

ASSESSMENT OF KNOWLEDGE, AWARENESS, AND PREVENTIVE HEALTH PRACTICES REGARDING CERVICAL CANCER SCREENING AMONG WOMEN OF REPRODUCTIVE AGE: A CROSS-SECTIONAL STUDY

Shehla Channa¹, Dr. Madiha Abbasi², Dr. Fahmida Gul^{3*}, Dr. Anila Mahmood⁴, Dr. Farhana Rajpar⁵, Dr. Kanwal Abbas Bhatti⁶

¹Professor at Liaquat University of Medical & Health Sciences (LUMHS), shehlaraza600@gmail.com

²Associate Professor of Obstetrics and Gynecology, at Liaquat University of Medical and Health sciences Jamshoro, madihairfan@hotmail.com

³Assistant Professor of Anatomy at Liaquat University of Medical and Health sciences Jamshoro fahmida.gul@lumhs.edu.pk

⁴Associate Professor of Obstetrics and Gynecology, at Liaquat University of Medical and Health sciences Jamshoro, dranila_shoukat@yahoo.com

⁵Associate Professor, Anatomy, at Liaquat University of Medical and Health sciences Jamshoro, fairyrajpar@gmail.com

⁶Professor of Medicine, at Liaquat University of Medical and Health sciences Jamshoro, kanwal.abbas@lumhs.edu.pk

*Corresponding Author: Dr. Fahmida Gul, fahmida.gul@lumhs.edu.pk

ABSTRACT

Background: Although HPV vaccination, early detection, and frequent screening can prevent most cases of cervical cancer, it is still a big health problem. Women's lack of knowledge and poor preventive measures are responsible for late diagnosis and high disease burden.

Objective: To evaluate the knowledge, awareness and preventive health practices of the women of reproductive age regarding the cervical cancer screening in a tertiary care hospital.

Methods: A cross sectional study was carried out at tertiary care hospital from 1st November 2025 to 1st May 2026. 100 women of reproductive age were included in total. A structured questionnaire was used to gather data on demographic information, knowledge about cervical cancer, awareness of screening options, HPV vaccination and preventive behaviors. Descriptive and inferential statistics were used to analyze data.

Results: Of the 100 participants, 68% had heard of how HPV infection causes cervical cancer, and 42% had heard about HPV as a significant cause of cervical cancer. Fifty-five percent of women reported being aware of Pap smear screening, but only 24% had ever been screened for cervical cancer. An education level and screening awareness were significantly related to better preventive practices. There were significant disconnections with HPV vaccination awareness and regular HPV screening uptake.

Conclusion: The study found significant disparities in the knowledge and uptake of cervical cancer prevention practices among women of reproductive age. There is a need to increase awareness and improve access to screening services and strengthen health education to improve cervical cancer prevention and early detection.

KEYWORDS: Cervical Cancer; Early Detection of Cancer; Health Knowledge, Attitudes, Practice; Human Papillomavirus; Papillomavirus Vaccines; Preventive Health Services; Uterine Cervical Neoplasms

INTRODUCTION

Despite having significantly declined over the last few decades, cervical cancer is still one of the most prevalent cancers among women, and one of the biggest public health threats in low- and middle-income countries. Although cervical cancer is a largely preventable disease through effective screening and early treatment for precancerous lesions, and vaccination, it still represents a very important cause of cancer-related death and morbidity among women around the world. The disease evolves slowly and is a defined sequence of events starting with chronic infection with high risk HPV, then transitioning to CIN and finally to invasive cancer. The extended pre-invasive period offers a significant opportunity for early detection and prevention, which can be achieved with organized screening programmes and timely intervention [1].

HPV infection, particularly oncogenic HPV types 16 and 18, is known to be the most common etiological factor contributing to nearly all cases of cervical cancer. HPV infection is widespread in sexually active women and is likely to clear up on its own, but when present for a prolonged period, it can cause changes in the DNA and cause cells to grow abnormally, which can result in cancer. Numerous factors further exacerbate the risk of the development of a disease, such as early age at first sexual intercourse, multiple sexual partners, smoking, immunosuppression, low reproductive health literacy, and limited access to health care services [2]. Although the advent of HPV vaccines has provided a major improvement in the strategies to prevent cervical cancer, vaccines alone will not prevent the disease burden and continued focus on screening and awareness is crucial [3].

Cervical cancer screening is regarded as one of the most successful public health screening programs due to the ability to identify and treat precancerous changes before they have a chance to develop into cancer. Common screening strategies include conventional cervical cytology (Pap test), HPV DNA testing, and visual inspection using acetic acid (VIA) based on the resources available in and the needs of a specific population. The current international guidelines are very strong about the value of HPV screening as a very sensitive tool to identify women who are at risk and to lower the risk of cervical cancer deaths and incidence [4]. However, these screening programs are only effective if women are aware and accept screening, healthcare facilities are accessible and they follow recommended screening practices.

While services are available in numerous areas, uptake of screening is sub-optimal, especially for women of reproductive age. One of the biggest challenges in the early detection of cervical cancer is the lack of awareness about the symptoms, risk factors, preventive measures, and benefits of screening. Many studies have shown that there is a significant lack of understanding about cervical cancer among women that they do not know the disease can be prevented through screening and HPV vaccine [5,6]. Additionally, misunderstandings about the screening process, anxiety about pain or positive outcomes, embarrassment, cultural beliefs, cost, and inadequate counseling and support from healthcare providers further limit screening uptake [7].

Women of reproductive age are an important population in cervical cancer prevention, and interventions in this age group have the potential to impact future cervical cancer outcomes. The provision of sufficient information about the prevention of cervical cancer promotes women's uptake of cervical screening services, healthier reproductive behaviors and involvement in vaccination programs. But the findings from other countries suggest that there are high levels of variation in knowledge, attitudes and preventative practices among reproductive age women. To date, some studies in developing countries have reported that awareness of cervical cancer was moderate, but screening uptake was low, as screening recommendations were not well understood and the engagement of health providers has been limited [8,9].

Many social, economic and demographic factors affect preventive health practices, such as educational level, age, marital status, income, place of residence, access to health care and prior contact with health information. The more educated women and those who come into more contact with health care are more likely to show better knowledge and engage in cervical cancer screening. On the other hand, females belonging to under-emphasized communities face inequities in preventive health services because they do not have adequate resources, they lack health literacy, and they are not aware of any awareness campaign [10]. It is therefore crucial to measure women's knowledge, awareness and preventive practices to uncover the gaps and plan specific educational interventions.

It is important to note that no single strategy for cervical cancer prevention is adequate and that a multifaceted strategy, including community education, HPV vaccination, screening, and effective follow-up care, is necessary to improve cervical cancer outcomes. Local awareness campaigns are important in correcting misconceptions and boosting screening uptake by creating culturally and socially appropriate messages. Past studies have indicated that educational programs have a significant effect on increasing women's knowledge of factors that increase their risk of cervical cancer and the screening procedures available, which ultimately leads to prevention [11].

Cervical cancer screening and prevention are difficult in many developing nations, such as South Asian populations, due to the lack of organised screening and limited awareness. In addition, women may attend late in the disease process because of issues with seeking care and lack of established screening protocols. Research studies evaluating knowledge and practices of women of reproductive age have revealed the need for more effective awareness programmes, counselling services, and a better network of cervical screening services within primary healthcare systems [12,13].

Evaluation of knowledge, awareness and preventive health practices helps to gain information about how women perceive cervical cancer prevention and factors that may be linked to screening behaviour. This evidence is crucial for healthcare policy makers, clinicians and public health planners to develop efficient interventions to improve screening coverage and reduce the burden of cervical cancer. Awareness of gaps within the women of reproductive age population can inform the design of educational initiatives to promote early screening, HPV vaccine uptake, and timely health-seeking.

Though progress has been made in cervical cancer prevention strategies, lack of awareness and poor screening practices are holding back their effectiveness. Hence, a study to assess the knowledge, awareness and preventive health practices of women regarding cervical cancer screening is crucial to understand the status of the knowledge and barriers to the preventive health behaviors. This is a cross sectional study to evaluate the awareness, knowledge and preventive health practices amongst women of reproductive age and to bring support to the cervical cancer prevention strategies to achieve better outcomes in women's reproductive health.

METHODOLOGY

This was a cross-sectional study carried out and aimed to evaluate knowledge, awareness and preventive health practices pertaining to cervical cancer screening among women of reproductive age in a tertiary care hospital. This study was conducted for six months starting from 1st November, 2025 till 1st May, 2026. 100 women of reproductive

age were recruited into the study based on predetermined criteria. Participants were recruited from the hospital environment, including women who visited the hospital's gynecology and external medicine departments for their day-to-day health needs and/or for reproductive health services.

The study was conducted on women of reproductive age, who were willing to participate and had given informed consent. Participants who failed to provide reliable information or had partial information or refused to participate were excluded. A structured pre-designed questionnaire for the assessment of the demographic characteristics, level of knowledge about cervical cancer, its risk factors as well as its preventive measures and current practice of cervical cancer screening among the participants was used to collect data. The questionnaire contained data on awareness of cervical cancer symptoms, awareness of HPV infection, awareness of HPV vaccination, Pap smear testing, frequency of Pap smear testing, and obstacles to screening participation.

All the information collected from the participants was kept confidential and interviews were conducted one to one during the study. All the data collected were checked for completeness and accuracy prior to analysis. Demographic characteristics and study variables were summarized with descriptive statistical methods. The categorical variables were summarized in terms of frequency and percentages, and suitable statistical tests were used to assess the associations between participants' demographic characteristics and their knowledge, awareness, and preventive health practices about cervical cancer screening.

All committee members approved the study's ethics prior to its commencement. It was explained to all the participants the purpose and the objects of the research and informed consent was obtained before the data collection. The study was carried out in compliance with the ethical principles for medical research on human subject. This study was conducted to identify gaps in cervical cancer screening awareness and preventive practices among women of reproductive age and to offer proof of the need to enhance cervical cancer prevention strategies in the healthcare environment.

RESULTS

A total sample of 100 women of reproductive age was studied. The collected data were analyzed to evaluate their demographic characteristics, knowledge, awareness and preventive health practices about cervical cancer screening. Findings showed differences in level of knowledge, screening practices and factors affecting cervical cancer prevention behaviors among the participants.

Table 1. Demographic Characteristics of Study Participants (n=100)

Variables	Frequency (n)	Percentage (%)
Age group (years)		
18–25	32	32%
26–35	45	45%
36–45	23	23%
Educational status		
Primary education	18	18%
Secondary education	34	34%
Graduate and above	48	48%
Marital status		
Married	72	72%
Unmarried	28	28%
Residence		
Urban	61	61%

Rural	39	39%
--------------	----	-----

The majority of participants belonged to the 26–35 years age group (45%), followed by women aged 18–25 years (32%). Nearly half of the participants had graduate-level education or above (48%), while 34% had secondary education. Most participants were married (72%), and 61% belonged to urban areas.

Table 2. Knowledge, Awareness, and Preventive Practices Regarding Cervical Cancer Screening (n=100)

Assessment Parameters	Yes n (%)	No n (%)
Heard about cervical cancer	68 (68%)	32 (32%)
Knowledge about HPV as a cause of cervical cancer	42 (42%)	58 (58%)
Awareness about Pap smear screening	55 (55%)	45 (45%)
Awareness that cervical cancer can be prevented	63 (63%)	37 (37%)
Knowledge about HPV vaccination	39 (39%)	61 (61%)
Ever undergone cervical cancer screening	24 (24%)	76 (76%)
Received information from healthcare professionals	46 (46%)	54 (54%)

The results revealed that although 68% of women had heard about cervical cancer, detailed knowledge regarding its cause and prevention was limited. Only 42% of participants were aware of HPV infection as the major cause of cervical cancer. Awareness regarding Pap smear screening was reported among 55% of women; however, actual screening practice was low, with only 24% having undergone cervical cancer screening previously.

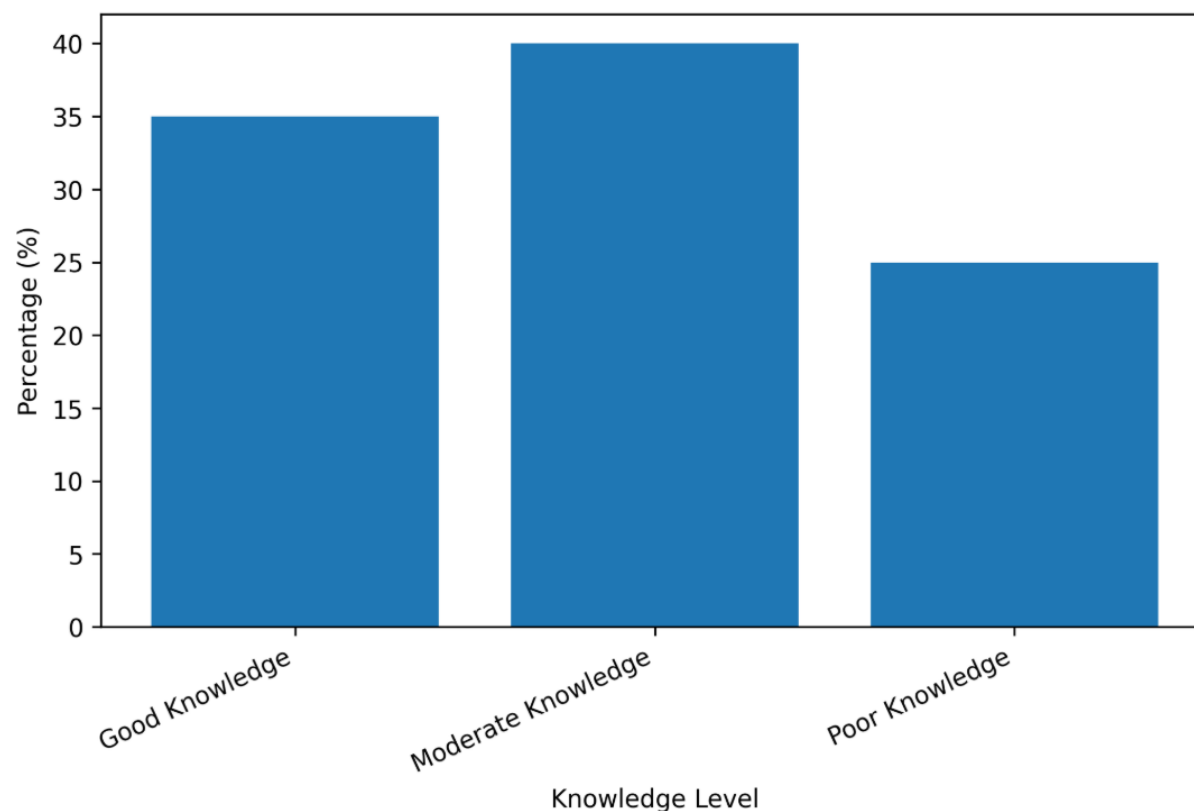


Figure 1. Distribution of participants according to knowledge level regarding cervical cancer screening.

The overall knowledge assessment showed that 35% of participants had good knowledge, 40% had moderate knowledge, and 25% had poor knowledge regarding cervical cancer screening, HPV infection, and preventive measures.

Table 3. Factors Associated with Cervical Cancer Screening Practice

Factors	Screening Done n (%)	Screening Not Done n (%)	p-value
Education level			
Primary/Secondary	9 (17.3%)	43 (82.7%)	<0.05
Graduate and above	15 (31.3%)	33 (68.7%)	
Residence			
Urban	19 (31.1%)	42 (68.9%)	<0.05
Rural	5 (12.8%)	34 (87.2%)	
Awareness about Pap smear			
Aware	20 (36.4%)	35 (63.6%)	<0.001
Not aware	4 (8.9%)	41 (91.1%)	

A significant association was observed between educational status, place of residence, awareness of Pap smear testing, and cervical cancer screening practices. Women with higher education and better awareness were more likely to undergo screening compared with those having limited knowledge.

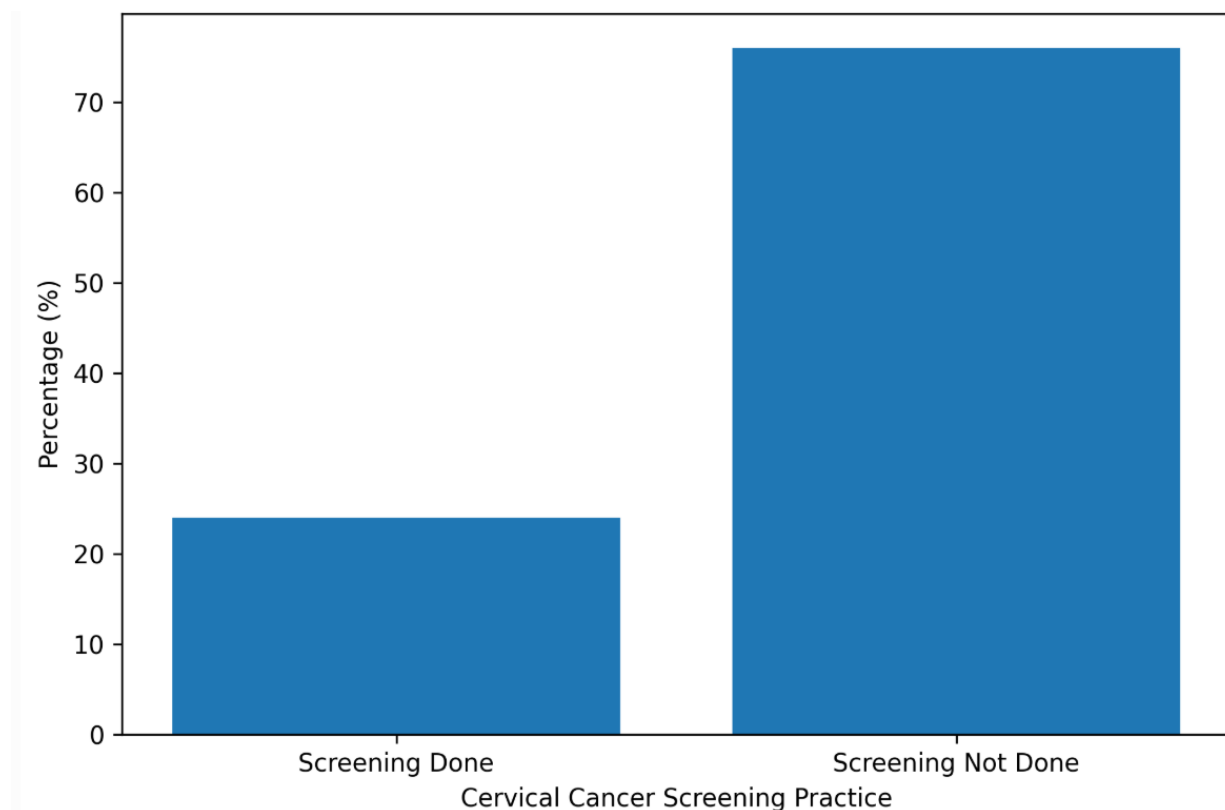


Figure 2. Proportion of women who had undergone cervical cancer screening.

The utilization of preventive cervical cancer screening services was low with only 24% of the 100 participants having previously had cervical cancer screening. A low rate of utilization of preventive cervical cancer screening services was found with 76% of the 100 participants never having participated in any cervical cancer screening program.

The study revealed a relatively low level of awareness among women of reproductive age, and there was still a lack of comprehensive knowledge about HPV infection, vaccination and screening methods. Even though most participants acknowledged that cervical cancer is a health issue, they had not gotten screened. There was a strong association between higher education level and better screening practices, and higher level of awareness of Pap testing. The results of this study indicate that there is a need for targeted health education programs, improved counseling from health service providers and better cervical cancer screening programs to improve preventive healthcare behaviors among women of reproductive age.

DISCUSSION

This study evaluated the knowledge, awareness and preventive health practices of the women of reproductive age in cervical cancer screening in a tertiary care hospital. Results showed that while a significant percentage of participants reported hearing about cervical cancer, detailed information on HPV infection, screening, vaccination, and prevention were lacking. In this study, 68% of the women were aware of cervical cancer, but only 42% were aware of HPV as the main cause of cervical cancer and only 24% had received cervical cancer screening before. All of these results suggest a disconnect between awareness and preventive health care.

The low screening uptake rate found in the current study is similar to results from some of the previous studies done in developing countries where screening uptake is still low even with the availability of prevention services. A survey of reproductive-age patients revealed that many women were aware of the risk of cervical cancer, but few were screened because they were not knowledgeable about the procedure, were afraid of it, and lacked adequate access to health care services [17]. The findings were also similar with Damtie et al. reporting moderate knowledge about cervical cancer screening and poor utilization of screening services among women [18].

In the present study, there was a significant association of education with cervical screening behaviors. Women with higher levels of education showed greater awareness and higher rates of participation in screening activities than women with lower levels of education. Improving health literacy, access to health information, and/or health decisions about preventive health services. Earlier studies have also shown that women with higher educational attainment are more likely to have an understanding of the benefits of HPV vaccination and Pap screening, leading to better screening behaviors [19].

The present results showed that the awareness about HPV vaccination is in low level: Only 39% of participants were aware of HPV vaccines. This lack of awareness is an important challenge as HPV vaccination, together with regular screening, is the basis of cervical cancer prevention. Studies have highlighted the importance of knowledge gaps about HPV infection and HPV vaccination in lowering vaccine uptake and delaying preventive measures in women and adolescents [20]. Enhancing community education and awareness of HPV transmission, vaccine safety, and cervical cancer prevention could significantly influence preventive behaviors.

Another important finding of this study was the association between awareness of Pap smear testing and screening practices. Women who knew about the Pap test screening were significantly more likely to have been screened for cervical cancer. This demonstrates the need for clinical counseling and planned awareness raising initiatives to encourage screening uptake. Earlier studies have indicated that advice from health care providers has a significant impact on women's willingness to have a cervical screening procedure, especially in groups with high rates of misconceptions and fear [21].

The study also showed that there are differences in screening practices based on background of residents. There was a higher uptake of screening among women in urban areas compared to rural areas. This variation could be explained by the differences in access to health care, the availability of screening facilities, socioeconomic factors, and exposure to health awareness campaigns. Other population-based studies noted that women in rural and less access areas had higher stumbling blocks to cervical cancer prevention services, such as transportation, cost and information [22].

Although cervical cancer elimination is a global priority, there remain unmet awareness gaps impacting screening coverage, especially in low resource areas. As a result, a multi-sectoral strategy, which includes public education, strengthening of health care systems, and linkage of cervical cancer screening services into primary health care systems, is required to enhance cervical cancer prevention. There is evidence that specific educational interventions can improve knowledge about the risk factors for cervical cancer, the value of screening and prevention strategies among women [23].

The results of this study highlight the importance of enhancing preventive health care interventions at the hospital and community level. Frequent counselling, education and engaging health workers can decrease misconceptions and promote regular cervical cancer screening. In addition, HPV vaccination awareness campaigns could help increase HPV vaccination acceptance and help to reduce cervical cancer incidence in the long term.

There are some limitations of this study. The results of this study can not be generalized to the entire population, as the study was done in a single tertiary care hospital and the study sample size was also small. Further, knowledge and preventive practices were self-reported, and thus may be subject to response bias. Large-scale multicenter studies are recommended to further investigate factors affecting cervical cancer screening behaviors in the future.

The findings of the present study suggest that, awareness towards cervical cancer among women of reproductive age is present, however, there are still some points to be highlighted regarding detailed information and preventive practices. HPV vaccination awareness campaigns, making HPV vaccines more accessible, and enhancing health education are critical to improve cervical cancer prevention and decrease the burden.

CONCLUSION

The findings of this study were that women in reproductive age showed moderate level of general awareness on cervical cancer, but there were significant gaps in detailed knowledge, preventive health practice and utilization of cervical cancer screening services among the women. Many participants were aware of cervical cancer, but less

women knew that HPV infection is the major cause of cervical cancer, HPV vaccination is a preventative measure and the need for regular screening methods like pap smear testing. Limited participation in preventive healthcare practices is suggested by the small percentage of women who had ever been screened for cervical cancer. Important factors related to screening behavior identified included educational status, where participants lived, and knowledge about screening methods. The results of the study indicate that there is a need to make cervical cancer prevention more effective by enhancing health education, developing available screening facilities, and communicating with women. Greater awareness of reproductive age females can play a vital role in early detection, early management, and the prevention of cervical cancer morbidity and mortality.

Recommendations

From the results of this study, it is recommended that regular cervical cancer awareness programmes be held at the community and healthcare facility level to increase women's awareness of the risk factors, symptoms, HPV infection, HPV vaccination and benefits of HPV screening. The importance of routine cervical cancer screening should be actively discussed with the healthcare professional in every clinical visit to the woman, if she is eligible. Support for cervical cancer screening, as part of primary healthcare programs, could enhance access, especially for women not served by primary healthcare. Educational strategies with culturally relevant resources, social media outreach, and community outreach education sessions should be put in place to help correct misconceptions and alleviate fear of screening procedures. In addition, it is important to promote HPV vaccination awareness and access as an integral component of cervical cancer prevention programs. Larger multicenter studies are recommended in the future to further assess factors associated with screening practices and to design interventions that enhance the screening process for women.

REFERENCES

1. Sung H, Ferlay J, Siegel RL, et al. Global Cancer Statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide. **CA Cancer J Clin.** 2021;71(3):209-249. doi: **10.3322/caac.21660**
2. de Sanjose S, Brotons M, Pavon MA. The natural history of human papillomavirus infection. **Best Pract Res Clin Obstet Gynaecol.** 2018;47:2-13. doi: **10.1016/j.bpobgyn.2017.08.015**
3. Lei J, Ploner A, Elfström KM, et al. HPV vaccination and the risk of invasive cervical cancer. **N Engl J Med.** 2020;383:1340-1348. doi: **10.1056/NEJMoa1917338**
4. World Health Organization. WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention. 2nd ed. Geneva: WHO; 2021.
5. Damtie S, Legese B, Berhan A, et al. Knowledge, attitude and practice of cervical cancer screening and associated risk factors among family planning service users. **SAGE Open Med.** 2023;11:20503121231208654. doi: **10.1177/20503121231208654**
6. Ogundipe L, et al. Cervical cancer screening and vaccination: knowledge, awareness and attitude among women. **BMC Public Health.** 2023. doi: **10.1186/s12889-023-15500-8**
7. Fylan F. Screening for cervical cancer: a review of women's attitudes, knowledge, and behavior. **Psychooncology.** 1998;7(6):423-430. doi: **10.1002/(SICI)1099-1611(199811/12)7:6<423::AID-PON328>3.0.CO;2-5**
8. Endalew DA, et al. Knowledge and practice of cervical cancer screening and associated factors among reproductive age women. **PLoS One.** 2020;15(9):e0238869. doi: **10.1371/journal.pone.0238869**
9. Tilahun T, Tulu T, Dechasa W. Knowledge, attitude and practice of cervical cancer screening among female students. **BMC Res Notes.** 2019;12:518. doi: **10.1186/s13104-019-4552-0**
10. Tsegay A, Araya T, Amare K, et al. Knowledge, attitude and practice on cervical cancer screening among women aged 15–49 years. **Int J Womens Health.** 2021;13:1283-1298. doi: **10.2147/IJWH.S329665**
11. Miles TT, Riley-Powell AR, Lee GO, et al. Knowledge, attitudes, and practices of cervical cancer prevention and Pap smears in low-income communities. **BMC Womens Health.** 2021;21:168. doi: **10.1186/s12905-021-01313-5**
12. Gelassa FR, et al. Knowledge and screening practices of cervical cancer among women of reproductive age. **BMJ Open.** 2023;13:e068860. doi: **10.1136/bmjopen-2022-068860**
13. Omoyeni O, et al. Knowledge, attitudes and practices of cervical cancer screening among rural women. **Pan Afr Med J.** 2022;42:188. doi: **10.11604/pamj.2022.42.188.26172**
14. Bruni L, et al. ICO/IARC Information Centre on HPV and Cancer. Human papillomavirus and related diseases report. 2023.
15. Kim J, et al. Sociodemographic factors associated with HPV awareness and cervical cancer screening adherence. **Preventive Medicine Reports.** 2022;27:101798. doi: **10.1016/j.pmedr.2022.101798**
16. Arbyn M, et al. Estimates of incidence and mortality of cervical cancer in 2018: a worldwide analysis. **Lancet Glob Health.** 2020;8(2):e191-e203. doi: **10.1016/S2214-109X(19)30482-6**

17. Abou Zeid M, Elshamy K, Fouad M. Knowledge, attitude and practice regarding cervical cancer screening among women attending primary healthcare centers. **BMC Womens Health**. 2021;21:302. doi: **10.1186/s12905-021-01434-x**
18. Damtie S, Legese B, Berhan A, et al. Knowledge, attitude and practice of cervical cancer screening and associated factors among women attending healthcare services. **BMC Women's Health**. 2023;23:450. doi: **10.1186/s12905-023-02540-8**
19. Pimple SA, Mishra GA. Global strategies for cervical cancer prevention and screening. **J Cancer Res Ther**. 2019;15(4):699-704. doi: **10.4103/jcrt.JCRT_322_19**
20. Marshall S, Fleming A, Moore AC, Sahm LJ. Views of parents regarding human papillomavirus vaccination: a systematic review. **J Child Health Care**. 2021;25(2):292-308. doi: **10.1177/1367493520922735**
21. Camara H, Zhang Y, Lafferty L, et al. Healthcare provider recommendation and cervical cancer screening uptake among women. **Preventive Medicine Reports**. 2022;27:101792. doi: **10.1016/j.pmedr.2022.101792**
22. Islam RM, Billah B, Hossain MN, Oldroyd J. Barriers to cervical cancer screening in low-resource settings: a systematic review. **Asian Pac J Cancer Prev**. 2021;22(11):3489-3498. doi: **10.31557/APJCP.2021.22.11.3489**
23. Ifediora CO, Azuike EC. Re-thinking cervical cancer preventive campaigns in developing countries: the case for interventions at schools and communities. **BMC Public Health**. 2019;19:1175. doi: **10.1186/s12889-019-7506-4**
24. Usman IM, Umar M, Abdullahi A, et al. Knowledge, attitude and practice regarding cervical cancer screening among women of reproductive age. **International Journal of Women's Health**. 2023;15:1189-1200. doi: **10.2147/IJWH.S415781**
25. Gelassa FR, Tura AK, Abebe M, et al. Knowledge and practice of cervical cancer screening and associated factors among women of reproductive age. **BMJ Open**. 2023;13:e068860. doi: **10.1136/bmjopen-2022-068860**