



ARSI UNIVERSITY

COLLEGE OF HEALTH SCIENCE

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Health care workers cervical cancer screening service provision
and associated factors in public health facilities in Asella Town,
Oromia, Ethiopia, 2025 G.C

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Abstract

Background: Cervical cancer, ranking as the fourth most common cancer and also the fourth leading cause of cancer death among women worldwide, claimed an estimated 662,000 new cases and around 349,000 death in 2024. The burden is disproportionately high among the developing countries, majorly Sub-Saharan Africa where limited access to Human papilloma (HPV) vaccines, Organized screening, and timely treatment. Despite the high burden, evidence regarding cervical cancer screening practices in the study area remains limited.

Objective: To assess cervical cancer screening service provision and associated factors among health care professional in public health facilities in Asella town, Oromia, Ethiopia, 2025.

Methods: An institution-based cross-sectional study was conducted at Asella Referral and Teaching Hospital (ARTH) and two public health centers in Asella town, located in the Arsi Zone of the Oromia Region, Ethiopia. The study was conducted from August 1, 2025 to October 30, 2025 on sample size of 181. A simple random sampling technique was employed to select participants proportionally from each health facility. Data were collected using Kobo toolbox V3.3, after data checked for completeness, exported to Statistical Package for the Social Sciences version 28 for analysis. Frequency, mean and standard deviation were used as descriptive statistics. Both binary and multiple logistic regression was conducted. Adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported to measure the strength of associations. At p-value of less than 0.05 was considered statistically significant. Results were presented using tables, charts.

Result: According to this study 63(34.8%) with (95% CI: 27.9,41.4) of study participants reported as they ever did visual inspection under acetic acid or ligol's iodine for their clients. Level of education having degree, (AOR = 7.3, 95% CI: 2.1,25.15), Level of knowledge with (AOR = 0.303, 95% CI: 0.123,0.74) and received training on VIA with (AOR = 5.27, 95% CI:1.73,16.1) were associated factors to practice cervical cancer screening in the study area.

Conclusion: This study revealed a low level of VIA/VILI practice among healthcare providers when compared to WHO standards. These findings indicate that limited training, inadequate knowledge, and lower professional qualification are major barriers to the implementation of cervical cancer screening services in the study area.

Keywords: Knowledge, Attitude, Practice, Cervical Cancer Screening, Health Care Workers, Ethiopia

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Contents

Abstract	2
Acknowledgement.....	3
List of tables	6
List of figures	7
Abbreviation and Acronyms.....	8
1. INTRODUCTION.....	1
1.1. Background	1
1.2. Statement of the Problems.....	3
1.3. Significance of the Study.....	5
2. LITERATURE REVIEW.....	6
2.1. Health care workers Cervical cancer screening services provision practice	6
2.2. Knowledge toward cervical cancer screening	7
2.3. Attitude toward cervical cancer screening.....	8
2.4. Factors associated with cervical cancer screening	8
2.5. Conceptual Framework	9
3. OBJECTIVES	10
3.1. General objectives	10
3.2. Specific objectives.....	10
4. METHODS.....	11
4.1. Study area and period	11
4.2. Study design	11
4.3. Population.....	11
4.3.1 Source population.....	11
4.3.2 Study population.....	11
4.2. Sample size determination.....	12
4.3. Sampling Techniques	13
4.4. Data Collection Tools and Procedure.....	14
4.5. Study variables	16
4.5.1. Dependent variables	16
4.5.2. Independent variables.....	16
4.6. Operational Definitions	16
4.7. Data Processing and Analysis	17
4.8. Data quality assurance and management.....	17
4.9. Ethical consideration	17
4.10. Dissemination plan	18

5. Result.....	19
5.1. Sociodemographic characteristic of study participants	19
5.2. Health professional level of knowledge towards cervical cancer screening	21
5.3. Attitude of health professionals towards cervical cancer screening	23
5.4. Practice of health professionals towards cervical cancer screening	24
5.5. Factors associated with cervical cancer screening	26
6. Discussion	28
6.1. Magnitude of VIA/VILI Practice in Comparison with Previous Studies	28
6.2 . Educational Status and VIA/VILI Practice	28
6.3. Knowledge of Cervical Cancer and Screening Practice	29
6.4 . Training as a Determinant of VIA/VILI Practice	29
6.5 Implications for Practice and Policy.....	30
6.6. Discussion of Factors Associated with Cervical Cancer Screening Practice	30
7. Limitations of the Study	32
8. Conclusion.....	33
9. Recommendations	34
10. REFERENCES.....	36
ANNEXES: 1. Information sheet	39
Annex-II. Questionnaires	41

List of tables

Table 1 :sociodemographic characteristics of study participants among health workers towards cervical cancer screening practice and associated factors in Asela tow,2025.	19
Table 2 :Knowledge of health professionals towards cervical cancer screening, Asela, Ethiopia, 2025(n=224).....	21
Table 3 :Attitude of health professionals towards cervical cancer screening, Asela, Ethiopia, 2025(n=224).	23
Table 4 :: Practice toward cervical cancer screening among health workers at Asela town, Oromia, Ethiopia, 2025(n=224).	25
Table 5 :Bivariate and multivariate analysis of associated factors among health professionals towards cervical cancer screening in Asela town, Oromia, Ethiopia, 2025.	26

List of figures

Figure 1. Conceptual Framework	8
Figure 2:Educational background of study participants	Error! Bookmark not defined.
Figure 3:professional background of study participants.....	20
Figure 4:Level of knowledge among health workers.	Error! Bookmark not defined.
Figure 5:Overall level of attitude among health professionals.....	Error! Bookmark not defined.
Figure 6:magnitude of practice among health professionals towards cervical screening	

Abbreviation and Acronyms

AOR	Adjusted odds ratios
CCS	Cervical Cancer Screening
COR	Crude odds ratios
EPHA	Ethiopian Public Health Association
ETB	Ethiopian Birr
FMOH	Federal ministry of health
HIV	Human Immune Deficiency Virus
HC	Health Center
HPV	Human Papilloma Virus
KAP	Knowledge, Attitude and Practice
LMIC	Low and middle income countries
OR	Odd ratio
Pap	Papanicolaou
SD	Standard deviation
SPSS	Statistical package for Social Science
SPIRES	Stanford University Program for International Reproductive Education and Services
STI	Sexually Transmitted Infection
VIA	visual inspection with acetic acid
VILI	Visual inspectin with Lugol's iodine
WHO	World Health Organization

1. INTRODUCTION

1.1. Background

Cervical cancer, ranking as the fourth most common gynecological cancer worldwide, claimed an estimated 662,000 new cases and 349,000 death in 2024. This disease disproportionately affects those living in poverty and is more prevalent in countries with weak health care systems (1). Low and middle-income nations, particularly in Sub-Saharan Africa, including Ethiopia, face higher incidence and mortality rates due to limited access to vaccines, screening, and treatment (2). Cervical cancer screening is one of the strategies for detecting early precancerous lesions and treatment (3). Although cervical cancer is preventable through vaccination, screening and early treatment it remains a leading cause of avoidable death among women in the world (3).

The world health organization recommends regular screening for women from age 25, setting a 90-70-90 target for low- and middle-income countries by 2030 (1). Early screening for cervical cancer is a key life-saving intervention in reducing maternal mortality and morbidity. Despite the high burden of cervical cancer, the coverage of cervical cancer screening is low in developing countries, including Ethiopia (4). Data compiled by Tikur Anbessa Specialized Hospital from 2019-2022 G.C showed 30.4% of all cancers diagnosed in the Hospital were cervical cancer. The estimated coverage of cytology – based cervical cancer screening in Ethiopia is very poor 1.6% in urban settings and 0.4% in rural areas (5).

Mortality caused by cervical cancer in Africa is very high. The reported mortality in Eastern Africa was 35 deaths per 100,000 women. However, the mortality rates in the developed world where screening programs run successfully remained below 5 per 100,000 women during the same year (5).

Cervical cancer trend is significantly reduced in high income countries due to early diagnosis and treatment. And because of poor access to quality screening and treatment service, the trend is increasing in developing countries (6).

However, in low-and middle-income countries (LMICs), only approximately 5% of eligible women undergo cytology-based screening in a five year period (5). In virtually all LMICs,

cytology based services are confined in teaching hospitals or private laboratories in urban areas. The barriers to scale-up of cervical cytology-based screening programs in Ethiopia include the lack of trained and skilled professionals, supplies, laboratory infrastructure and equipment (5). Furthermore, the absence of a well-organized Surveillance and recall system is a major obstacle to effective implementation: women with abnormal findings may not receive their results, let alone treatment or follow-up. These are some of the barriers that prevent cytology-based screening programs from being effective in LMICs (5).

Study in Southern Ethiopia revealed that although awareness about cervical cancer was relatively high among health care workers (HCWs), their engagement in screening activities and understanding of the national screening protocol were limited (7). Such findings underscore the need for targeted training and institutional support to empower HCWs in cervical cancer prevention and control efforts.

Health-care professionals play a central role in cervical cancer prevention through counseling women, offering and performing screening, and ensuring appropriate referral and follow-up. However, evidence from different settings indicates that cervical cancer screening service provision by health-care professionals is suboptimal. Studies have shown that only about one-third of health-care providers routinely offer cervical cancer screening or counseling to eligible women, even in facilities where screening services are available (8-10). Provider-related barriers such as inadequate training, limited knowledge, high workload, lack of confidence in performing screening procedures, and shortages of supplies contribute to missed opportunities for screening (9, 10). This gap between policy commitments and actual service delivery underscores a critical implementation problem and highlights the need for research focusing on health-care professionals' cervical cancer screening service provision to reduce the burden of cervical cancer.

In Ethiopia, facility based study shows less than 40% of health care professional ever performed any type of cervical cancer screening practice (11). This study aims to assess the level of practice and associated factors of health care workers in Asella Referral and Teaching Hospital and two public health centers, which are prominent health facilities in Asella town, oromia to identify barriers and recommend strategies to improve cervical cancer screening services.

1.2. Statement of the Problems

Cervical cancer screening is a proven, cost-effective public health intervention for reducing cervical cancer incidence and mortality. Its effectiveness, however, fundamentally depends on the consistent provision of screening services by health care workers at the point of care. Despite strong global and national commitments to expand screening coverage as part of cervical cancer elimination strategies, the actual delivery of cervical cancer screening services to eligible women remains suboptimal, particularly in low- and middle-income countries (LMICs) (12).

Globally systematic review and meta-analysis from Sub-Saharan Africa reported that only about 30% of health-care providers had ever practiced cervical cancer screening (13). The problem is more pronounced in low- and middle-income countries, where health-care professionals frequently miss opportunities to counsel and screen eligible women despite the availability of screening services (14). Studies indicate that many providers lack hands-on experience, confidence, and institutional support to routinely deliver screening, leading to inconsistent service provision across health facilities (15). Facility-based studies further reveal that fewer than 40% of health-care workers have ever performed any cervical cancer screening procedure, even in facilities where screening services are available (16).

Cervical cancer is largely preventable through early detection via screening, but the screening rates in Ethiopia remain inadequate. The success of national cervical cancer programs largely depends on the level of knowledge, attitude, and practice exhibited by health care workers. However, studies indicate that Ethiopian health care workers have limited knowledge about cervical cancer and screening methods, exhibit negative or indifferent attitudes, and do not consistently practice cervical cancer screening or encourage their patients to undergo screening (17).

Study shows there is high prevalence of cervical cancer but still there is a lack of data specifically addressing the practice and associated factors of cervical cancer screening among health care workers in Asella town, Oromia Region. Understanding these factors is essential for designing targeted interventions to enhance the role of health care providers in cervical cancer prevention.

This study is designed to assess the level of practice of cervical cancer screening and associated factors among health care workers in Asella Referral and Teaching Hospital and two public health centers to inform future interventions and health policies aimed at improving the implementation of cervical cancer screening.

1.3. Significance of the Study

Cervical cancer remains one of the leading causes of cancer-related deaths among women in Ethiopia. Despite the availability of preventive methods such as cervical cancer screening, the uptake remains low across the country. Health care workers play a vital role in promoting, delivering, and modeling cervical cancer screening services. Therefore, understanding their practice toward cervical cancer screening is essential. This study is significant because it assesses the current level of screening practice among health care workers in public health facilities in Asella town, Oromia. The findings will help identify barriers to screening practice within this critical group and provide evidence-based recommendations for targeted interventions.

To establish and improve any program and strategy, understanding level of practice of health care professionals is important. The study will moreover, helps policy makers and programmers to strength the existing screening programs in the country to improve the life of the women by strengthening health professional's practice on cervical cancer screening. In addition, the study will give insight and serve as base line data for researchers and planning of other intervention, capacity building for health professionals, client's health education and promotion regarding cervical cancer care activities.

2. LITERATURE REVIEW

2.1. Health care workers cervical cancer screening services provision practice

Cervical cancer remains a major public health challenge globally, particularly in low- and middle-income countries (LMICs) (18). According to the World Health Organization (WHO), cervical cancer is the fourth most common cancer among women worldwide, with an estimated 604,000 new cases and 342,000 deaths in 2020 alone. Nearly 90% of these deaths occur in LMICs due to inadequate access to preventive, screening, and treatment services (18).

Review summary of knowledge, attitude, practice and associated factors of health care professionals toward cervical cancer screening in India from 2012-2020, reviewed 22 studies with total of 6811 health professionals shows adequate knowledge and favorable attitudes, but the actual practice of cervical cancer screening among community health workers is suboptimal. Barriers contributing to low screening practice include perceived severity of cervical cancer, lack of time, and limited equipped screening facilities (19).

Community health workers have been instrumental in enhancing cervical cancer screening uptake through education, outreach, and awareness programs. Their involvement has been particularly effective in low-resource settings, where they bridge gaps between healthcare systems and communities, facilitating increased access to screening services (20).

In Cameroon, 79.3% of Physicians evoked cervical cancer as severe disease. Concerning the practice of screening, only 15% of health professionals routinely advise screening. Health workers in the health district have poor knowledge on cervical cancer and weak practice of screening (17). A review of articles showed that the practice toward cervical cancer screening was 12.70% (21).

Study in Mogadishu, Somalia showed that 73% of healthcare professionals demonstrated good knowledge of cervical cancer. Only 46% knew that a vaccine could prevent cervical cancer, and 89% of healthcare professionals disagreed that human papillomavirus (HPV) vaccines were available to their patients. Attitudes towards cancer screening were overwhelmingly positive but failed to translate into practice due to inadequate resources and patient refusal (22).

2.2. Knowledge toward cervical cancer screening

Study in Ghana showed, almost all the nurses and midwives (99%) had heard of cervical cancer. Majority (97.1%) of the respondents believed cervical cancer is preventable. however, 67.6% also believed that it is incurable and only 11.8% of the nurses had ever screened for cervical cancer for their clients (23). In Eswatini, Southern Africa, community health workers aged 46-55 were more likely to have a higher cervical cancer screening knowledge score than those aged 30-45 years. This study suggests knowledge deficits among community health workers in Eswatini which leads to low practice of screening performance (24).

The study included 41.2% Ob-Gyns specialists and 37.6% of consultants from secondary and tertiary care hospitals in Egypt showed that about 45% of participants had poor-to-fair knowledge, 57% had negative-to-fair attitudes toward cervical cancer screening and HPV vaccination, and 44% had ever-performed Pap test, while 45% of participants had ever-prescribed the HPV vaccine to their patients. Physicians' knowledge and attitude were significantly associated with their age, professional level, work experience, and place of work. Although performing cervical cancer screening was significantly more common among older, more experienced, and highly professional participants, HPV vaccine prescription was associated with young, less experienced participants at lower educational and professional levels (25).

Approximately 35% of surveyed physicians reported having experience in performing cytology in Poland. Almost 75% of PHC physicians lacked the necessary equipment in their office to perform the screening. None of the studied physicians performed Pap smears in their office at the time. The reasons included: shortage of competence (78.57%) and time (69.05%), the perception of Pap smears as a task for gynecologists (69.05%), the lack of financial incentives (61.90%), and the belief that their patients would be unwilling to undergo the test in their PHC physician's office (33.33%). More than three quarters (76.74%) declared they would be ready to perform Pap smears if the tests were additionally paid (26).

Study done among urban health extension workers at Addis Ababa reveals more than half (51.6%) of the participants had poor knowledge about cervical cancer screening. Participants with work experience of 5-6 years and those who had a monthly income of 5000-10,000 ETB

and greater than > 10,000 ETB were positively associated with knowledge towards cervical cancer screening among urban health extension workers (17).

2.3. Attitude toward cervical cancer screening

Among health workers in rural health centers of Northern Uganda, 187 (66%) participants had positive attitudes. Participants who indicated not to have ever received training on cervical cancer screening were less likely to have adequate knowledge. Participants who indicated not to have ever been trained on cervical cancer screening were less likely to have positive attitudes (27).

A review of articles included a total of 6811 health professionals showed that the overall knowledge of cervical cancer among health professionals was 75.15%. The knowledge toward signs and symptoms and risk factors was adequate among health professionals. The knowledge, attitude, and practice toward screening was 86.20%, 85.47%, and 12.70%, respectively (19).

2.4. Factors associated with cervical cancer screening

Cervical cancer screening and early detection and management program are influenced by drivers at multiple levels. At the organizational level, influencing factors were related to providers (cervical cancer screening practice, training, providers' profession type, skill of counseling and sex, expert recommendation and work commitments) (3).

Study on cancer control described screening implementation barriers included low community- and provider-awareness of cervical cancer and screening, lack of space and infrastructure to establish the screening center, lack of materials including cryotherapy machines for the “screen-and-treat” approach, and human resource issues such as high-turnover of staff and administration (28).

Study in Australia's national cancer screening programs revealed, two environment-level factors influence several organization and care team level factors. Firstly, the financial structure of primary health care, impacting on practitioner: time, practice culture, screening knowledge and opportunistic conversations. Secondly, the structure of screening programs had flow-on effects for access to patient screening records, recall and reminder systems, and sense of program ownership (29).

2.5. Conceptual Framework

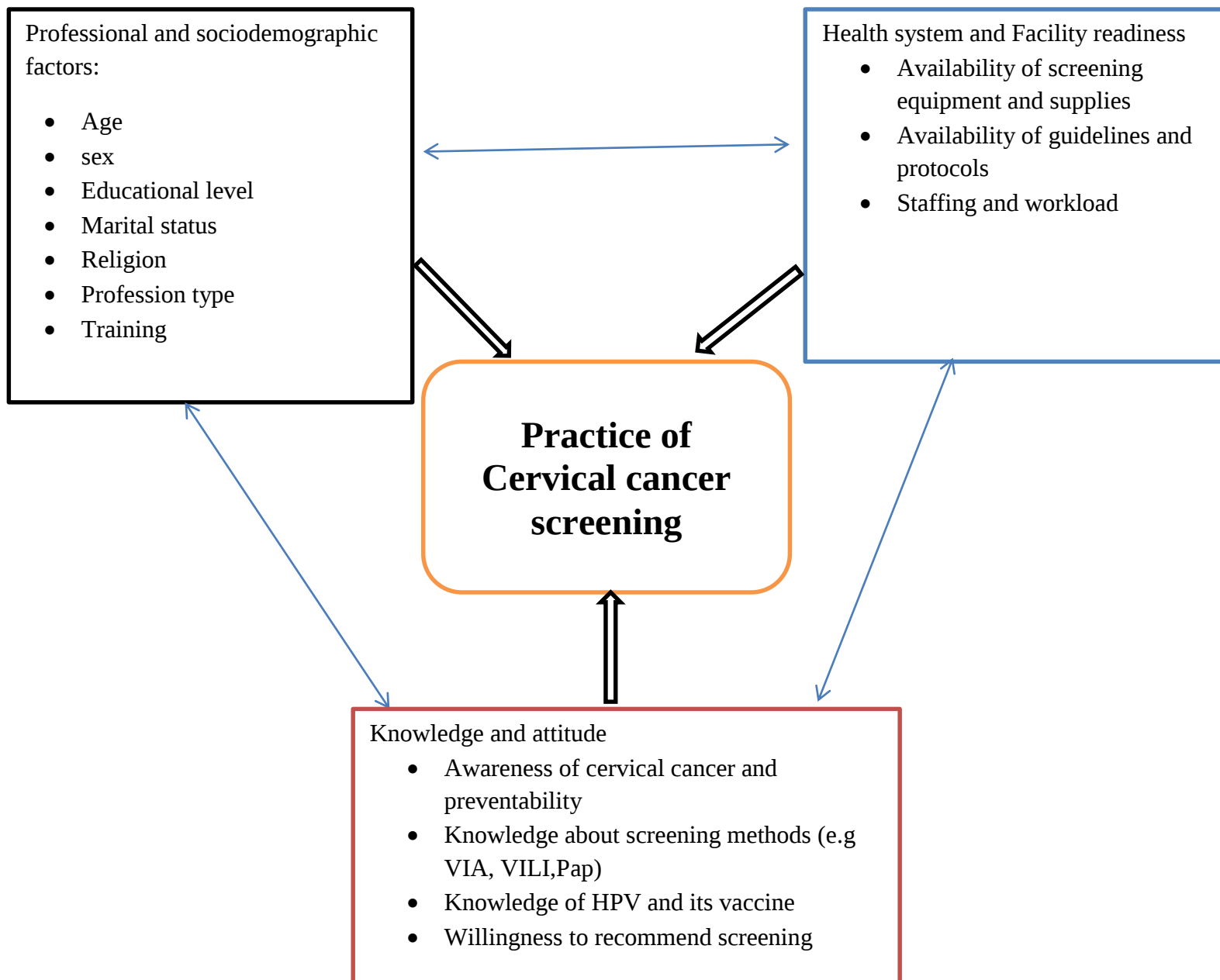


Figure 1. Conceptual Framework

Developed by reviewing different literature (1), (26), (29).

3. OBJECTIVES

3.1. General objectives

To assess cervical cancer screening service provision among health care workers in public health facilities in Asella town, Oromia, Ethiopia, 2025.

3.2. Specific objectives

- To determine the level of cervical cancer screening services provision practice of health care workers in public health facilities in Asella town in 2025.
- To identify factors associated with cervical cancer screening services provision practice of health care workers in public health facilities in Asella town in 2025.

4. METHODS

4.1. Study area and period

This study was conducted in Asella town, which is located in the Arsi Zone, Oromia Region, Ethiopia. Asella is situated approximately 175 kilometers southeast of Addis Ababa, the capital city of Ethiopia. The town is a hub for healthcare services in the region, with Asella Referral and Teaching Hospital serving as a central facility for advanced medical care and training. The hospital is a government-owned institution affiliated with Arsi University, providing a wide range of healthcare services, including preventive, curative, and rehabilitative care.

In addition to the referral hospital, the study included two public health centers within Asella town. These health centers cater to the local population, offering primary healthcare services such as maternal and child health care, vaccination, and health promotion activities. Together, these facilities serve a diverse population and play a crucial role in delivering health services in the region. The study was conducted from August 1, 2025 to October 30, 2025.

4.2. Study design

Institutional based Retrospective cross sectional study design was employed.

4.3. Population

4.3.1 Source population

The source population consisted of all healthcare workers in public health facilities in Asella town who are involved in providing cervical cancer screening services. This includes doctors, nurses, midwives, laboratory technicians, and other relevant professionals responsible for cervical cancer screening efforts.

4.3.2 Study population

The study population consisted of healthcare workers directly involved in cervical cancer screening services in Asella Referral and Teaching Hospital and the two public health centers in Asella town during the study period.

4.3.1.1. Inclusion criteria

- Health professionals (Nurses, Midwives, Health officers, General practitioners, specialists).
- Healthcare workers who are present during data collection period.
- Healthcare workers who was provider informed consent to participate in the study and who were available during data collection period.

4.3.1.2. Exclusion criteria

- Healthcare workers who are on extended leave (e.g., maternity leave, sick leave) during the study period and not available .
- Healthcare workers who are unable to participate due to illness or other personal reasons.
- Other health professionals(laboratory technicians, radiographers, Pharmacist)

4.4. Sample size determination

The Sample size can be calculated by using single population proportion formula based on the following assumption: $Z = (1.96)^2$, the proportion (P) = 0.18 taken from the prevalence of cervical cancer screening practice among healthcare workers in Ethiopia (1).

$$n = \frac{(Z_{\alpha/2})^2 p(1-p)}{d^2}$$

Where n= initial sample size

Z= confidence interval, set at 95% (standard value of 1.96)

P=estimated proportion

d=marginal error

The initial sample size can be estimated as:

$$n = \frac{(1.96)^2 0.185(1 - 0.185)}{(0.05)^2}$$

$$\underline{n=227}$$

We apply the finite population correction formula to obtain the final sample size. The total number of health professional in Asella Town is 602 (30).

$$nf = \frac{ni}{1 + ni/N}$$

$$nf = \frac{227}{1 + 227/602} = 164.85$$

Where,

n= the initial sample size

N= size of study population(source population from ARTH, Halila and Asela HC=602)

An assumption of 10% non-response rate will be added and the final sample size is: n=181

4.5. Sampling Techniques

A proportionate stratified simple random sampling was employed. Initially all public health facilities within Asella town were identified and included in the sampling frame.

Then complete list of healthcare workers in each selected facility obtained from the facility's human resources department and used as the sampling frame. Eligible participants defined as healthcare workers involved in cervical cancer screening (e.g., nurses, midwives, Health officers, general practitioners, Specialists) selected using a simple random sampling method, Selection was by lottery method.

After participants are selected, trained data collectors approached them at their respective facilities. After explaining the study's objectives, written informed consent was obtained from each participant. Following consent, data collected on service provision assessment of cervical cancer screening using a structured, self-administered questionnaire that covers socio-demographic information as well as knowledge, attitude, and practice regarding cervical cancer screening and associated factors using kobo toolbox version 3.3.(fig 2).

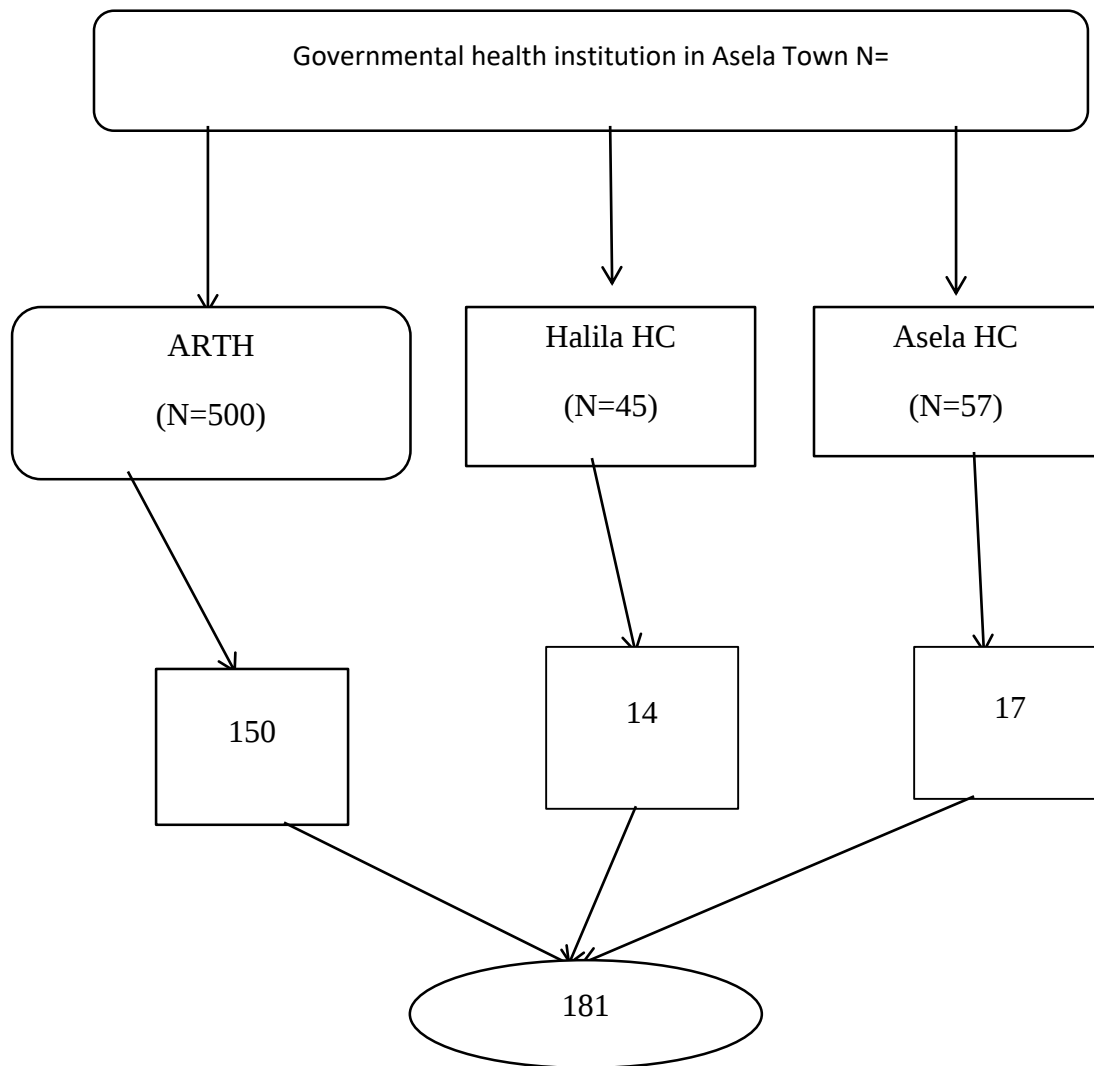


Figure 2: Sampling procedure

A simple random sampling technique was employed to select 181 health care workers from total 602 health care workers from ARTH and Two public health centers(Asela Health center and Halila health center) and proportionally allocated to ARTH, Asela HC and Halila HC in Asela town. All eligible providers randomly selected by lottery methods.

4.6. Data Collection Tools and Procedure

Semi-structured self-administered questionnaire was used for data collection. The questionnaire (Annex I) was developed and modified based on a thorough review of relevant literature and

existing validated instruments used in similar studies (5,11,31). It is designed to assess the knowledge, attitude, and practice and perceived barrier of healthcare workers toward cervical cancer screening. The survey contained total of 39 questionnaire (8 questions to assess sociodemographic characteristics, 10 questions assess knowledge, 5 questions assess attitude, 9 questions assess barriers to provide cervical cancer screening, 7 questions to assess health professional practice toward cervical cancer screening).

The questionnaire is initially prepared in English and pre-tested on 5%(n=9) of the sample size at Sagure health center outside of the study area but with similar characteristics. Based on the pretest results, necessary modifications were made to ensure clarity, appropriateness, and reliability of the tool.

Data was collected using data collector interviewer pproach, where selected participants was interviewed by trained data collectors and filled to kobo tool box. . During this process, they was provide clarifications if needed without influencing the responses. Each participant was given ample time and privacy during interview.

Data collectors and supervisors was participate in a one-day training session focusing on the objectives of the study, the contents of the questionnaire, ethical considerations, and appropriate data handling techniques. Throughout the data collection process, the principal investigator and supervisors will provide close oversight to ensure that the data collected is complete, consistent, and in accordance with the established protocol.

To maintain quality control, all completed questionnaires was reviewed daily for completeness and accuracy. Any identified issues were addressed promptly to avoid compromising the integrity of the data. Confidentiality will be strictly maintained; all questionnaires will be securely stored and treated as confidential documents. Furthermore, the data will be anonym zed prior to entry and analysis to ensure participant privacy.

4.7. Study variables

4.7.1. Dependent variables

4.7.2. Knowledge and Practice of cervical cancer screening.

4.7.3. Independent variables

Socio-demographic characteristics:

- Age
- Sex
- Educational status
- Religion
- Marital status
- Number of sex partner

Others:

- Training on CCS
- Profession type
- Work experience

4.8. Operational Definitions

Good knowledge: Health professionals who score above mean on knowledge questions about cervical cancer screening (32, 33).

Poor knowledge: Health professionals who score below mean on knowledge questions about cervical cancer screening (32, 33).

Attitude Assessment:

Attitude will be measured using items on a 5-point Likert scale:

Scores from all items will be summed. Respondents scoring equal to or above the mean will be classified as having a **positive attitude**, while those below the mean will be considered to have a **negative attitude** (32, 33).

Practice towards cervical cancer screening was assessed by asking “Have you ever did VIA or VILI for your clients? Using response of “Yes “ or no” and categorized as follow (21).

Good Practice: A Health professional who has ever done screening for their clients through their experience (33, 34).

No practice: A Health professional who never screened a client for cervical cancer (33, 34).

4.9. Data Processing and Analysis

Each completed questionnaire using kobo toolbox version 3.3 was checked and exported to Statistical Package for Social Sciences (SPSS) version 28 for analysis. All variables were checked for missing value after export. Descriptive analysis was done for study variables in the study using standard statistical parameters. Binary logistic regression was used to test the association between dependent and independent variables using a crude odds ratio with 95% CI. Variables with P-value less than 0.25 in bivariate analysis were exported into multivariate analysis to check association between dependent and independent variables. Model fitness was assessed using the Hosmer-Lemeshow test. Multivariate logistic regression model was used to determine the independent factors associated with occupational injuries and variables with P-value <0.05 was consider statistically significant.

4.10. Data quality assurance and management

Before data entry to SPSS for analysis, data was checked for completeness and accuracy. Any erroneous, ambiguous and incomplete data were excluded. Training was given for all data collectors. A panel of experts of Obstetrics and Gynecology (five consultants) from ARTH assessed whether the data collection form will measure what it was intended to measure, and it was comprehensive enough to collect all the information needed to address the purpose and goals of the study. Then pretest was done on 5% of sample size (Sagure Health center) and make appropriate changes based on expert opinion.

4.11. Ethical consideration

The ethical clearance was obtained from ARTH CMH research department. The directors of the health facilities were informed about the purpose of the study to get agreement and co-operation. The study participants was informed about the objective, purposes and expected outcomes of the study and written consent was obtained for guaranteeing their choice of participation or refusal.

All the information was recorded anonymously and confidentiality will be assured throughout the study.

4.12. Dissemination plan

The final result of the study will be disseminated to responsible bodies such as Department of Obstetrics and Gynecology of Arsi University. Attempts will be made to present the finding on national Professional associations such as Ethiopian Public Health Association (EPHA) and international scientific conferences. Finally, the study finding will be submitted to reputable professional journal for publication so as to serve as base line for further studies.

5. Result

5.1. Sociodemographic characteristic of study participants

A total of 181 study participants were enrolled, yielding a 100% response rate. The mean age of participants was 33.62 years (SD=22.95). The largest age group comprised individuals aged 20–30 years 74(40.9%), while the smallest group was aged 36–40 years 11(6.1%). One hundred three (56.9%) of study participants were females. Among the 181 participants, the majority 126(69.6%) reported Afan Oromo as their primary language, followed by Amharic 48(26.5%). Regarding religion majority 62(34.3%) were Muslim followers followed by Orthodox followers, 53(29.3%) and most of the respondents were married 131(72.4%) and the smallest numbers were widowed 9 (5.0%) (Table 1).

Table 1: sociodemographic characteristics of study participants among health workers towards cervical cancer screening practice and associated factors in Asela town, 2025.

Variables	Frequency (n)	Percentages (%)
Age category		
1. 20-30	88	39.3
2. 31-35	81	36.2
3. 36-40	17	7.6
4. Greater than 41	38	17.0
Sex		
1. Male	78	43.1
2. female	103	56.9
Religion		
1. Orthodox Christian	53	29.3
2. Muslim	62	34.3
3. Protestant	49	27.1
4. Catholic	17	9.4
Language		
1. Amharic	48	26.5

2. Afan Oromo	126	69.6
3. Tigrigna	7	3.9
Marital status		
1. Single	18	9.9
2. Married	131	72.4
3. Divorced	23	12.7
4. widowed	9	5.0
Work experience		
1. less than 2 years	26	14.4
2. greater than 2 years	155	85.6

Give heading here for their profession

Regarding educational background majority of participants had bachelor degree 56(30.9%), followed by master degree holder,51(28.2%) (Figure 3).

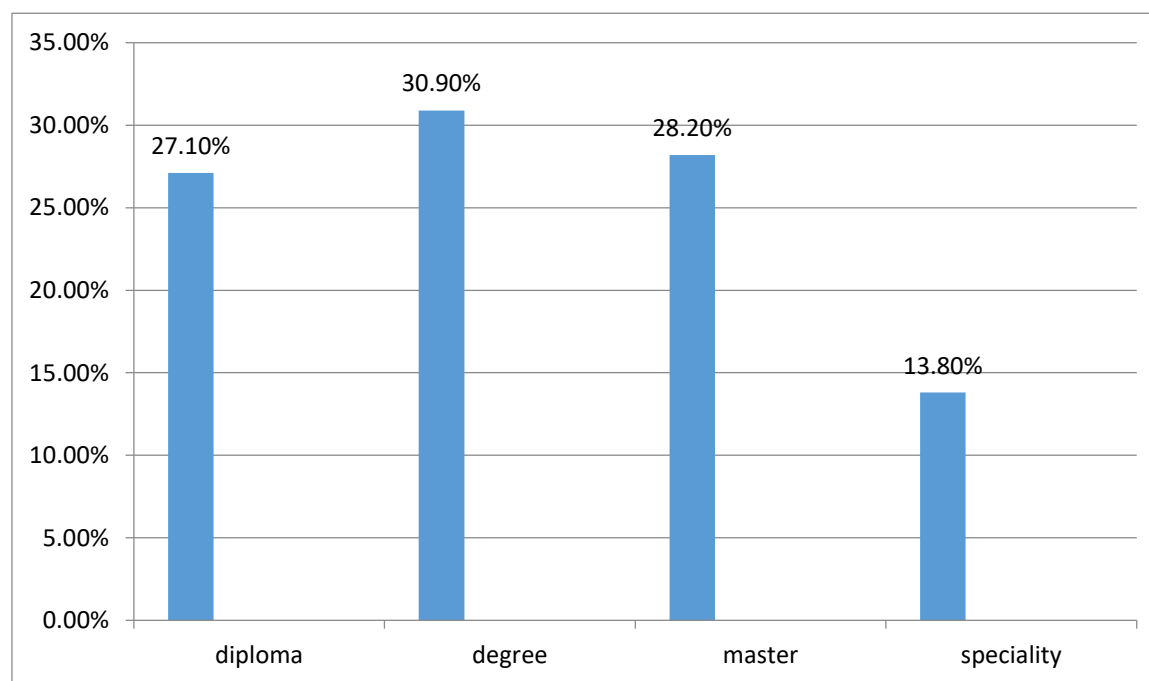


Figure 3: Educational background of study participants at Asela town, 2025.

Concerning professional background of Participants, Nurses comprised the largest group 79(43.6%), followed by Medical doctors, 47(26.0%) (Figure 4).

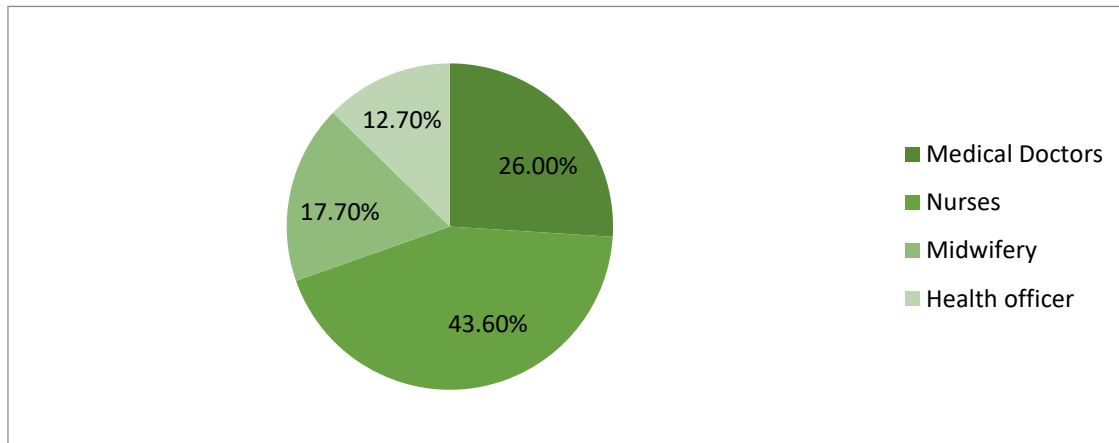


Figure 4:professional background of study participants in Asela town,2025.

5.2. Health professional awareness towards cervical cancer screening

According to this study 170(93.9%) of health professionals reported as cervical cancer is one of the leading causes of death in women. Majority 158(87.3%) also reported as cervical cancer is preventable and one hundred fifty seven (86.7%) indicated as it is possible to detect pre-cancerous cervical cells.

One hundred forty seven (81.2%) of health professional reported untreated cervical cancer as fatal and 149(82.3%) of them also identified cervical cancer is caused by a virus that is spread sexually and 33(18.2%) of them only reported as there is no vaccine to prevent cervical cancerous cell (Table 2).

Table 2: Knowledge of health professionals towards cervical cancer screening, Asela, Ethiopia, 2025(n=224).

Variables	Frequency	%
CX CA is one of the leading causes of death in women worldwide		
1. yes	170	93.9
2. no	11	6.1
cervical cancer is preventable		

	1. Yes	158	87.3
	2. No	23	12.7
It is possible to detect pre-cancerous cervical cells			
	1. Yes	157	86.7
	2. No	24	13.3
The purpose of screening for cervical cancer is to detect pre-cancerous changes			
	1. Yes	152	84
	2. no	29	16
If untreated cervical cancer is fatal			
	1. yes	147	81.2
	2. no	34	18.8
cervical cancer is caused by a virus that is spread sexually			
	1. yes	149	81.8
	2. No	32	18.2
There is a vaccine that can prevent cervical cancer			
	1. Yes	148	81.
	2. No	33	18.8
cervical cancer is not curable			
	1. Yes	112	38.1
	2. No	69	61.9
For cervical cancer, the progression of pre-cancerous cells to cancer can take 10–20 years			
	1. Yes	169	93.4
	2. NO	12	6.6
cervical cancer can usually be found at an early stage because of the obvious symptoms			
	1. Yes	80	44.2
	2. NO	101	55.8

The overall level of knowledge among study participants demonstrated good knowledge of 128(70.7%) while 53(29.3%) had poor knowledge (Figure 5).

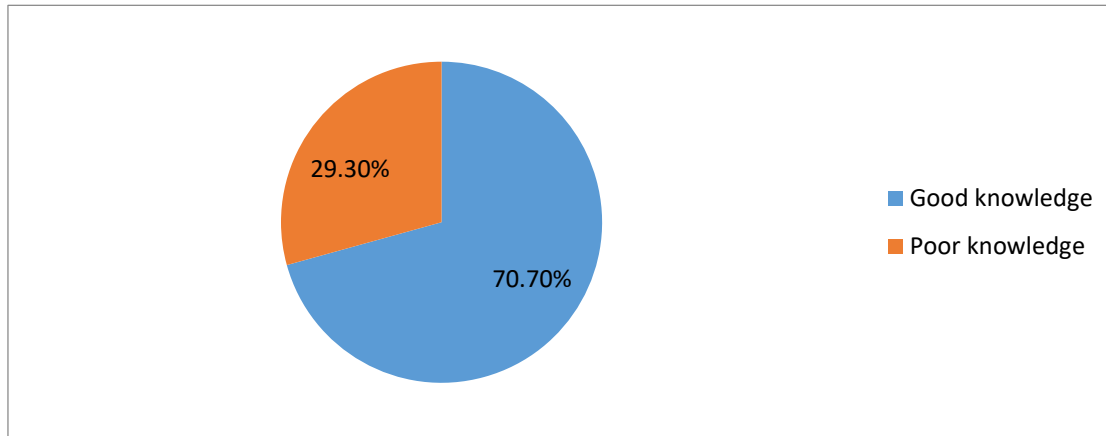


Figure 5:Level of knowledge among health workers in Asela town towards cervical cancer screening, Asela, Ethiopia, 2025.

5.3. Attitude of health professionals towards cervical cancer screening

In this study 140(77.3%) of health professionals strongly agreed as cervical cancer screening is an essential part of women's health care, while 2(1.1%) kept neutral. Eighty nine (49.2%) health professionals agreed as all women of age 25-65 years should undergo cervical cancer screening, 79(43.6%) strongly agreed and only 1(0.6%) health professional disagreed. Majority of health professionals 76(42.0%) agreed as cervical cancer is a very serious disease and only 7(3.9%) disagreed (Table 3).

Table 3:Attitude of health professionals towards cervical cancer screening, Asela, Ethiopia, 2025(n=224).

Variables	Strongly agree, n(%)	Agree, n(%)	Neutral, n(%)	Disagree, n(%)	Strongly disagree, n(%)
cervical cancer screening is an essential part of women's health care	140(77.3)	39(21.5)	2(1.1)	-	-
All women of age 25-65 years should undergo cervical cancer screening.	79(43.6)	89(49.2)		1(0.6)	-
cervical cancer is a very serious disease	69(38.1)	76(42.0)	29(16.0)	7(3.9)	-
a cervical cancer screening program should be started in my community	92(50.8)	64(35.4)	17(9.4)	8(4.4)	-
Cervical cancer screening should be done	83(45.9)	62(34.3)	14(7.7)	15(8.3)	7(3.9)

Regarding the overall level of attitudes majority of health professionals, 114(63.0%) had favorable attitude towards cervical cancer screening (figure 6).

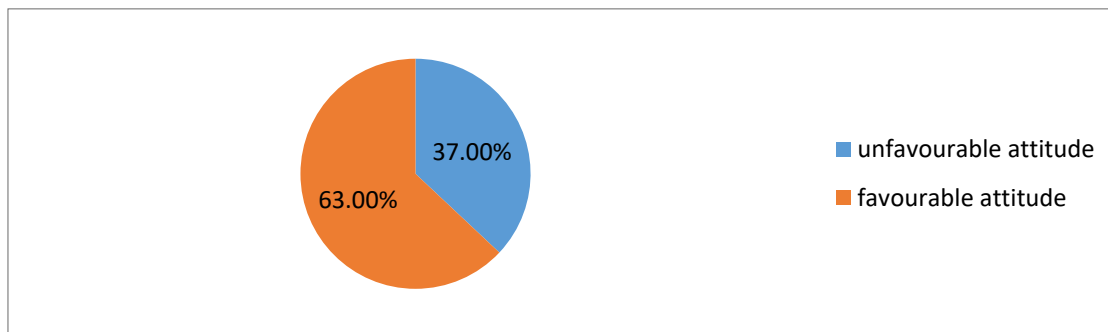


Figure 6:Overall level of attitude among health professionals towards cervical cancer screening, Asela, Oromia, Ethiopia, 2025.

5.4. Practice of health professionals towards cervical cancer screening

According to this study 63(34.8%) ,(95% CI: 27.9,41.4) of study participants reported as they ever did VIA or VILI for their clients and 118(65.2%) were not (figure 7).

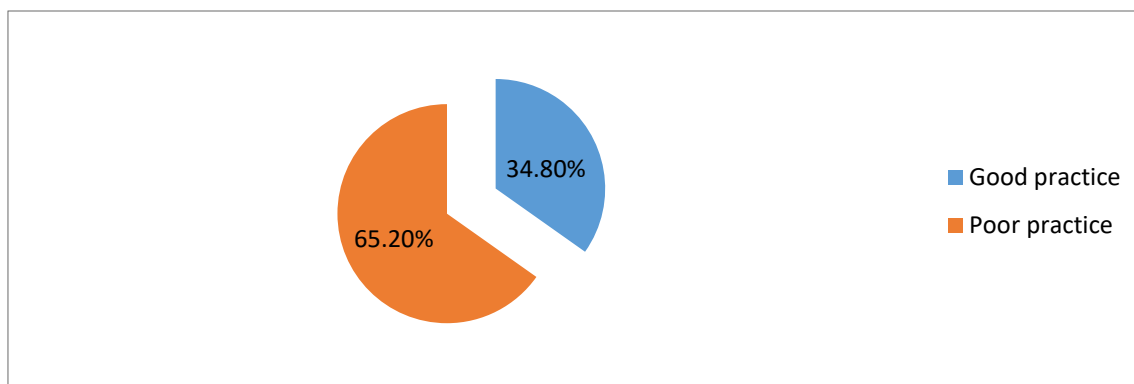


Figure 7:magnitude of practice among health professionals towards cervical screening, Asela, Oromia, Ethiopia, 2025

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In this study 57(31.5%) of study participants reported as they were trained for VIA and 25(13.8%) of them reported as their health facility did not providing cervical cancer screening. The major reason for not practicing cervical cancer screening was work over –load for 70(38.7%) followed by unable to follow after screening 49(27.1%). Ninety three (51.4%) of the study participants have no ever treated VIA/VILI positive clients (Table 4).

Table 4:: Practice toward cervical cancer screening among health workers at Asela town, Oromia, Ethiopia, 2025(n=224).

Variables	Frequency(n)	%
Are you trained for VIA?		
1. Yes	57	31.5
2. No	124	68.5
Is your health facility providing cervical cancer screening?		
1. Yes	156	86.2
2. no	26	13.8
Reason not Practicing cervical cancer screening		
1. no trained person	32	17.7
2. unable to follow after screening	49	27.1
3. work over-load	70	38.7
4. others*(lack of materials)	30	16.6
Have you ever did VIA or VILI for your clients?		
1. Yes	63	28.1
2. no	161	71.9
Have you ever treated VIA/ VILI positive clients?		
1. Yes	88	48.6
2. no	93	51.4
Have you ever oder Pap Smear for your clients		
1. yes	47	26
2. no	134	74
Have ever undergone cervical cancer screening (Pap smear or VIA)n=103		
1. yes	23	22.3
2. no	80	77.7

5.5. Factors associated with cervical cancer screening

Both Bivariate and multivariable logistic regression analysis was conducted to identify factors associated with healthcare providers' practice of VIA or VILI screening. The variables that showed a statistically significant association in the bivariable analysis ($p < 0.25$) were entered into the multivariable logistic regression model. Accordingly in bivariate analysis variables like Educational status, professional type, and level of knowledge, and availability of training were associated factors for practicing cervical cancer screening.

In multivariate analysis, the following variables were factors associated with healthcare providers' practice of VIA or VILI screening. Healthcare providers with a bachelor's degree were 7.3 times more likely to have ever performed VIA or VILI for clients compared to those with a diploma qualification (AOR = 7.3, 95% CI: 2.1–25.15), Healthcare providers with poor knowledge of cervical cancer screening exhibited 69.7% lower odds of performing cervical screening than those with good knowledge (AOR = 0.303, 95% CI: 0.123–0.74), Healthcare workers who received training on VIA were 5.27 times more likely to have ever performed VIA or VILI than those without training (AOR = 5.27, 95% CI: 1.73–16.1)(Table 5).

Table 5: Bivariate and multivariate analysis of associated factors among health professionals towards cervical cancer screening in Asela town, Oromia, Ethiopia, 2025.

Variables	ever did VIA or VILI for clients		COR(95%,CI)	AOR(95%,CI)	P-value
	Yes, n (%)	NO, n (%)			
Educational status					
1. Specialty	13(20.6)	36(30.5)	2.5(1.523,19.58)*	3.35(1.01,11.12)**	0.048
2. Degree	14(22.2)	42(35.6)	2.8(1.03,7.5)*	7.3(2.1,25.15)**	0.002
3. Master	24(38.1)	27(22.9)	1.04(0.39,2.78)	2.67(0.82,8.64)	0.103
4. Diploma	12(19.0)	13(11.0)	Ref.	Ref.	
Professional Type					
1. MD	19(30.2)	28(23.7)	Ref.	Ref.	
2. Nurse	15(23.8)	64(54.2)	2.89(1.28,6.5)*	1.02(0.34,3.04)	0.97
3. Midwifery	18(28.6)	14(11.9)	0.52(0.213,1.31)	2.17(0.7,6.5)	0.169
4. Health officer	11(17.5)	12(10.2)	0.74(0.27,2.02)	0.42(0.128,1.421)	0.17
Level of knowledge					
1. Poor knowledge	53(84.1)	75(63.6)	Ref.	Ref.	
2. Good knowledge	10(15.9)	43(36.4)	3.04(1.4,6.58)*	0.303(0.123,0.74)**	0.009
Received training on VIA					

1. Yes	58(92.1)	76(64.4)	Ref.	Ref.	
2. No	5(7.9)	42(35.6)	6.4(2.38,17.22)*	5.27(1.73,16.1)**	0.003

N.B. * indicates at P value less than 0.25 and ** at p-value less than 5 %(0.005)

6. Discussion

6.1. Magnitude of VIA/VILI Practice in Comparison with Previous Studies

The proportion of healthcare providers who had ever performed VIA/VILI in this study (34.8%; 95% CI: 27.9–41.4) is higher than reports from several local Ethiopian studies, including studies conducted in Eastern Ethiopia (16.8%), Northwest Ethiopia (8.7%), and Harar Town (approximately 20–25%) (4, 35, 36). This variation may reflect differences in study population composition, as the current study included both male and female healthcare professionals and multiple professional categories, whereas some earlier studies focused predominantly on female nurses or midwives. Evidence suggests that professional diversity and task-sharing policies can improve screening service delivery when adequately supported by training and institutional readiness.

However, the prevalence observed in this study remains lower than findings from some Sub-Saharan African countries, such as Rwanda (45–52%), Zambia (48%), and Kenya (over 50%), where VIA has been integrated into routine reproductive health services and supported by strong national screening programs (8, 9, 37). The higher uptake in these countries has been attributed to long-standing national cervical cancer prevention strategies, decentralized service delivery, and continuous in-service training, which have demonstrably increased provider competency and confidence in performing.

Globally, the practice level in this study is markedly lower than reports from middle-income countries such as India, Thailand, and Peru, where provider-level VIA practice ranges from 55% to over 70% in settings where VIA is institutionalized as a primary screening modality (10-12). These differences underscore persistent structural and system-level gaps in low-income settings, including inadequate training coverage, limited supervision, and weak integration of screening services into routine care.

6.2 . Educational Status and VIA/VILI Practice

This study demonstrated that healthcare providers with a bachelor's degree or higher were significantly more likely to have performed VIA/VILI compared to diploma holders (AOR = 7.3; 95% CI: 2.1–25.15). This finding is consistent with studies conducted in Harar Town, Hossana, and Addis Ababa, which reported significantly higher screening practice among degree-level providers (4, 13, 36).

Comparable findings have also been documented in Nigeria, Ghana, and Uganda, where higher educational attainment was strongly associated with increased likelihood of providing cervical cancer screening services (14-16). This association is supported by evidence indicating that higher education enhances clinical decision-making skills, health literacy, and self-efficacy, all of which are critical for adopting preventive health interventions. Moreover, degree-level providers are more likely to receive formal exposure to oncology and preventive health modules during pre-service training, which has been shown to significantly influence screening practice (13).

6.3. Knowledge of Cervical Cancer and Screening Practice

Healthcare providers with good knowledge of cervical cancer were significantly more likely to perform VIA/VILI than those with poor knowledge (AOR = 0.303; 95% CI: 0.123–0.74). This finding aligns with studies conducted in Public Hospitals of Ethiopia, Durame Southern Ethiopia, and Bahir Dar City, all of which demonstrated a strong positive association between knowledge level and screening practice (36, 38, 39).

At the continental level, a meta-analysis of African studies reported that healthcare providers with adequate knowledge were nearly three times more likely to practice cervical cancer screening compared to their less knowledgeable counterparts (40). Similarly, global evidence indicates that provider knowledge of risk factors, screening intervals, and eligibility criteria is a key determinant of screening uptake and service provision. These findings suggest that knowledge is not merely an individual attribute, but a modifiable factor that can be enhanced through targeted training and continuous professional development.

6.4 . Training as a Determinant of VIA/VILI Practice

Training was identified as a strong predictor of VIA/VILI practice, with trained healthcare providers being 5.27 times more likely to have performed screening than those without training (AOR = 5.27; 95% CI: 1.73–16.1). This result is consistent with studies from Harar Town, Northwest Ethiopia, and Southern Ethiopia, which consistently reported training as the most influential factor for screening practice (4) (35) (41).

Beyond Ethiopia, similar associations have been reported in Tanzania, Malawi, and Mozambique, where national VIA training programs resulted in substantial increases in screening coverage and provider participation (42) (43) (44). Global implementation research

further confirms that VIA/VILI is a provider-dependent intervention, requiring hands-on training, mentorship, and periodic refresher courses to maintain competency and confidence.

The observed training gap in this study may reflect limited access to standardized training programs, high staff turnover, and inadequate institutional support, which have been widely documented as barriers to cervical cancer screening implementation in low-resource settings (45).

6.5 . Implications for Practice and Policy

Taken together, the findings indicate that VIA/VILI practice among healthcare providers remains insufficient when compared with WHO standards of 90 70 90 target and unevenly distributed. The evidence from local, regional, and global studies strongly supports the need for systematic capacity building, including pre-service curriculum strengthening, regular in-service training, and supportive supervision. Integrating cervical cancer screening indicators into routine performance monitoring and ensuring availability of supplies are also essential for translating provider knowledge and training into sustained practice.

6.6. Discussion of Factors Associated with Cervical Cancer Screening Practice

In this study, educational status was significantly associated with the practice of cervical cancer screening, where healthcare workers with a bachelor's degree were more likely to perform VIA/VILI compared to diploma holders, a finding consistent with studies conducted in Harar town and Hossana town, Ethiopia, which reported higher screening practice among more highly educated providers due to better clinical competence and exposure to screening guidelines (4) (36).

Similar associations between higher professional qualification and increased cervical cancer screening practice have been reported in Northwest Ethiopia, where diploma-level healthcare workers demonstrated lower screening involvement, largely attributed to limited training opportunities and reduced procedural confidence (35).

International evidence also supports this finding, as studies from Egypt and Poland have shown that physicians and higher-level providers were significantly more engaged in cervical cancer screening activities than lower cadres, due to greater autonomy and access to resources (25) (26).

The level of knowledge on cervical cancer screening was another significant factor associated with VIA/VILI practice in this study, where health-care workers with poor knowledge were substantially less likely to perform screening, which aligns with findings from public hospitals in Northwest Ethiopia demonstrating that adequate knowledge of screening methods strongly predicts screening practice (35).

Comparable results have been documented in Southern Ethiopia and Bahir Dar, where healthcare workers with higher knowledge scores were more likely to provide cervical cancer screening services to their clients (7) (46).

A recent systematic review and meta-analysis from Sub-Saharan Africa further supports this association, reporting that healthcare providers with good knowledge were significantly more likely to engage in cervical cancer screening practice than those with poor knowledge (37).

The strong association between knowledge and practice observed in this study is also consistent with findings from India and Ghana, where knowledge gaps were identified as major barriers preventing healthcare workers from translating positive attitudes into actual screening practice (19) (23).

Training on VIA/VILI was one of the strongest predictors of screening practice in the present study, with trained healthcare workers being significantly more likely to perform VIA/VILI, a finding that is consistent with studies conducted in Harar town, Northwest Ethiopia, and Southern Ethiopia, all of which identified lack of training as a critical barrier to cervical cancer screening service provision (4) (35).

Similar findings have been reported in Cameroon and Somalia, where healthcare workers who received formal screening training demonstrated higher screening practice compared to untrained providers, despite generally positive attitudes toward cervical cancer screening (21) (22).

Qualitative and mixed-methods studies from Ethiopia further highlight that training improves healthcare workers' technical skills, confidence, and motivation, thereby increasing routine provision of VIA/VILI services in public health facilities (28).

The overall prevalence of VIA/VILI practice observed in this study (34.8%) is higher than that reported in several Ethiopian studies, including Southern Ethiopia (16.8%), Northwest Ethiopia

(8.7%), and the national pooled estimate of 13.6%, possibly due to inclusion of both male and female providers and the presence of a referral and teaching hospital in the study area (7) (35) (1).

However, despite this relatively higher prevalence, the screening practice remains suboptimal, consistent with global evidence indicating that healthcare workers in low- and middle-income countries often demonstrate favorable attitudes but low actual screening practice due to system-level and capacity-related constraints (17) (19).

Overall, the consistency of these findings with national and international studies underscores the need for strengthening training programs, improving provider knowledge, and enhancing professional development, which are critical to improving cervical cancer screening service provision and achieving cervical cancer elimination targets (17) (37).

7. Limitations of the Study

7.1 Strength

This study has several limitations that should be considered when interpreting the findings. The observed associations therefore indicate correlation rather than causation.

Second, the study relied on self-reported data regarding healthcare workers' practice of VIA/VILI, which may be subject to social desirability and recall bias, potentially leading to overestimation or underestimation of actual screening practice.

Third, the study was conducted only in public health facilities within Asella town, excluding private health facilities and rural settings; this may limit the generalizability of the findings to other regions or healthcare contexts in Ethiopia.

Fourth, the study assessed screening practice using a single practice indicator (ever performed VIA or VILI), which may not fully capture the frequency, quality, or consistency of cervical cancer screening service provision.

Finally, although several key factors were assessed, the study did not explore health system and organizational factors in depth, such as availability of supplies, supervision quality, or institutional leadership, which may also influence healthcare workers' screening practice.

8. Conclusion

This study revealed a very low level of VIA/VILI practice among healthcare providers, with 34.8%), performed the procedures when compared with 90 70 90 targets. Higher educational level, good knowledge of cervical cancer screening, and prior training on VIA were strong predictors of performing VIA/VILI.

9. Recommendations

Based on the findings of this study, which revealed low practice of VIA/VILI (34.8%) among healthcare workers and identified educational level, knowledge status, and training on VIA as significant predictors of practice, the following recommendations are proposed.

1. Federal Ministry of Health (FMoH) and Oromia Regional Health Bureau

- Scale up structured and standardized in-service VIA/VILI training programs, with special focus on diploma-level and less-experienced healthcare workers, as training was strongly associated with screening practice (AOR = 5.27).
- Integrate cervical cancer screening competencies into national human resource development strategies, ensuring equitable skill distribution across all public health facilities.
- Strengthen implementation of the national cervical cancer prevention guideline, including routine supervision, monitoring, and evaluation of VIA/VILI service delivery.
- Ensure consistent supply of screening materials and commodities, as lack of materials was reported as a barrier to practice.

2. Arsi University, College of Health Sciences, and Other Training Institutions

- Strengthen pre-service curricula for nurses, midwives, health officers, and medical students by incorporating hands-on VIA/VILI training and simulation-based learning, given the strong association between higher educational level and screening practice (AOR = 7.3).
- Institutionalize continuing professional development (CPD) programs focused on cervical cancer prevention, screening protocols, and updates aligned with WHO recommendations.
- Promote mentor-ship programs linking senior clinicians and specialists with junior staff to improve confidence and routine performance of VIA/VILI.

3. Health Facility Managers and Administrators (ARTH and Public Health Centers)

- Establish dedicated cervical cancer screening service units or focal persons to reduce workload-related barriers, which were the most commonly reported reason for non-practice (38.7%).

- Allocate protected time for VIA/VILI service provision, ensuring that screening is integrated into routine outpatient and maternal health services.
- Strengthen post-screening referral and follow-up systems, addressing providers' concerns about inability to follow clients after screening.
- Conduct regular supportive supervision and on-site coaching, focusing on skill reinforcement and quality improvement.

4. Healthcare Workers

- Actively engage in continuous learning and skill development related to cervical cancer screening, recognizing that good knowledge significantly increases screening practice.
- Serve as role models and advocates by routinely providing VIA/VILI services and counseling eligible women, thereby strengthening community trust and uptake of screening services.
- Collaborate within multidisciplinary teams to ensure effective client follow-up, referral, and treatment of VIA/VILI-positive cases.

5. Researchers and Academic Community

- Conduct interventional and longitudinal studies to evaluate the effectiveness of training, mentorship, and system-level interventions on improving VIA/VILI practice.
- Explore qualitative perspectives of healthcare workers to gain deeper insight into contextual, behavioral, and institutional barriers to cervical cancer screening practice.
- Expand research to rural and private health facilities to improve generalizability and inform national-level policy decisions.

6. Development Partners and Non-Governmental Organizations

- Support capacity-building initiatives, including funding for training, mentorship, and supply of screening equipment.
- Collaborate with government and academic institutions to pilot innovative screening models such as task-shifting and outreach-based VIA services.

Overall Recommendation

Improving cervical cancer screening practice among healthcare workers requires a coordinated, multi-level approach that addresses training gaps, knowledge deficits, workload constraints, and system-level support. Strengthening healthcare workers' capacity will not only improve service provision but also accelerate progress toward national and global cervical cancer elimination targets.

10. REFERENCES

1. Lakew G, Yirsaw AN, Berhie AY, Belayneh AG, Bogale SK, Andarge GA, et al. Cervical cancer screening practice and associated factors among female health care professionals in Ethiopia 2024: a systematic review and meta-analysis. BMC cancer. 2024;24(1):986.
2. Ruddies F GM, Teka B, Thies S, Wienke A, Kaufmann AM, et al. Cervical cancer screening in rural Ethiopia: a cross- sectional knowledge, attitude and practice study. BMC cancer. 2020;20(1):563.

3. Atnafu DD KR, Assefa Y. Drivers of cervical cancer prevention and management in sub-Saharan Africa: a qualitative synthesis of mixed studies. *Health research policy and systems*. 2024;22(1):21.
4. Ziyad YA, Jemal E, Dheresa M, Usso AA, Adem HA, Motuma A, et al. Determinants of Cervical Cancer Screening among Female Health Professionals in Harar Town, Eastern Ethiopia: A Cross-Sectional Study. *Infectious diseases in obstetrics and gynecology*. 2024;2024:1430978.
5. Fufa B. Assessment of Knowledge, Attitudes and Practices on Cervical Cancer Screening among Health Service Providers at Marie Stopes International Ethiopia Centers, 2015: Addis Ababa University; 2015.
6. Forouzanfar MH, Foreman KJ, Delossantos AM, Lozano R, Lopez AD, Murray CJ, et al. Breast and cervical cancer in 187 countries between 1980 and 2010: a systematic analysis. *The lancet*. 2011;378(9801):1461-84.
7. Dulla D, Daka D, Wakgari N. Knowledge about cervical cancer screening and its practice among female health care workers in southern Ethiopia: a cross-sectional study. *International journal of women's health*. 2017:365-72.
8. Perkins RB, Langrish S, Stern LJ, Simon CJ. A systematic review of barriers to cervical cancer screening in low- and middle-income countries. *Prev Med*. 2018;106:153-62.
9. Mutyaba T, Mmiro FA, Weiderpass E. Knowledge, attitudes and practices on cervical cancer screening among health care providers in Uganda. *BMC Med Educ*. 2006;6:13.
10. Abate SM, Ayele AA, Mekonnen CK. Health-care providers' cervical cancer screening practices and associated factors in sub-Saharan Africa: a systematic review and meta-analysis. *BMC Womens Health*. 2021;21:73.
11. Kress CM, Sharling L, Owen-Smith AA, Desalegn D, Blumberg HM, Goedken J. Knowledge, attitudes, and practices regarding cervical cancer and screening among Ethiopian health care workers. *International journal of women's health*. 2015:765-72.
12. Tapera O, Dreyer G, Kadzatsa W, Nyakabau AM, Stray-Pedersen B, Hendricks SJ. Determinants of cervical cancer screening uptake among women in low-resource settings: role of health-care providers. *Int J Gynecol Obstet*. 2019;147(1):85-91.
13. World Health Organization. WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention. 2nd ed. Geneva: World Health Organization; 2021.
14. Teshome R, Ayalew A, Tamirat KS, et al. Healthcare providers' knowledge, attitude, and practice towards cervical cancer screening in Sub-Saharan Africa: a systematic review and meta-analysis. *Front Oncol*. 2024;14.
15. Black E, Hyslop F, Richmond R. Barriers and facilitators to uptake of cervical cancer screening among women in Sub-Saharan Africa: a systematic review. *Eur J Cancer Care (Engl)*. 2019;28(2):e12961.
16. World Health Organization. Comprehensive cervical cancer control: a guide to essential practice. 2nd ed. Geneva: WHO; 2014.
17. Ararsa T, Tadele N, Ayalew Y, Gela D. Knowledge towards cervical cancer screening and associated factors among urban health extension workers at Addis Ababa, Ethiopia: facility based cross-sectional survey. *BMC cancer*. 2021;21(1):224.
18. World Health Organization. Global strategy to accelerate the elimination of cervical cancer as a public health problem [Internet]. Geneva: WHO; 2020 [cited 2025 Jul 1]. Available from: <https://www.who.int/publications/i/item/9789240014107>.
19. Chawla B, Taneja N, Awasthi AA, Kaur KN, Janardhanan R. Knowledge, attitude, and practice on screening toward cervical cancer among health professionals in India-A review. *Women's Health*. 2021;17:17455065211017066.
20. O'Donovan J, O'Donovan C, Nagraj S. The role of community health workers in cervical cancer screening in low-income and middle-income countries: a systematic scoping review of the literature. *BMJ global health*. 2019;4(3):e001452.
21. Marie Tebeu P, Saint Saba Antaon J, Adjeba M, Pikop F, Tsuala Fouogue J, Ndom P. [Knowledge, attitudes and practices of health professionals regard to cervical cancer in Cameroon]. *Sante publique (Vandoeuvre-les-Nancy, France)*. 2020;32(5):489-96.

22. Walz L, Mohamed D, Haibah A, Harle N, Al-Ali S, Moussa AA, et al. Knowledge, attitudes and practices concerning breast cancer, cervical cancer and screening among healthcare professionals and students in Mogadishu, Somalia: a cross-sectional study. *Ecancermedicalscience*. 2022;16:1455.
23. Avinu ES, Kutah J, Akumiah PO, Opoku-Addai K. Knowledge, perception and cervical cancer screening practices among nurses and midwives: a case study of Our Lady of Grace Hospital in the Asikuma Odoben Brakwa district, Central region-Ghana. *African health sciences*. 2023;23(4):487-97.
24. Khumalo PG, Carey M, Mackenzie L, Sanson-Fisher R. Cervical cancer screening-related knowledge among community health workers in Eswatini: a cross-sectional survey. *Health promotion international*. 2022;37(4).
25. Mohamed ML, Tawfik AM, Mohammed GF, Elotla SF. Knowledge, Attitude, and Practice of Cervical Cancer Screening, and HPV Vaccination: A Cross-Sectional Study Among Obstetricians and Gynecologists in Egypt. *Maternal and child health journal*. 2022;26(3):565-74.
26. Nessler K, Ball F, Chan SKF, Chwalek M, Krztoń-Królewiecka A, Windak A. Barriers and attitudes towards cervical cancer screening in primary healthcare in Poland - doctors' perspective. *BMC family practice*. 2021;22(1):260.
27. Obol JH, Lin S, Obwolo MJ, Harrison R, Richmond R. Knowledge, attitudes, and practice of cervical cancer prevention among health workers in rural health centres of Northern Uganda. *BMC cancer*. 2021;21(1):110.
28. Lott BE, Halkiyo A, Kassa DW, Kebede T, Dedefo A, Ehiri J, et al. Health workers' perspectives on barriers and facilitators to implementing a new national cervical cancer screening program in Ethiopia. *BMC women's health*. 2021;21(1):185.
29. Verbunt E, Boyd L, Creagh N, Milley K, Emery J, Nightingale C, et al. Health care system factors influencing primary healthcare workers' engagement in national cancer screening programs: a qualitative study. *Australian and New Zealand journal of public health*. 2022;46(6):858-64.
30. Debele T, Teshome F, Amdisa D, Bacha G, Birhanu Z, Kebede Y. A mixed-methods study on health learning materials utilization for COVID-19 risk communication and community engagement among health workers in Arsi Zone, Ethiopia: Implication for response to pandemic. *PloS one*. 2022;17(6):e0269574.
31. Dechasa T. Knowledge, attitudes and practices towards cervical cancer screening among health care professionals in Addis Ababa City Administration, Addis Ababa, Ethiopia: Addis Ababa University; Sep 2021 (5, 31, 32).
32. Tsegay A, Araya T, Amare K, et al. Knowledge, attitude, and practice on cervical cancer screening and associated factors among women aged 15–49 years in Adigrat Town, Northern Ethiopia, 2019: a community-based cross-sectional study. *Int J Womens Health*. 2021;12:1283–1298.
33. Medhin A, Tsegaye A, et al. Knowledge and attitude towards cervical cancer screening and associated factors among female health science students. *MOJ Public Health*. 2018;7(2):157–165.
34. Tadesse T, Wolka E, Nega B, et al. Knowledge, attitude and practice towards cervical cancer screening among women in hospitals of Wolaita Zone, Southern Ethiopia. *Cancer Manag Res*. 2020;12:993–1005.
35. Abebaw E, Tesfa M, Gezimu W, Bekele F, Duguma A. Female healthcare providers' knowledge, attitude, and practice towards cervical cancer screening and associated factors in public hospitals of Northwest Ethiopia. *SAGE Open Med*. 2022 May 12;10:20503121221095931. doi: 10.1177/20503121221095931. PMID: 35600715; PMCID: PMC9118899.
36. Jemal Z, Chea N, Hasen H, Tesfaye T, Abera N (2023) Cervical cancer screening utilization and associated factors among female health workers in public health facilities of Hossana town, southern Ethiopia: A mixed method approach. *PLoS ONE* 18(5): e0286262. <https://doi.org/10.1371/journal.pone.0286262>.
37. Delie AM, Bogale EK, Anagaw TF, Tiruneh MG, Fenta ET, Endeshaw D, Eshetu HB, Adal O, Tareke AA, Kebede N. Healthcare providers' knowledge, attitude, and practice towards cervical cancer screening in Sub-Saharan Africa: systematic review and meta-analysis. *Frontiers in oncology*. 2024 Aug 19;14:1436095.

38. Amado G, Weldegebreal F, Birhanu S, Dessie Y (2022) Cervical cancer screening practices and its associated factors among females of reproductive age in Durame town, Southern Ethiopia. PLoS ONE 17(12): e0279870. <https://doi.org/10.1371/journal.pone.0279870>.
39. Sankaranarayanan R, Basu P, Wesley R, Mahe C, Keita N, Mbalawa CG, et al. Accuracy of visual screening for cervical neoplasia: results from an IARC multicentre study in India and Africa. Lancet Oncol. 2018;19(4).
40. Melkamu Y, Wondimu A, Tadesse E. Cervical cancer screening practice and associated factors among health care providers in Eastern Ethiopia. Ethiop J Health Sci. 2020;30(3):381–390.
41. Gebru Z, Gerbaba M, Dirar A. Practice of cervical cancer screening and associated factors among health professionals in Northwest Ethiopia. BMC Women's Health. 2021;21:104.
42. Tesfaye ZT, Kassa GM, Gebremariam KT. Cervical cancer screening practice and associated factors among health care providers in Harar Town, Eastern Ethiopia. J Multidiscip Healthc. 2019;12:771–779.
43. Tadesse E, Dagnaw E. Knowledge and practice of cervical cancer screening among health professionals in Addis Ababa, Ethiopia. Ethiop J Reprod Health. 2020;12(2):45–54.
44. Binagwaho A, Ngabo F, Wagner CM, Mugeni C, Gatera M, Nutt CT. Integration of cervical cancer screening into primary health care in Rwanda. Bull World Health Organ. 2013;91(9):697–703.
45. Mwanahamuntu MH, Sahasrabuddhe VV, Kapambwe S, Pfaendler KS, Chibwesha C, Mkumba G, et al. Implementation of cervical cancer prevention services in Zambia. PLoS One. 2011;6(10).
46. Getahun F, Mazengia F, Abuhay M, Birhanu Z. Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia. BMC cancer. 2013;13:1-7.

ANNEXES: 1. Information sheet

Dear respondent, I am _____ you are invited to participate in a research project to be conducted by resident of speciality in Obstetrics and Gynecology at Arsi University college of

health science and department of Obstetrics and Gynecology. Please read the following statement and ask any unclear question before you agree to participate.

Title: Assessment of Knowledge Attitude and Practice toward Cervical Cancer Screening Among Health Care Workers in Asella Referral and Teaching Hospital and Two Public Health Centers in Asella Town.

Purpose of study: this study aims to assess knowledge, attitude and practice toward cervical cancer screening among Health Care Workers. The study is helpful in assessing the healthcare worker's awareness and practice toward cervical cancer screening and it helps to address the gaps in awareness and improve access of activities toward cervical cancer prevention.

Procedure and guideline

To assess knowledge, attitude and practice of cervical cancer screening, we invite you to participate in the study. If you are to participate in the study, you need to understand and give as your oral consent. You do not need to tell your name to the data collectors and all your response will be kept confidentially by using coding system whereby no one will have access to your response. It will take about 20 minutes to complete questions. The questions are written in English and its self-administered questionnaire.

Participation Benefit and Risk

If you participate in this research, there may not direct benefit to you, but your participation is help us in assessing knowledge, attitude and practice toward cervical cancer screening among healthcare workers. There is no risk in participating in this research project.

Right to refuse or withdraw

Your participation is volunteer and you have full right to refuse from participating in this research project. You have the right not to respond to some or all questions if you do not want to give your response and withdraw at any time you wish.

Confidentiality

The information obtained from this research project will be kept confidential and information about you that will be collected by this study will be stored in file without your name, but a code number assigned to it and it will not be revealed to anyone except the data collector.

2. Consent sheet

Code no

Good morning/Good afternoon, I am going to take a few minutes to assess knowledge, attitude and practice of healthcare workers toward cervical cancer screening. This questionnaire is present to you to obtain relevant information about knowledge, attitude and practice toward the cervical cancer screening. All information you give will be used for research purpose only and kept confidential.

Are you volunteer to participate? 1. Yes 2. No

If yes, thanks!

Annex-II. Questionnaires

Section 1

Socio demographic characteristics

S.No	Questions	Alternatives	Skip pattern
1	Age in years	_____	—
2	Sex	1.male 2. female	
3	Primary Language	1.Amharic 2. Oromiffa 3.Somali 4.Tigringa 5.. other	
4	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Other	—
5	Marital status	1.Single 2.Married 3.Divorced 4.Widowed	—
6	Educational status	1.Diploma 2.Degree 3.Masters 4.Speciality	—
7	Profession type	1.MD 2. Nurse 3.Midwifery 4. health officer	—
8	Year of experiance	_____	

Structured Knowledge Questionnaire on Cervical Cancer Screening

Sr. No.	Question	Answer
1	cervical cancer is one of the leading causes of death in women worldwide	A.True B.False
2	cervical cancer is preventable	A.True B.False
3	It is possible to detect pre-cancerous cervical cells	A.True B.False
4	The purpose of screening for cervical cancer is to detect pre-cancerous changes	A.True B.False
5	If untreated cervical cancer is fatal	A.True B.False
6	cervical cancer is caused by a virus that is spread sexually	A.True B.False
7	There is a vaccine that can prevent cervical cancer	A.True B.False
8	cervical cancer is not curable	A.True B.False
9	For cervical cancer, the progression of pre-cancerous cells to cancer can take 10–20 years	A.True B.false

10	cervical cancer can usually be found at an early stage because of the obvious symptoms	A.True B. False
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Part-III. Attitude Assessment on Cervical Cancer Screening

S. No	Question	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)
1	cervical cancer screening is an essential part of women's health care					
2	All women of age 25-65 years should under go cervical cancer screening.					
3	cervical cancer is a very serious disease					
4	a cervical cancer screening program should be started in my community					
5	Cervical cancer screening should be done only by trained health professional.					

Practice toward cervical cancer screening

S. No	Questions	Response	Skip
1	Are you trained for VIA?	1. Yes 2. No	
2	Is your health facility providing cervical cancer screening?	1. Yes 2. No	
3	Reason not Practicing cervical cancer screening:	1. no trained person 2. unable to follow after screening 3. work over – load 4. other	
4	Have you ever did VIA or VILI for your clients?	1 Yes 2. No	
5	have you ever treated VIA/ VILI positive clients?	1. Yes 2. No	
6	Have ever order pap smear for your client?	1 Yes 2. No	
7	Have you ever undergone cervical cancer screening (e.g., Pap smear or VIA)?	1. Yes 2. No	Skip if you are Male

