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Original Article

Comprehensive knowledge regarding cervical cancer and its determinants among healthcare providers in Hawassa city public hospitals, Ethiopia

Shimelis Fantu Gebresilasie[1], Dawit Mesfin[2], Getasew Bayu Asnakew[1*]

[1]Hawassa University College of Medicine and Health Sciences, Hawassa, Ethiopia; [2]Zewditu memorial Hospital, Addis Ababa, Ethiopia

*Corresponding author: Getasew Bayu Asnakew; E-mail: getasewbayu@gmail.com / getasew@hu.edu.et

Abstract

Background: Cervical cancer is the fourth most common cancer among women worldwide and the second in Ethiopia. Since healthcare providers are central to prevention and early detection, their knowledge is critical for reducing disease burden. The study explored providers' knowledge of cervical cancer and its prevention, and identified key factors influencing their knowledge in public hospitals of Hawassa city, Ethiopia.

Method: A cross-sectional study was conducted at two public hospitals in Hawassa from July to August 2023, involving 403 healthcare providers selected through simple random sampling. Data were collected using a structured questionnaire and analyzed with SPSS 27. Descriptive statistics summarized participant characteristics, while bivariable and multivariable logistic regression identified independent predictors of cervical cancer knowledge. Associations were reported using adjusted odds ratios with 95% confidence intervals, and significance set at $p < 0.05$.

Result: The study achieved a 96.2% response rate (403/419). The mean knowledge score of the respondents about cervical cancer was 0.44 (SD = 0.15), with 55.1% of healthcare professionals classified as having poor knowledge of cervical cancer and its prevention. In multivariable analysis, female professionals had higher odds of good knowledge (AOR = 2.65, 95% CI: 1.54–4.54), and having a sexual partner was positively associated with knowledge (AOR = 3.18, 95% CI: 1.52–6.27). Conversely, married participants (AOR = 0.20, 95% CI: 0.10–0.41) and respondents in the highest income category (AOR = 0.29, 95% CI: 0.12–0.79) had substantially lower odds of demonstrating good knowledge.

Conclusion: Knowledge of cervical cancer among healthcare professionals remains suboptimal and is influenced by gender, sexual partner status, marital status, and income, indicating that formal qualifications alone do not ensure up to date comprehensive knowledge. Health systems should prioritize

regular, competency-based training and integrate cervical cancer prevention into continuous professional development and workplace in service sessions, while aligning these efforts with national cancer control strategies.

Key words: Knowledge, cervical cancer, healthcare providers, hospitals, Ethiopia

Introduction

Cervical cancer is the fourth common women cancer worldwide, but second in Ethiopia (1). According to the Global Cancer Observatory, there were nearly 660,000 new cases and 350,000 deaths in the year 2022. Around 84-90% global burden of cervical cancer occurs in low- and middle-income countries (LMICs) (2). Sub-Saharan Africa as compared to North America has 9 times increased death rate from cervical cancer per 100,000 women annually (3). It is well proved that cervical cancer is the most preventable and curable disease if detected and treated early. However, in many developing countries cervical cancer continues to be the common cause of death among women between 25 and 49 years of age (4).

Prevention, early diagnosis, and treatment have been shown to decrease mortality due to cervical cancer. Effective screening can reduce the risk of developing invasive cervical cancer by more than 70% (5). But Low level of knowledge of risk factors and early signs and symptoms of disease and prevention services are some of the barriers to cervical cancer screening uptake and early health facility care-seeking for women in low resource areas (6, 7). Early help-seeking and uptake of cervical screening programs may be assisted by raising knowledge about risk factors, prevention, and symptoms of cervical cancer of women in low- and middle-income countries (8, 9).

Healthcare providers play a pivotal role in the prevention, early detection, and treatment of cervical cancer; however, their knowledge levels often vary considerably. Evidence indicates persistent gaps in understanding the full spectrum of determinants, with limited knowledge of preventive strategies, widespread misconceptions, and inadequate training. Knowledge regarding clinical presentation, available treatment modalities, and the overall burden of the disease remains insufficient, leaving comprehensive understanding fragmented. As the first point of contact for many patients, healthcare providers are expected to deliver health education that can significantly influence women's health seeking behaviors. By disseminating accurate information through community-based health education initiatives, providers can enhance public knowledge and attitudes toward cervical cancer prevention. To be effective in these roles, they must possess adequate knowledge of cervical cancer risks, clinical manifestations, prevention strategies, and treatment options, elements that are essential for early detection and timely intervention (10).

To effectively align with Ethiopia's national strategic plan for cervical cancer prevention, it is crucial to assess, understand, and enhance the knowledge of healthcare providers regarding the disease and its control measures. Building such capacity not only empowers providers to fulfill their critical role in prevention and early detection but also generates evidence that can guide decision makers at institutional and national levels. This evidence base is vital for mobilizing financial resources, revising policies, and updating clinical guidelines, thereby influencing stakeholders to strengthen cervical cancer control efforts. This study aimed to determine the level of knowledge and predictors towards cervical cancer and its control among

healthcare providers in public hospitals of Hawassa city, Southern Ethiopia.

Methods and materials

Study area

The study was conducted at Hawassa University Comprehensive Specialized Hospital and Adare General Hospital. Hawassa, the capital city of the Sidama Region, is located 275 km south of Addis Ababa, the capital of Ethiopia. The city hosts five public hospitals: one comprehensive specialized, one general, and three primary hospitals alongside eleven private hospitals, clinics, and pharmacies. Hawassa University Comprehensive Specialized Hospital, established in 2005, serves as the principal referral center for southern Ethiopia and functions as a teaching hospital. It comprises twelve departments and employs 452 nurses, 151 physicians of varying ranks, and 107 midwives. Adare General Hospital, another major health facility in the city, has more than 400 health care professionals, including 168 nurses, 51 midwives, and 48 physicians.

Study design and period

An institution-based cross-sectional study design was employed between July 1 and August 31, 2023

Population and eligibility criteria

The study participants were health care professionals actively working in both hospitals (HUCSH and Adare General Hospital) during the study period. Eligible participants included physicians, laboratory technicians, nurses, midwives, pharmacists, and anesthetists who consented to take part in the study. Healthcare providers who were absent at the time of data collection, as well as medical interns and residents, were excluded from participation.

Sample size determination

The sample size was determined using a single population proportion formula with the following assumptions: a 46.6% proportion (p = 0.466) of healthcare providers with good knowledge of cervical cancer prevention based on a previous study conducted in Addis Ababa (11), a 95% confidence level (alpha = 0.05), and a 5% margin of error (d = 0.05). The initial calculated sample size was 381. After accounting for a 10% non-response contingency rate, the final total sample size for this study was 419 healthcare providers.

Sampling procedures

A simple random sampling technique was employed to select study participants from a total of 1,093 healthcare providers across the two hospitals. The sampling frame consisted of all active healthcare providers during the study period. From this pool, participants were randomly drawn using a simple random lottery method, which guaranteed fairness and maintained the scientific rigor of the study design.

Variables

In this study, the primary dependent variable is the level of knowledge towards cervical cancer and its preventive measures. This outcome is hypothesized to be influenced by a variety of independent variables, broadly categorized into socio-demographic, professional, and behavioral factors. The socio-demographic predictors include age, sex, marital status, religion, educational level, and monthly income. Profession-specific factors include the participant's profession, the department they are working in, and their total years of service. Finally, behavioral and reproductive health factors are considered as independent variables, including the presence or absence of a sexual partner, age at first sexual intercourse, cigarette

smoking, contraceptive usage, and the presence or absence of multiple sexual partners.

Operational definitions:

- **Knowledge** about cervical cancer and its prevention was assessed using 35 structured questions. Items covered if knows the disease, risk factors, modes of HPV transmission, symptoms of cervical carcinoma, preventive measures, treatment options for the disease and precancers, screening methods, and recommended screening frequency. Each correct response was scored as 1, and incorrect or 'don't know' responses as 0. The total score ranged from 0 to 35. Respondents scoring at or above the mean were classified as having good knowledge, while those scoring below the mean were classified as having poor knowledge.
- **Cancer screening:** A procedure performed to detect abnormal cells in a specific tissue.
- **Health professional:** Licensed health care providers authorized to deliver clinical services.

Data collection tools and procedures

A structured, self-administered questionnaire was developed after reviewing relevant literature and was administered in English. Simple and clear language was used to ensure comprehension by healthcare providers. The instrument consisted of four sections: socio-demographic characteristics, reproductive history, knowledge of cervical cancer, and knowledge of cervical cancer prevention and control. The knowledge of respondents regarding cervical cancer was assessed across several domains, including their general awareness of the disease, understanding of risk factors, recognition of clinical presentations, knowledge of screening and precancer treatment, awareness of general preventive mechanisms, and familiarity with treatment options. Each of these domains was evaluated using multiple components of questions, with responses coded as 0 (no) or 1 (yes). Comprehensive knowledge was then analyzed by aggregating scores across these categories.

Data quality control

Data quality was ensured through several measures. The questionnaire was pretested on 10% of the sample at Yirgalem general Hospital, which was not part of the study, and subsequently revised to optimize response formatting and structural clarity based on participant feedback. Prior to data collection, three health professionals (one resident physician and two midwives) received three days of training to standardize procedures and minimize variability. During the data collection period, the investigators maintained daily contact with the data collectors to address any challenges or difficulties encountered. The completeness and consistency of the collected data were checked regularly to ensure reliability.

Data entry and analysis

The collected data were thoroughly checked, cleaned, and entered into Epi Info version 7, then exported to SPSS version 27 for further cleaning and statistical analysis. Descriptive statistics frequency, mean, proportion and standard deviation were used to summarize the data. Missing data were minimal and addressed using mean imputation based on the respective variable categories. To examine associations, bivariable logistic regression was first conducted between the dependent and each of the independent variables, and variables with a p value less than 0.25 in the bivariable analysis were considered candidates for inclusion in the multivariable logistic regression model. To assess model fitness, the Hosmer–Lemeshow goodness-of-fit test was applied, yielding a p-value of 0.166, which indicates that the logistic regression model provided an adequate fit for the data.

Multicollinearity among the independent variables was assessed using the Variance Inflation Factor (VIF), and all values fell well below the standard threshold of 5, indicating no significant collinearity issues. In the final model, variables with a p value less than 0.05 were regarded as statistically significant. For significant predictors, adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported to quantify the strength of association with healthcare providers' knowledge of cervical cancer and its prevention.

Results

Socio-Demographic Characteristics of The Respondents

Of the 419 questionnaires distributed, 403 were completed and returned, giving a response rate of 96%. The mean age of the study participants was 29.04 (SD=5.18) years. Majority of the respondents were female 256(63.5%), married 232(57.6%), protestants 207(51.4%), clinical nurses 207(51.4%), have 1-5 years of work experience 251 (62.3%), and earn 4000-12000 ETB per month 271 (67.2%); and significant number 194 (48.1%) were working in OBGYN department. Most 342 (84.9%) have been found to have BSc in their educational level, and show a diverse ethnic category. (Table 1)

Table 1: Sociodemographic characteristics of respondents among health care providers working in public hospitals, Sidama region, Ethiopia, 2023

Variables	Category	Frequency	Percentage (%)
Sex	Male	147	36.5
	Female	256	63.5
Marital status	Single	171	42.4
	Married	232	57.6
Religion	Orthodox	153	38.0
	Protestant	207	51.4
	Others	43	10.7
Profession	Midwives	55	13.6
	Clinical nurse	207	51.4
	Physician	82	20.3
	Others ***	59	14.6
Educational level	Diploma	27	6.7
	BSc	342	84.9
	MSc and above*	34	8.4
Unit of practice	OBGYN**	194	48.1
	Internal medicine	48	11.9
	Surgery	102	25.3
	Pediatrics	44	10.9
	Others ****	15	3.7
Work experience	1-5 years	251	62.3
	6-10 years	106	26.3
	≥11 years	46	11.4
Monthly income (ETB)	2000-4000	58	14.4
	4001-12000	271	67.2
	> 12,000	74	18.4

*MSc- Masters of Science; **OBGYN- Obstetrics and Gynecology; ***Profession (Others): includes medical laboratory technologists, pharmacists, psychiatric nurses, anesthetists, radiographers, and public health officers; ****Unit of practice (others): includes the emergency department, intensive care unit (ICU), psychiatry clinic, and outpatient departments.

Reproductive and Sexual History of Respondents

Out of the 403 respondents, majority 288(71.5%) have sexual partners, started sexual intercourse after the age of 18 years 308 (76.4%), and never used any form of contraceptives either the respondents or their partners 259 (64.3%). Almost all of them have no multiple sexual partners 391 (97.0%) nor smoke cigarette 397 (98.5%). (Table 2)

Knowledge towards cervical cancer and its preventive methods

The general knowledge of cervical cancer, with mean = 0.64 (SD=0.16), was measured by determining whether respondents had ever heard

of the disease, knew someone affected, understood whether it is transmissible, were aware of its modes of transmission, and whether they had received any training related to the disease. Knowledge of risk factors, having mean = 0.43 (SD=0.24), was assessed through questions on recognized contributors such as having multiple sexual partners, cigarette smoking, contraceptive use, multiparity, HIV infection, and early initiation of sexual intercourse.

Table 2: Sexual, reproductive, and selected behavioral characteristics of respondents among health care providers working in public hospitals, Sidama region, Ethiopia, 2023

Variables	Category	Frequency	Percentage (%)
Sexual partner	No	115	28.5
	Yes	288	71.5
Age at 1st intercourse	≤ 18 years	31	7.7
	>18 years	308	76.4
	Never had coitus	64	15.9
Smoke cigarette	No	397	98.5
	Yes	6	1.5
Multiple partner	No	391	97.0
	Yes	12	3.0
Contraception usage	No	259	64.3
	Yes	144	35.7

Clinical presentation, mean knowledge = 0.39 (SD=0.25), was evaluated based on respondents' knowledge of common symptoms, including post coital bleeding, irregular vaginal bleeding, abnormal vaginal discharge, and pain during sexual intercourse. Knowledge of preventive mechanisms, mean = 0.39 (SD=0.17), was also assessed cumulatively, focusing on screening practices, precancer treatment, and other general preventive strategies. Screening and precancer treatment knowledge included awareness of whether these interventions prevent cervical cancer, familiarity with methods such as Pap smear, VIA, and HPV DNA testing, understanding of the recommended age for screening, and knowledge of treatment procedures such as cryotherapy and loop electrosurgical procedure (LEEP). Respondents' knowledge about treatment of cervical cancer, mean = 0.59 (SD=0.26), was measured by assessing whether they believed the disease is treatable and their knowledge of treatment modalities, including surgery, radiotherapy, and chemotherapy.

Overall, the study revealed poor comprehensive knowledge about cervical cancer and its preventive mechanisms, with a mean score of 0.44 (SD=0.15). The majority of respondents (64.5%) reported that they acquired information about cervical cancer and its prevention during their college education. In contrast, only a small proportion (7.4%) indicated that they had received formal training on the subject (Fig. 1).

Factors associated with comprehensive knowledge of cervical cancer and its prevention

A range of socio-demographic, reproductive, and behavioral characteristics were assessed as potential predictors of comprehensive knowledge about cervical cancer and its prevention. Initially, bivariable logistic regression analysis was conducted to identify candidate variables for inclusion in the multivariable model. Based on the criterion of a p-value less than 0.25, all factors except Cigarette smoking, age at first sexual intercourse, and having multiple sexual partners were retained for multivariable analysis.

In the final adjusted model, the following variables demonstrated statistically significant associations with knowledge level. Female respondents were significantly more likely to demonstrate good knowledge compared to males (AOR = 2.65, 95% CI: 1.54–4.54, $p < 0.001$). Marital status showed a contrasting effect, with

married women being less likely to have good knowledge than single women (AOR = 0.20, 95% CI: 0.10–0.41, p < 0.001). In contrast, the presence of a sexual partner, irrespective of marital status, was strongly associated with higher knowledge (AOR = 3.18, 95% CI: 1.52–6.27, p = 0.002). Income also demonstrated a significant association, with respondents in the highest income category (>12,000 ETB) less likely to have good knowledge compared to those in the lowest income group (AOR = 0.29, 95% CI: 0.12–0.79, p = 0.009) (Table 3).

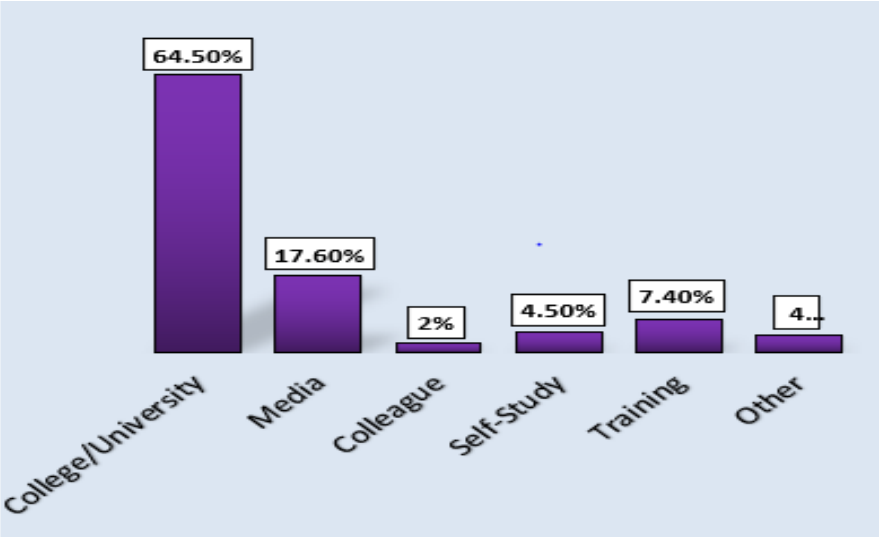

Figure 1: Source of information regarding cervical cancer and its prevention methods among health care providers working in public hospitals, Sidama region, Ethiopia, 2023

Table 3: Multivariable logistic regression analyses of factors associated with cervical cancer knowledge among healthcare providers, Hawassa, southern Ethiopia, 2023

Variable	Category	Knowledge		COR (95%CI)	AOR (95%CI)	P-value
		Poor, n	Good, n			
Age	< 30	133	133	2.67(1.01-7.02)	1.5 (0.26-9.16)	0.62
	30 to 39	73	42	1.53(0.56-4.22)	0.52(0.11-2.45)	0.41
	40 and above	16	6	1	1	1
Sex	Male	67	80	1	1	-
	Female	155	101	1.83 (1.22-2.76)	**2.65 (1.54-4.54)**	**<0.001*** **
Marital status	Single	94	77	1	**1**	
	Married	128	104	0.99 (0.67-1.48)	**0.20 (0.1- 0.41)**	**<0.001*** **
Religion	Orthodox	84	69	1	1	-
	protestant	116	91	0.86 (0.44-1.69)	0.74 (0.31-1.80)	0.510
	Others	22	21	0.82 (0.43-1.59)	1.07 (0.46-2.50)	0.882
Profession	Midwives	26	29	1	1	-
	Nurses	131	76	1.01 (0.48-2.10)	0.49 (0.18-1.31)	0.572
	Physicians	37	45	0.52 (0.29-0.94)	0.94 (0.45-2.12)	0.230
	Others	28	31	1.10 (0.56-2.15)	.93 (0.4-2.2)	0.496
Experience	1-5 years	129	122	1	1	-
	6-10 years	58	48	0.88 (0.56-1.38)	1.15 (0.27-4.56)	0.768
	>10 years	35	11	0.33 (0.16-0.68)	1.47 (0.45-4.75)	0.795
Partner	No	48	67	1	1	-

presence	yes	174	114	0.47 (0.30-0.73)	**3.18 (1.52-6.27)**	**0.002*** **
Income, ETB	2000-4000	31	27	1	1	-
	4001-12,000	131	140	1.23 (0.70-2.17)	1.20(0.59-2.44)	0.60
	>12,000	60	14	0.27 (0.12-0.58)	**.29 (0.12-0.79)**	**0.009*** **
Educational level	Diploma	7	17	4.04(1.30-12.58)	3.13(0.81-12.16)	0.09
	BSc	195	152	1.3 (0.62-2.74)	0.708 (0.29-1.70)	0.44
	MSc & Above	20	12	1	1	
Use of contraception	No	133	126	1	1	-
	Yes	80	55	0.65 (0.43-0.99)	1.42 (0.72-2.77)	0.309
Unit of practice	OBGYN	89	105	1	1	-
	Other	133	76	2.07 (1.38-3.07))	1.03(0.48-2.20)	0.94

ETB- Ethiopian birr, BSc- Batchelor of Science, ***- Significant association

Discussion

Advanced understanding of cervical cancer has firmly established its preventable nature, with appropriate preventive measures, the burden of the disease can be significantly reduced. Central to this effort is the acquisition of comprehensive knowledge about the disease and its prevention strategies, as knowledge and understanding directly influence both individual and community health outcomes. Healthcare providers, in particular, play a pivotal role in this process. As primary sources of health information, their level of knowledge not only shapes their own practices but also determines the accuracy and effectiveness of the guidance they deliver to patients and the wider community (12). Therefore, assessing and strengthening the knowledge of healthcare staff is essential for ensuring effective screening programs and the successful implementation of preventive interventions against cervical cancer.

The overall mean knowledge score on cervical cancer and its preventive mechanisms was 0.44 (SD = 0.15). Based on the cutoff (≥0.44 = good knowledge; <0.44 = poor knowledge), 55.1% of respondents were classified as having poor knowledge, while 44.9% demonstrated good knowledge. The proportion of participants classified as having good knowledge would have been markedly reduced if the assessment had relied on external references or the commonly used threshold of 50%. This proportion aligns closely with findings from a recent systematic review, which reported that approximately only 49.7% of healthcare providers possessed adequate knowledge of cervical cancer and its prevention (13). Such consistency underscores the persistent gaps in knowledge among health professionals and highlights the need for strengthened educational and training interventions to improve knowledge levels in this critical area of public health.

The majority of respondents (64.5%) reported acquiring their knowledge about cervical cancer primarily through college education, comparable to study made in Addis with 75.4% (14). A smaller proportion cited other sources, with 17.6% attributing their knowledge to media outlets, and 7.4% to training programs. While college education emerged as the dominant and effective source of information, the findings highlight a critical underutilization of other valuable mechanisms such as structured training initiatives and mass media campaigns. Strengthening these complementary channels could broaden the reach of cervical cancer knowledge and ensure more comprehensive dissemination of preventive knowledge across diverse populations (13, 15).

The study further revealed that a majority of healthcare providers (71.5%) reported having had a sexual partner at some point in their

lifetime, although only a small proportion reported multiple partners. This relational experience appears to have influenced knowledge levels: in multivariable analysis, having a sexual partner, irrespective of marital status, was independently associated with higher odds of good knowledge (AOR = 3.18, 95% CI: 1.52–6.27, p = 0.002). This suggests that partner presence may heighten perceived vulnerability and encourage greater attentiveness to preventive measures and early screening practices. Evidence suggests that having a sexual partner, and particularly multiple partners, can increase knowledge of cervical cancer and its associated risks (16). In contrast, those without sexual partner experience may have lower exposure to sexual health information, which could contribute to reduced knowledge levels.

The study also demonstrated that gender played a significant role in affecting knowledge levels, with female healthcare providers exhibiting higher odds of good knowledge (AOR = 2.65, 95% CI: 1.54–4.54). This positive association is consistent with findings from previous studies on HPV infection and vaccination, which similarly reported greater knowledge among women, even though cumulative knowledge was not fully addressed (17, 18, 19). A potential explanation is that female providers may perceive themselves as more directly vulnerable to cervical cancer, leading to heightened attentiveness to preventive information and screening practices. Additionally, professional roles and exposure to reproductive health services may further reinforce their knowledge compared to male counterparts.

The analysis also revealed that certain socio-economic characteristics were significantly associated with knowledge levels. Specifically, marital status showed a negative association, with married participants exhibiting 80% lower odds of having good knowledge compared to single participants (AOR = 0.20, 95% CI: 0.10–0.41, p < 0.001), similar to other study of general population in which married women had a less positive effect on knowledge than single (20). Although marital status and partner status are conceptually related, multicollinearity diagnostics (VIF 1.5) confirmed no collinearity, and both variables potentially show a distinct social context influencing cervical cancer knowledge. This finding suggests that marital commitments and social roles may influence access to or prioritization of health information.

Income also demonstrated a significant association, with those in the highest income category (>12,000 ETB) being less likely to have good knowledge compared to those in the lowest income group (AOR = 0.29, 95% CI: 0.12–0.79, p = 0.009). A possible explanation is that higher income professionals may be more engaged in administrative or specialized clinical responsibilities, leaving less emphasis on continuous updating of knowledge regarding cervical cancer. In contrast, lower income professionals may be more frequently involved in routine service delivery, institutional trainings, and direct patient education activities, which can reinforce their knowledge base. Unlike other studies that have reported better knowledge with increasing income, our findings suggest that professional role differentiation and patterns of exposure to structured training may be more influential than financial status alone in affecting knowledge among health workers (20, 21).

Strength and limitation

This study examines healthcare providers' comprehensive knowledge of cervical cancer, conducted within health institutions to ensure relevance to clinical practice and public health interventions. By targeting professionals across two major public facilities in Hawassa, the findings provide valuable insights for policy and practice. However, the reliance on a self-administered questionnaire may have affected response accuracy including social desirability bias, and the limited availability of qualitative

component constrained deeper contextual analysis. Moreover, cross sectional design limits causal inference and the very low prevalence of specific behavioral predictors, such as cigarette smoking and multiple sexual partners, may have resulted in unstable estimates within the regression models.

Conclusion

This study demonstrated that knowledge of cervical cancer among healthcare professionals remains suboptimal and is affected by a combination of gender, sexual partner, marital status, and income. The findings indicate that formal qualifications alone may not guarantee up to date comprehensive knowledge. To address these gaps, health systems should prioritize and practice regular, competency-based training and integrate cervical cancer prevention into continuous professional development and workplace in service sessions, while aligning these efforts with national cancer control strategies. Moreover, along with curricular integration and media campaigns, specific strategies including targeted educational interventions are also essential to address disparities related to gender, sexual partner status, marital status, and incomes, ensuring healthcare providers are adequately equipped to promote effective cervical cancer prevention.

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Ethical considerations

Ethical clearance for this study was obtained from the Institutional Review Board (IRB) of Hawassa University, College of Medicine and Health Sciences. Written informed consent was secured from all participants prior to enrollment. Each participant completed the study instrument independently, without external influence or coercion. To facilitate data collection, official letters of cooperation were issued to Hawassa University Comprehensive Specialized Hospital and Adare General Hospital. Copies of these letters were submitted to the respective Obstetrics and Gynecology departments, and formal permission to conduct the study was subsequently granted. The manuscript has been registered at research registry with registration number of 11771.

Data availability statement

The electronic datasets generated and/or analyzed during the current study are not publicly available due to confidentiality and ethical restrictions, but they can be obtained from the corresponding author upon reasonable request. Access will be granted to qualified researchers for purposes of academic inquiry, provided that appropriate ethical considerations are met.

Conflicts of interest

The authors declared no conflicts of interest exist.

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References

1. Awedew AF, Asefa Z, Belay WB. National Burden and Trend of Cancer in Ethiopia, 2010–2019: a systemic analysis for Global burden of disease study. Scientific Reports. 2022;12(1):12736.
2. Wu J, Jin Q, Zhang Y, Ji Y, Li J, Liu X, et al. Global burden of cervical cancer: current estimates, temporal trend and future projections based on the GLOBOCAN 2022. Journal of the National Cancer Center. 2025.
3. National strategic action plan for prevention & control of non communicable disease in Ethiopia 2014-2016.
4. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68(6):394-424.
5. Bedell SL, Goldstein LS, Goldstein AR, Goldstein AT. Cervical cancer screening: past, present, and future. Sexual medicine reviews. 2020;8(1):28-37.
6. Owokuhaisa J, Turyakira E, Ssedyabane F, Tusubira D, Kajabwangu R, Musinguzi P, et al. Barriers and facilitators of retention in care after cervical cancer screening: patients' and healthcare providers' perspectives. BMC Women's Health. 2024;24(1):516.
7. Gupta S, Dey A, Kundu S, Gupta SS. Barriers to cervical cancer screening in India: Insights from National Family Health Survey-5 data. Asian Pacific Journal of Cancer Prevention: APJCP. 2025;26(5):1853.
8. Nnaji CA, Kuodi P, Walter FM, Moodley J. Effectiveness of interventions for improving timely diagnosis of breast and cervical cancers in low-income and middle-income countries: a systematic review. BMJ open. 2022;12(4):e054501.
9. Parekh S, Chisoni F, Amu H. The Delayed Diagnosis of Cervical Cancer in Low-Middle Income Countries (LMICs): A Scoping Review. 2025.
10. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2021.
11. Firdawek Getahun, Assessment of cervical cancer services and cervical cancer related knowledge of health service providers in public health facilities in addis ababa, 2014.
12. Chimezie RO. Health awareness: A significant factor in chronic diseases prevention and access to care. Journal of Biosciences and Medicines. 2023;11(2):64-79.
13. Delie AM, Bogale EK, Anagaw TF, Tiruneh MG, Fenta ET, Endeshaw D, et al. Healthcare providers' knowledge, attitude, and practice towards cervical cancer screening in Sub-Saharan Africa: systematic review and meta-analysis. Frontiers in oncology. 2024;14:1436095.
14. Gebrie MH, Belete MA, Lemlem SB, Woreta HK. Knowledge, preventive practice and associated factors of female nurses' towards cervical cancer in the selected government hospitals in Addis Ababa, Ethiopia. J Diabetes Metab. 2015;6(7):569.

15. Chepkorir J, Guillaume D, Lee J, Duroseau B, Xia Z, Wyche S, et al. The role of health information sources on cervical cancer literacy, knowledge, attitudes and screening practices in Sub-Saharan African women: A systematic review. International journal of environmental research and public health. 2024;21(7):872.

16. Okyere J. Multiple sexual partnership as an independent predictor of cervical cancer screening among women of reproductive age: an analysis of the 2022 Kenya demographic and health survey. BMC cancer. 2025;25(1):259.

17. Heimbecker V, Bordini SC, Rodrigues AC, de Alencar NM, Blanco NS, Fitz F, et al. Gender differences on the awareness of human papillomavirus infection and vaccination. Journal of Cancer Education. 2024;39(6):611-7.

18. Chen G, Wu B, Dai X, Zhang M, Liu Y, Huang H, et al. Gender differences in knowledge and attitude towards HPV and HPV vaccine among college students in Wenzhou, China. Vaccines. 2021;10(1):10.Islam T, Khan MAS, Hawlader MDH, Meem N-E-S, Eva FN, Monisha UK, et al. Awareness about cervical cancer and its socio-economic determinants among adults in Bangladesh: Results from a nationwide cross-sectional study. PLoS One. 2025;20(6):e0325712.

19. Weng Q, Jiang J, Haji FM, Nondo LH, Zhou H. Women's knowledge of and attitudes toward cervical cancer and cervical cancer screening in Zanzibar, Tanzania: a cross-sectional study. BMC cancer. 2020;20(1):63

20. Murfin J, Irvine F, Meechan-Rogers R, Swift A. Education, income and occupation and their influence on the uptake of cervical cancer prevention strategies: A systematic review. Journal of clinical nursing. 2020; 29(3-4):393-415