccines (HPV) and early screening services followed by treatment of precancerous lesions are effective strategies. These measures are believed to attain Sustainable Development Goal target 3.4 which states “one-third mortality reduction from non-communicable diseases in 2030” through implementing World Health Organization 90-70-90 target related to cervical cancer. The 90-70-90 target aimed to reduced ASIR of cervical cancer to less than 4 per 100,000 women worldwide by vaccinating 90% of all girls by age 15 years, screening 70% of women twice in the age range of 35–45 years, and treating at least 90% of all precancerous lesions detected during screening.<sup>1,4-7</sup>

The various screening methods recommended by World Health Organization are pap smear test, visual inspection of the cervix with acetic acid (VIA) or Lugol’s iodine (VILI), and HPV testing. VIA is highly effective and affordable as a primary screening method for low resource settings.<sup>4,6</sup>

The low coverage of screening services coupled with low uptake by women are hindering efforts toward reducing mortality caused by cervical cancer in most developing countries.<sup>8,9</sup> Acceptability of screening services is low and vary widely across the different countries. In Ethiopia, the age standardized incidence rate of cervical cancer was 18.9/100,000 women<sup>10</sup> and mortality from cervical cancer was estimated as 18.4/100,000 women.<sup>11,12</sup> Cervical cancer is a major cause of mortality and morbidity of women aged 15–49 years. Uptake of cervical cancer screening services among eligible women was 13.46%<sup>12</sup> and among HIV-positive women was 18.17%.<sup>13</sup> Knowledge of cervical cancer and screening, history of multiple sexual partners, perceived susceptibility to cervical cancer, getting advice from health care provider, women’s educational level, and women’s attitude toward cervical cancer and screening were determinants of cervical cancer screening service uptake.<sup>12-14</sup>

Assessing satisfaction of women with cervical cancer and screening services has paramount importance

programmatically. Hence, this study primarily aimed to examine women’s level of satisfaction with cervical cancer screening services and factors affecting it in public health facilities of Jimma town, Southwest Ethiopia. It also assessed knowledge and attitude of women toward cervical cancer and screening services.

## Methods

### Study Setting and Period

The study was conducted in public health facilities of Jimma town administration. Jimma town is located 354 Km Southwest of Addis Ababa, the capital city of Ethiopia. Jimma town is one among the town administrations in Oromia region. In the town administration there were a total of 6 public health facilities (2 hospitals and 4 health centers) and more than 15 private clinics. Out of these, cervical cancer screening services were provided in two public health facilities (Jimma Medical Center and Jimma health center) and two other non-governmental organization clinics (Marie stoppe international clinic and family guidance association clinic).

Jimma Medical Center is one of the specialized referral hospitals in Ethiopia. It provides health services to the town and surrounding community, and teaching services to medical and health science students. Cervical Cancer Screening services using VIA approach was introduced in the health facilities of Jimma town in 2016. The service was provided free of charge. The study was conducted from March 21 to May 20, 2020.

### Study Design and Participants’ Selection

Facility-based cross-sectional study was conducted. All women aged between 30–49 years who had visited and received VIA services during the data collection period were eligible. Women who were critically ill were excluded from the study. We consecutively interviewed all women who met the eligibility criteria in both public health facilities.

### Data Collection

A structured data collection questionnaire was used. The questionnaire comprised sections such as women’s background characteristics, reproductive history, service characteristics, knowledge and attitude toward cervical cancer screening and satisfaction with services. The data collection questionnaire was adapted through review of relevant literature.<sup>12,15-18</sup> Satisfaction with services was measured

using a total of 14 items with Likert scale ranging from strongly dissatisfied to strongly satisfied. The questionnaire was originally prepared in English and then translated to local languages (Afan Oromo and Amharic) by experienced translators. A pretest was conducted in another hospital located around 70 Km from Jimma town.

Four data collectors who are health professionals with a qualification of degree and above were recruited and participated in data collection. Another health professional with similar qualification participated as supervisor. All data collectors and supervisors were previously trained on cervical cancer screening with VIA and had a minimum of one year experience in the service. Two-day training was given to data collectors and supervisor on research objectives, data collection instruments, data collection techniques, interview skills, ethical issue, how to manage the data collection process, and the mechanisms to monitor the quality of data.

Data were collected from each woman during their exit from services after obtaining their consent. The supervisor closely monitored the data collection process at field level and provided feedback to data collectors.

## Data Processing and Analysis

The completeness and consistency of data values were checked. Paper-based data were entered into Epidata version 3.1 and exported to SPSS version 25.0 for analysis. Data cleaning was done through running frequencies and coding of data variables was done as appropriate.

Data analysis progressed in the following way in which primarily we descriptively analyzed and presented women's characteristics, an outcome variable and other explanatory variables. Mean value was used as a cut-off point to categorize women as satisfied and dissatisfied on each item (women who scored greater than or equal to mean value were categorized as satisfied).

The main outcome variable was satisfaction with cervical cancer screening services and secondary outcome variables were knowledge and attitude. The main outcome variable (satisfaction with cervical cancer screening services) was measured using 14 satisfaction items each containing a five-point Likert scale (1=strongly dissatisfied, 2=dissatisfied, 3=neutral, 4=satisfied, 5=strongly satisfied) and two more items asking questions related to "women's willingness to continue treatment if tested positive" and "women's willingness to recommend cervical screening services to relatives or another family member". Using demarcation threshold formula [(Total highest score -

Total lowest score)/2] + Total lowest score; primarily we categorized women into two categories as dissatisfied (below cut-off value) and satisfied (above cut-off value) based on the 14 satisfaction items. Women who scored 42 points out of the total satisfaction measuring score and who showed agreement on the two additional items were categorized as satisfied. Whereas those women who scored less than 42 points and did not show agreement on the two additional items were grouped as dissatisfied.

Knowledge of cervical cancer was measured using 16 items and three main categories: knowledge of preventability of cervical cancer (1 item); knowledge of risk factors (7 items) and knowledge of symptoms (8 items). The knowledge responses were coded as: "1=Yes and 0=No". We computed the sum of the 16 scored items. Women who correctly responded to knowledge items above the median value ( $\geq 4.0$ ) were classified as having "GOOD Knowledge" and those who responded less than the median value ( $< 4.0$ ) were categorized as having "POOR Knowledge".

Attitude was measured using 14 items each containing 5-point Likert scale alternatives (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). Each of the attitude items were recoded as "1=strongly agree", "1=agree", "0=not sure or undecided", "0=disagree" and "0=strongly disagree". We computed the sum of 14 scored items. Women who responded to attitude items above the median value ( $\geq 7.0$ ) were categorized as having "FAVORABLE Attitude" and less than median value ( $< 7.0$ ) as "UNFAVORABLE Attitude".

We computed a 95% confidence interval to the outcome variable and some of the explanatory variables.

Bivariate logistic regression was used to identify associated and candidate variables to multivariate logistic regression analysis. In the multivariate logistic regression, P-value  $< 0.05$  and 95% confidence interval were used to declare the presence of statistically significant associations between main outcome variable and explanatory variables.

## Ethical Consideration

Research ethical clearance was obtained from Jimma University Institute of Health research ethics committee (Reference number: IRB00051, March 2020). The research was conducted according to the Declaration of Helsinki. The research aim, benefits, and risks were explained to each research participant. Following this, written informed consent was obtained from participants. No personal identifiers were recorded and codes were used

on each questionnaire. Paper-based data were kept in a locked cabinet and computer-based data were secured with confidential password. Research data will only be used for the intended aim and not shared with a third person.

## Results

### Socio-Demographic, Economic, and Reproductive Characteristics of Women

A total of 205 women in the age range of 30–49 years participated in the study. The average age of women was 35 years (SD 4.3). The majority of women were in the age range of 30–34 years (48%) followed by 35–39 years (37%). More than three-fourths (78%) of women were married and half (52%) of them were Muslim religion followers. More than one-third of women had secondary (38%) and tertiary (35%) educational status, and the majority (77%) of women were urban residents.

Regarding the reproductive history, six out of ten women had 2–4 children (62%) and one sexual partner in their life time (61%). Slightly more than one-third (34%) of women had life history of sexually transmitted infections (STI) and one in ten of them (12%) had family history of cervical cancer. More than two-thirds (72%) of women had ever used modern contraceptive methods and 83% ever heard about cervical cancer. Their main source of information of cervical cancer was health professionals (43%) followed by television (32%).

In the health facilities, more than half of women perceived that the length of waiting time to get medical records was “medium” (54%) and the length of time to see a provider was “long” (55%). Average length of waiting time to see a provider was 25 minutes (SD 20). Whereas, nearly six in ten (59%) women perceived that the length of consultation time with provider was “medium”. Nine in ten (89%) women had received health education on cervical cancer during their current visit to the study health facilities (Table 1).

### Knowledge and Attitude

Only 17% of women knew that cervical cancer was preventable. Less than half of women had knowledge of the main risk factors of cervical cancer including having multiple sexual partners, previous family history of cervical cancer, smoking, STI, oral contraceptives and initiation of early sexual intercourse. One-third of women (31%) had replied that cervical cancer has no symptoms. Overall,

57% (95% CI: 50–64) of women had comprehensive, good knowledge of the risk factors and symptoms of cervical cancer (Table 2).

More than six out of ten women (64%) believed that they were too old to have cervical cancer examination regularly, and nearly six out of ten (59%) women thought that cervical cancer threatens their relationships and having cervical cancer exam was painful, respectively. Half of women were ashamed to sit or lie down on a gynecologic examination table and 56% of them preferred a female health worker for cervical cancer exams. Overall, nearly six in ten (59%, 95% CI: 52–66) women had favorable attitude toward cervical cancer and screening services (Table 3).

### Satisfaction

More than six out of ten women were satisfied with the clarity of provider explanation about cervical cancer, their interaction with providers, overall services provided, explanation given by provider on problem and the services given, VIA screening test experience, and consultation time with provider with satisfaction rate ranging from 60% to 69%. Eighty-two percent of women wanted to continue treatment if VIA tested positive and most (96%) of them recommended that relatives and others attend screening services given at the health facilities. The overall satisfaction of women with cervical cancer screening services was 41% (95% CI: 34–47) (Table 4).

### Factors Associated with Satisfaction

In the bivariate logistic regression, marital status, educational status, occupation, religion, age at first sexual intercourse, ever heard about cervical cancer, distance from health facility, length of waiting time to get medical records, length of time to see provider, length of consultation time and knowledge of cervical cancer were candidate variables for multiple variable logistic regression with  $P\text{-value} < 0.25$ . In the multivariate logistic regression, occupational status, religion, perceived length of waiting time to see care provider, and knowledge of cervical cancer were significantly associated with women's satisfaction with cervical cancer screening services.

The interpretation of statistically significant explanatory variables follows. Satisfaction with cervical cancer screening services was 74% (AOR=0.26; 95% CI 0.09–0.79) less likely among women who were merchants compared to housewives. The odds of cervical cancer screening service satisfaction were three times more likely among protestant

**Table 1** Characteristics of Women at Public Health Facilities of Jimma Town, Southwest Ethiopia, 2020

Variables	Frequency (N=205)	Percent (%)
Age in years		
30–34	99	48
35–39	75	37
40–44	21	10
45–49	10	5
Marital status		
Married	161	78
Divorced or separated	26	13
Widowed	18	9
Religion		
Muslim	107	52
Orthodox or catholic	65	32
Protestant	33	16
Educational status		
No education	16	8
Primary	39	19
Secondary	78	38
Tertiary	72	35
Occupation		
Housewife	105	53
Merchant	27	14
Daily laborer	13	6
Government employee	60	30
Residence		
Urban	157	77
Rural	48	23
Ever given birth	200	98
Number of living children		
0–1 child	43	21
2–4 children	126	61
5 and above children	36	18
Lifetime number of sexual partners		
One partner	125	61
Two and more partners	80	39
Mean age at first sexual intercourse in years (Mean $\pm$ SD)	17.96 $\pm$ 2.34	
Age at first sexual intercourse		
<20 years	149	73
20 years and above	56	27
Average monthly earnings in Ethiopia Birr (ETB) (Mean $\pm$ SD)	3578.8 $\pm$ 2347.8	
Ever tested for HIV	172	84
Lifetime history of sexually transmitted infections (STI)	70	34

(Continued)

**Table 1** (Continued).

Variables	Frequency (N=205)	Percent (%)
Family history of cervical cancer	24	12
Ever used any modern contraceptive methods	148	72
Types of contraceptives used (N=148)		
Oral contraceptive	17	12
Injectable	67	45
Implant	49	33
Intra-uterine contraceptive device (IUCD)	15	10
Ever heard about cervical cancer	171	83
Source of cervical cancer information (N=171)		
Radio	22	13
Television	55	32
Health professional	73	43
Relative	21	12
Mechanisms of health facility visit		
On foot	44	21
Taxi	101	49
Private vehicle	25	12
Bajaj	8	4
Other	27	13
Average distance to health facility		
<10 Kilometers	110	54
$\geq$ 10 Kilometers	95	46
Perceived length of waiting time to get medical records at medical record unit		
Long	69	34
Medium	110	54
Short	26	13
Average length of waiting time to see a provider in minutes (Mean $\pm$ SD)	24.84 $\pm$ 20.35	
Perceived length of waiting time to see provider		
Long	112	55
Medium	65	32
Short	28	14
Perceived length of consultation time with the provider		
Long	52	25
Medium	122	59
Short	31	15
Received health education on cervical cancer screening services	183	89

women than Muslim women (AOR=3.04; 95% CI 1.09–8.51). Satisfaction with cervical cancer screening services was nearly three times (AOR=2.90; 95% CI 1.36–6.20) more likely among women who perceived length of waiting time to see



**Table 2** Knowledge of Women of the Risk Factors and Symptoms of Cervical Cancer at Public Health Facilities of Jimma Town, Southwest Ethiopia, 2020

Knowledge Items	Frequency (N=205)	Percent (%) (95% Confidence Interval)
Cervical cancer is preventable	35	17(12–23)
Risk factors		
Having many/multiple sexual partners is a risk factor for cervical cancer	89	43(37–50)
Having a previous family history is a risk to cervical cancer	85	41(35–48)
Smoking is a risk factor for cervical cancer	48	23(18–30)
Sexually transmitted infections is a risk factor for cervical cancer	62	30(24–37)
Oral contraceptive pill (OCP) use is a risk factor for cervical cancer	43	21(16–27)
Early sexual intercourse is a risk factor for cervical cancer	73	36(29–42)
Symptoms		
Cervical cancer has no symptoms	64	31(25–38)
Vaginal bleeding is a symptom of cervical cancer	61	30(24–36)
Post-coital vaginal bleeding is a symptom of cervical cancer	35	17(12–23)
Foul offensive vaginal discharge is a symptom of cervical cancer	58	28(22–35)
Painful coitus is a symptom of cervical cancer	34	17(12–22)
Irregular vaginal bleeding is a symptom of cervical cancer	46	22(17–29)
Fever is a symptom of cervical cancer	23	11(7–16)
Pelvic pain is a symptom of cervical cancer	131	64(57–70)
Weight loss is a symptom of cervical cancer	56	27(22–34)
Overall knowledge		
Good comprehensive knowledge	117	57(50–64)
Poor comprehensive knowledge	88	43(36–50)

**Table 3** Attitude of Women toward Cervical Cancer and Screening Services at Public Health Facilities of Jimma Town, Southwest Ethiopia, 2020

Attitude Items	Frequency (N=205)	Percent (%) (95% Confidence Interval)
My chance of getting cervical cancer in the next few years is high	83	40(34–47)
I feel I will get cervical cancer sometime during my life	70	34(28–41)
The thought of cervical cancer scares me	99	48(42–55)
Problems I would experience with cervical cancer would last a long time	95	46(40–53)
Cervical cancer would threaten a relationship with my boyfriend, husband or partner	122	59(53–66)
If I developed cervical cancer, I would not live longer than 5 years	99	48(42–55)
Having cervical cancer exams takes too much time	97	47(41–54)
Having cervical cancer exam is too painful	122	59(53–66)
Health care workers doing cervical cancer exams are rude to women	82	40(34–47)
I have other problems more important than having cervical cancer exams in my life	91	44(38–51)
I am too old to have cervical cancer exams regularly	131	64(57–70)
There is no health care center close to my house to have cervical cancer exams	107	52(45–59)
I prefer a female health worker to conduct cervical cancer exams	114	56(49–62)
I would be ashamed to sit or lie down on a gynecologic examination table and show my private parts during cervical cancer exams	102	50(43–57)
Overall attitude		
Favorable attitude	121	59(52–66)
Unfavorable attitude	84	41(34–48)

**Table 4** Satisfaction of Women with Cervical Cancer Screening Services at the Public Health Facilities of Jimma Town, Southwest Ethiopia, 2020

Variables	Frequency (N=205)	Percent (%) (95% Confidence Interval)	Mean $\pm$ SD
Satisfaction with –			
Clarity of the explanation given by provider on screening services for cervical cancer	134	65(59–72)	3.3 $\pm$ 1.2
Cleanliness of the cervical cancer service room	91	44(38–51)	3.1 $\pm$ 1.2
Visual privacy during examination	106	52(45–59)	3.3 $\pm$ 1.2
Auditory privacy during the discussion time	91	44(38–51)	3.3 $\pm$ 0.9
Waiting time to see a provider	83	40(34–47)	3.2 $\pm$ 1.2
Length of consultation time	110	54(47–60)	3.4 $\pm$ 1.2
Respect shown by health care providers during interactions or discussing problems/ concerns about cervical cancer	141	69(62–75)	3.8 $\pm$ 1.0
Overall services provided	135	66(59–72)	3.4 $\pm$ 1.2
Explanation given by providers about treatment	125	61(54–68)	3.5 $\pm$ 1.2
VIA screening test experience	123	60(53–67)	3.3 $\pm$ 1.4
Service hours and days of screening unit	132	64(58–71)	3.6 $\pm$ 1.3
Having cryotherapy at the same site as VIA	164	80(74–85)	3.8 $\pm$ 1.0
Women want to/are willing to –			
Continue the treatment if VIA positive	169	82(77–87)	
Recommend that relatives and others should attend screening services in the same facility	197	96(93–98)	
Women's satisfaction with cervical cancer screening services			
Satisfied	83	41 (34–47)	
Dissatisfied	122	59 (53–66)	

a provider as “medium” compared to those who perceived the waiting time as “long”. The odds of screening service satisfaction were 53% (AOR=0.47; 95% CI 0.23–0.97) less likely among women who had good knowledge of cervical cancer compared to those who had poor knowledge (Table 5).

## Discussion

The study has shown that overall satisfaction with cervical cancer screening and follow-up services among women aged 30–49 years was 41%. More than half of women had good comprehensive knowledge and favorable attitude toward cervical cancer screening. In this study, occupational status, religion, perceived length of waiting time to see a provider, and knowledge of cervical cancer were identified as predictors of women's satisfaction with cervical cancer screening services. We found no evidence that women's level of satisfaction with the cervical cancer screening services was associated with attitude toward cervical cancer.

The level of satisfaction reported in the study area was lower than in other studies done in different parts of the world.<sup>16–21</sup> The variation may be related to the contextual

differences and the satisfaction components considered. In the study area, majority of women were willing to continue treatments if tested positive and recommended cervical cancer services to relatives or parents. The least satisfaction was related to service accommodation and convenience which was consistent with the finding reported in another study.<sup>21</sup> Patient satisfaction is an important determinant of service uptake, adherence, and retention. It is also an important health system outcome. Poor satisfaction with available services will result in patients having a low level of trust in services and thus, low uptake and poor outcomes.<sup>22</sup>

Greater than half of women had good comprehensive knowledge of signs and symptoms, and risk factors of cervical cancer. This finding was better than that of a study conducted in Nigeria,<sup>23,24</sup> India,<sup>25</sup> and Nepal<sup>26</sup> and lower than that of a study conducted in Zimbabwe<sup>27</sup> and Democratic People's Republic of Korea.<sup>28</sup> The finding was also better than that of a study conducted in Adigrat town, Northern Ethiopia (46.4%), Wolayita zone hospitals (43.1%), and Gondar town, Northern Ethiopia (19.9%)<sup>15,29,30</sup> and comparable to a study conducted in

**Table 5** Factors Associated with Women's Satisfaction with Cervical Cancer Screening Services at Public Health Facilities of Jimma Town, Southwest Ethiopia, 2020

Variables	Satisfied (n, %)	Dissatisfied (n, %)	COR (95% CI)	AOR (95% CI)
Age in years				
30–34	38(46)	61(50)	Ref	
35–39	36(43)	39(32)	0.75(0.41–1.37)	
40–44	5(6)	16(13)	1.54(0.57–4.14)	
45–49	4(5)	6(5)	0.77(0.21–2.82)	
Marital status				
Married	63(76)	98(80)	Ref	Ref
Divorced/separated	14(17)	12(10)	0.58(0.25–1.34)*	1.13(0.39–3.31)
Widowed	6(7)	12(10)	1.24(0.46–3.36)	0.88(0.26–3.02)
Educational status				
No education	4(5)	12(10)	Ref	Ref
Primary	16(19)	23(19)	0.35(0.09–1.28)*	0.69(0.15–3.23)
Secondary	30(36)	48(39)	0.43(0.13–1.46)*	0.54(0.14–2.17)
Tertiary	33(40)	39(32)	0.33(0.09–1.13)*	0.32(0.06–1.60)
Occupational status				
Housewife	35(42)	70(57)	Ref	Ref
Merchant	14(17)	13(11)	0.51(0.22–1.20)*	0.26(0.09–0.79)**
Daily laborer	9(11)	4(3)	0.26(0.05–1.38)*	0.19(0.03–1.26)
Government employee	25(30)	35(29)	0.73(0.39–1.39)	0.73(0.26–2.10)
Religion				
Muslim	51(61)	56(46)	Ref	Ref
Orthodox or catholic	24(29)	41(34)	1.27(0.68–2.35)	2.00(0.90–4.45)
Protestant	8(10)	25(20)	2.34(1.02–5.39)*	3.04(1.09–8.51)**
Number of pregnancies				
0–1	16(19)	27(22)	Ref	
2–4	53(64)	73(60)	1.09(0.54–2.18)	
5 and above	14(17)	22(18)	0.97(0.40–2.36)	
Lifetime number of sexual partners				
1	48(58)	77(63)	Ref	
2 and more	35(42)	45(37)	0.87(0.49–1.53)	
Age at first sexual intercourse				
<20 years	65(78)	84(69)	Ref	Ref
20 and above years	18(22)	38(31)	1.56(0.83–2.92)*	1.64(0.76–3.52)
Ever tested for HIV				
No	13(16)	20(16)	Ref	
Yes	70(84)	102(84)	0.87(0.41–1.84)	
Lifetime history of STI				
No	57(69)	78(64)	Ref	
Yes	26(31)	44(36)	1.27(0.71–2.28)	
Family history of cervical cancer				
No	72(87)	109(89)	Ref	
Yes	11(13)	13(11)	0.81(0.35–1.89)	
Ever used any modern family contraceptive method				
No	22(27)	35(29)	Ref	
Yes	61(73)	87(71)	0.92(0.49–1.70)	

(Continued)



Table 5 (Continued).

Variables	Satisfied (n, %)	Dissatisfied (n,%)	COR (95% CI)	AOR (95% CI)
Ever heard about cervical cancer				
No	9(11)	25(20)	Ref	Ref
Yes	74(89)	97(80)	0.52(0.24–1.13)*	0.53(0.22–1.29)
Distance from health facility				
<10 Kilometers	67(81)	94(77)	Ref	Ref
≥10 Kilometers	16(19)	28(23)	1.60(0.81–3.19)*	1.75(0.72–4.24)
Perceived length of waiting time to get medical records at Medical Record Unit				
Long	24(29)	45(37)	Ref	Ref
Medium	45(54)	65(53)	0.79(0.43–1.45)	0.66(0.32–1.37)
Short	14(17)	12(10)	0.59(0.24–1.45)*	0.36(0.12–1.03)
Perceived length of waiting time to see care provider				
Long	54(65)	58(47)	Ref	Ref
Medium	24(29)	41(34)	2.18(1.16–4.10)*	2.90(1.36–6.20)**
Short	5(6)	23(19)	2.53(1.05–6.06)*	1.47(0.51–4.19)
Perceived length of consultation time with care provider				
Long	28(34)	24(20)	Ref	Ref
Medium	47(57)	75(61)	1.89(0.98–3.66)*	1.55(0.69–3.46)
Short	8(9)	23(19)	2.16(0.87–5.36)*	2.73(0.85–8.71)
Received health education on CC				
No	9(11)	13(11)	Ref	
Yes	74(89)	109(89)	1.23(0.51–2.99)	
Knowledge on CC				
Good	54(65)	63(52)	0.57(0.32–1.00)*	0.47(0.23–0.97)**
Poor	29(35)	59(48)	Ref	Ref
Attitude on CC				
Favorable	52(63)	69(57)	0.84(0.48–1.48)	
Unfavorable	31(37)	53(43)	Ref	

**Notes:** \*Candidate variable for multiple variable logistic regression at P-value<0.25. \*\*Statistically significant at P-value<0.05 after adjusted for other variables.

**Abbreviations:** COR, crude odds ratio; AOR, adjusted odds ratio; CI, confidence interval; CC, cervical cancer; Ref, reference category; STI, sexually transmitted infections; HIV, human immunodeficiency virus.

Hadiya zone, Southern Ethiopia (53.7%).<sup>31</sup> Similarly, more than half of women had favorable attitude toward cervical cancer screening and this finding was comparable to a study done in Adigrat, Northern Ethiopia<sup>30</sup> and higher than that of a study conducted in Wolayita zone hospitals, Southern Ethiopia (45.5%).<sup>29</sup> The variations in the study findings might be due to contextual differences, difference in period of assessments, and knowledge and attitude components considered in the analysis. But, the findings implied that a significant proportion of women had poor comprehensive knowledge and unfavorable attitudes toward cervical cancer and related services. Better knowledge and favorable attitude toward cervical cancer

screening are important factors for appropriate utilization of screening and treatment services. Women knowledge and attitude towards cervical cancer and screening services was positively associated with uptake of cervical cancer screening services.<sup>32,33</sup> Lack of awareness of cervical cancer disease and screening services is a factor in delayed diagnosis of cervical cancer<sup>34,35</sup> and thus, leads to advanced stage of illness during diagnosis.

There was statistically significant association between socio-demographic and economic factors (religion and occupational status) and women's satisfaction with cervical cancer screening services. Satisfaction with cervical cancer screening services was three times more likely

among protestant women compared to Muslim women and the odds of satisfaction were 74% less likely among merchant women compared to housewives. The relationship between satisfaction and socio-demographic/economic factors was reported by other studies elsewhere.<sup>36,37</sup>

The study finding also indicated a significant association between service characteristics (length of waiting time to see a provider) and women's satisfaction with screening services. Women who perceived waiting time as "medium" were nearly three times more likely to be satisfied than women who perceived waiting time as "long". This implied that as the length of waiting time increases, women's satisfaction declines. This finding was consistent with other studies.<sup>20,38,39</sup> In our study, perceived length of waiting time to get medical records, perceived length of consultation time with a provider, and distance from health facility were associated with women's satisfaction in the univariate analysis. However, these factors did not maintain the association in the multivariate analysis after controlling for confounding variables. In another study, distance from home to health facility was significantly associated with women's satisfaction.<sup>20</sup>

Women's knowledge of cervical cancer was significantly associated with their satisfaction with cervical cancer screening services in that women with good comprehensive knowledge were less satisfied with screening services compared to women with poor comprehensive knowledge. This might be because the women with more knowledge may expect more from services and any mismatch with their expectations will lead to less satisfaction compared to women with less knowledge about screening services. This finding was comparable to another study.<sup>20</sup>

In this study marital status, educational status, age at first sexual intercourse, and ever heard about cervical cancer were associated with women's satisfaction with cervical cancer screening services in the univariate analysis only. Whereas, remaining variables including attitude did not show any associations in the univariate and multivariate analysis.

The study assessed women's satisfaction with cervical cancer screening services considering a variety of components. It has also provided evidence on comprehensive knowledge and attitude of women regarding cervical cancer and screening services. The study has several limitations. The study included only women who had visited health facilities in the study period and thus, we were unable to capture the characteristics and satisfaction of women who were outside of health care

settings. Interviews with women were conducted at health care settings and hence satisfaction surveys may be prone to response bias as a result of social desirability affected by the characteristics of interviewers. But, we used data collectors outside of the study area and this may have minimized response bias. All of the health facilities in the town were included in the study, however, participants were not selected randomly and it would be difficult to generalize findings to other settings. The findings should be interpreted with caution.

## Conclusion

The study findings indicated that only four in ten women were satisfied with cervical cancer screening services in the public health facilities of Jimma town. Greater than half of women had comprehensive knowledge of the signs and symptoms, and preventive and treatment measures of cervical cancer. Though the majority of women expressed their willingness to continue treatments if VIA tested positive, and agreed to recommend that relatives and partners should attend screening services in the same health facility, slightly higher than half of them had favorable attitude toward screening services. The study also revealed that religion, occupational status, perceived length of waiting time to see a provider, and knowledge of cervical cancer risk factors and symptoms were predictors of women's satisfaction.

Satisfaction is an important determinant for service utilization and retention in care. Knowledge and attitude play huge roles in influencing proper utilization of screening services. Therefore, effort should be made to improve the quality of health services in terms of length of waiting time to see health care provider and services in the health facilities. Moreover, awareness creation programs should be created and provided to women focusing on the signs and symptoms of cervical cancer, detection and treatment measures of cervical cancer, and the step-by-step practice of cervical cancer screening. This will increase women's attitudes toward screening services.

## Data Sharing Statement

The original data of this research are available from the corresponding author in SPSS software.

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## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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## Disclosure

The authors declared that they have no competing interests.

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