

KNOWLEDGE AND AWARENESS OF CERVICAL CANCER SCREENING AMONG WOMEN OF REPRODUCTIVE AGE

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ABSTRACT

Background: While effective screening and treatment are largely preventable, there is low awareness to screening, especially among women in resource-poor, low literacy, and peripheral communities.

Objective: To evaluate knowledge and awareness about cervical cancer screening among reproductive age women attending tertiary care hospital.

Methods: This was a descriptive cross sectional study done in a tertiary care hospital from February 1, 2026 to July 30, 2026. The number of women of reproductive age (WRA) recruited in this study was 80 using non-probability consecutive sampling technique. The data were gathered by a structured questionnaire to capture the sociodemographic data, knowledge about cervical cancer, HPV infection, risk factors, symptoms of cervical cancer, screening, and prevention. Face to face interviews were also undertaken and language used was simple and easy to comprehend for the benefit of participants who had low literacy levels. Data were analyzed by SPSS version 26 and presented in frequencies and percentages.

Results: The average age of the subjects was 32.6 ± 7.8 years. The majority of participants were married (76.3%), living in peripheral and rural areas (61.3%) and with low education (62.1%). Fewer than one-third (30.0%) had heard about cervical cancer, less than a third (18.8%) had heard about HPV infection, and less than a third (27.5%) had heard about Pap smear. Limited awareness of HPV vaccination was reported (16.3%) and only 8.8% had previously had cervical cancer screening. In general, the knowledge level was poor with 62.5% of them. The missing or inadequate information (35.0%), difficulty accessing health care facilities (22.5%) and financial difficulties (17.5%) were significant barriers. Of those who were told the right information, 72.5% said that they would be willing to get screened.

Conclusion: The knowledge and awareness of cervical cancer screening was found to be low, especially among women from periphery and low-resource areas. Promoting access to less costly screening services and community-based education is important to improve screening uptake.

KEYWORDS: Awareness, Cervical cancer, Health Literacy, Reproductive-Age Women, Screening.

INTRODUCTION

Cervical cancer is one of the most preventable and prevalent causes of cancer-related morbidity and mortality among women in the world. It is caused mainly by chronic infection with high risk types of human papillomavirus (HPV) and tends to take several years for precancerous changes to occur before invasive disease. This extended preclinical window presents valuable opportunities for prevention via HPV vaccination and early detection of precancerous lesions, and timely treatment of these conditions. [1,2] Although there are effective preventable measures, organized screening and access to preventive health care services is still limited in low and middle income countries (LMICs) where cervical cancer disproportionately affects women [3,4].

Significant inequities in cervical cancer prevention and control are seen globally. Women in resource limited areas face a disproportionate burden of disease due to an unmet need for HPV vaccine, screening centers, diagnostic services, and treatment. Cervical cancer screening is a key component of WHO's global strategy for the elimination of cervical cancer, and WHO recommends HPV testing as the preferred method for screening eligible women [1]. In countries with poor health care systems, especially those with limited laboratory capacity, shortage of trained health care personnel, lack of financial resources, and poor health care systems, however, it is not easy to implement such recommendations in practice. The problems are especially stark in the remote and rural settings where specialist health care services tend to be located in urban tertiary-care facilities [3,5].

Cervical cancer screening is an important tool for the early detection of precancerous growths that can prevent the development of an invasive cancer. The most commonly used screening tests are cervical cytology or Pap Test, visual inspection with acetic acid (VIA), or HPV DNA testing. The importance of HPV-based screening has been growing, due to its high sensitivity and the possibility to cover a larger population, such as using self-sampling methods [1,6]. The success of any screening program relies on the availability of the technology but is also on the knowledge, awareness, acceptability, and willingness of women to participate. Women who lack knowledge of cervical cancer or lack understanding of the role of screening are less likely to seek screening [7] as precancerous changes are rarely noticed.

Hence, knowledge and awareness are key factors to consider for screening behaviour. The elements of adequate awareness are awareness of risk factors, HPV infection and cervical cancer, warning signs, availability of screening tests and benefits of early detection. But in many developing countries the knowledge of women about these is limited. A study done with women in Karachi, Pakistan revealed lack of awareness and preventive measures about cervical cancer and screening [8]. Likewise, recent research conducted in Pakistan has shown that even among relatively educated people there is a significant lack of awareness about cervical cancer screening [9,10].

It is possible that the issue is significantly more severe in women in remote, rural and socioeconomically deprived areas. Geographical barriers, poor transportation, poverty, and the inability to find female healthcare professionals are often present in these areas, and are frequently a challenge for women. Screening services may need to travel to far away hospitals, further adding to the economic and logistical cost. In low income families, preventive health care may not come before family and economic needs for women. Lack of knowledge and awareness were found to be significant individual-level barriers in a systematic review of cervical cancer screening barriers in LMICs, which also found that poverty, distance from health care facilities, limiting education, cultural beliefs, gender norms, and poorly resourced health systems decreased uptake of screening [3].

A special concern of women relates to literacy in peripheral and resource poor environments. Limited formal education may mean that women with low levels of education are not reaching them with reliable health information, or don't have the ability to grasp complex medical information about HPV infection, cancer prevention and screening protocols. Low literacy can also hinder the impact of health-related informational campaigns in print and online materials and brochures. As a result, many women rely on their families, the beliefs of their communities or on information from informal sources when it comes to their health. The relative lack of autonomy in health care decision making can place additional constraints on participation in preventive care in conservative communities. Low educational levels have been correlated with a lack of awareness and low uptake of cervical cancer screening services throughout the literature [3,11].

Other factors such as cultural and social factors may also play a significant role in perceptions of cervical cancer screening among women. Bullying, lack of confidence in gynecological exam, privacy concerns, cancer misconceptions, and fear of being diagnosed can deter women from screening. Although the major purpose of screening is to find disease before it has a chance to cause symptoms, some women may mistakenly think that screening is not necessary if they are not having symptoms. In Pakistan, there are important challenges to using cervical cancer screening services stemming from lack of awareness, misconceptions about screening, socioeconomic restrictions and cultural sensitivities [7,12].

This is alarming in Pakistan, as the screening for cervical cancer has yet to be fully implemented in the population. While in major cities healthcare services have improved, women in rural and peripheral areas suffer inequalities in preventive health services. These areas have a concentration of healthcare facilities that tend to be mostly focused on maternal and child health, infectious diseases and acute medical conditions, with relatively limited services for cancer prevention and screening. Women of reproductive age are often seen by health care providers when seeking antenatal care, family planning consultations, at childbirth and/or during gynecological visits and these are good moments to provide cervical cancer education and to encourage screening [8,10].

New data indicate that creative methods could be effective in addressing some of the challenges of traditional screening programs. HPV self-sampling is a new approach that could be a promising way to increase screening rates, especially among women who are not geographically or culturally accessible to or comfortable with clinician-based screening. Self-sampling has been found to increase participation in screening in cervical cancer in systematic reviews and meta-analyses, and to be especially advantageous in low-resource areas [6,13]. In addition, self sampling can decrease the demand for repeated clinical visits and offer a extra private and convenient choice for women residing in remote areas. But adequate community awareness, proper counseling, good lab systems, and clear referral pathways are needed for successful implementation with women who test positive [14]. There is still a need for educational interventions. Studies in Pakistan have demonstrated that awareness programs, designed as structured activities, can have a marked impact on the awareness of cervical cancer, screening, and HPV vaccination among women [10]. It may be especially important to community based health education using lady health workers, nurses, midwives and primary health care providers in peripheral areas where literacy is low. The language used to communicate educational messages should be plain and easy to understand to the local community and should incorporate elements such as visual materials, community meetings, local-language communication, and verbal counseling, in addition to written materials.

Access to screening is further complicated by socioeconomic inequalities. New studies in LMICs have found that there are substantial inequalities in cervical cancer screening rates based on socioeconomic status, such as income,

education, and other factors [15]. Poor women and the less educated members of community are less likely to have access to preventive healthcare services, so they may be at a higher risk of late diagnosis and progression to later stages of the disease. An equity-based approach is needed to tackle cervical cancer prevention, and the specific barriers women encounter in geographical isolation and poor economic status must be understood. In this context, it is important to measure the knowledge and awareness about cervical cancer screening among women of reproductive age in order to identify the gaps in health education and cancer prevention. This knowledge of women's beliefs and knowledge, and potential barriers can help inform culturally sensitive and accessible interventions by policymakers and health care providers. Special efforts should be made in peripheral and resource limited areas where poor literacy rates among women, financial poverty, geographical isolation, and restricted access to healthcare could significantly impact awareness and uptake of screening services. Hence, the present study is aimed at evaluating the knowledge and awareness of women of reproductive age regarding cervical cancer screening, especially the educational, social and health care access barriers which may affect screening awareness in under-served population.

METHODOLOGY

The aim of this descriptive cross-sectional study was to find out knowledge and awareness of cervical cancer screening about women of reproductive age who are visiting the outpatient department of a tertiary care hospital. I conducted the study for 6 months from 1st February 2026 to 30th July 2026. The study used non-probability consecutive sampling technique, which included a total of 80 women in reproductive age. Those women between 18-49 years of age, who attended the gynecology or general outpatient department during the study period and agreed to participate were included. The women excluded from the study were those with previous diagnosis of a cervical cancer, severe ill health or poor communication skills, and those women who refused informed consent. A structured and predesigned questionnaire, based on the literature and previous studies on cervical cancer awareness and screening, was used for data collection. The questionnaire was divided into two main parts. The first section included the sociodemographic data of the participants such as age, marital status, levels of education, occupation, place of residence, and socioeconomic background. The second part examined knowledge and awareness about cervical cancer, cervical cancer risk factors, symptoms of cervical cancer, measures to prevent cervical cancer, HPV infection, HPV vaccination, and available screening tests for cervical cancer, such as the Pap smear and HPV testing. Other questions included awareness of the importance of early screening and perceived barriers to accessing cervical cancer screening services.

Because of the low literacy level of the women from peripheral communities and a lack of resources, data were gathered using face-to-face interviews in simple and understandable language. The questionnaire was explained in the local language orally when required to ensure the correct understanding of the information and reduce the information bias. This was especially significant for those who could not read or comprehend the questionnaires. The study was ethically approved by the Institutional Ethical Review Committee prior to the study. The administration of tertiary care hospital was also given permission. Informed consent was obtained in writing from all subjects prior to enrollment. There was a voluntary participation and all the respondents were informed about their right to withdraw from the study at any point without influencing their medical care. The study ensured the confidentiality and anonymity of the participants.

The data collected were analyzed and entered into Statistical Package for the Social Sciences (SPSS) version 26. The data were summarized using descriptive statistics. Continuous variables were reported as mean and standard deviation while categorical variables were reported as frequencies and percentages. Results have been tabulated and presented in diagrams where appropriate. The Chi-square test was used to determine associations between the level of knowledge and awareness with sociodemographic characteristics. The p value of ≤ 0.05 was statistically significant.

RESULTS

In total, 80 women within the reproductive age were studied. The average age of the participants was 32.6 ± 7.8 years. The majority (42.5%) of the women were aged between 26 and 35, married (76.3%) and lived in peripheral or rural communities (61.3%). Education status, 31.3% of the participants were illiterate and 27.5% had primary level education. The socio-economic characteristics of the study population showed that majority of the women were housewives (68.8%).

Table 1. Sociodemographic Characteristics of Study Participants (N = 80)

Variable	Frequency (n)	Percentage (%)
Age group (years)		
18–25	18	22.5
26–35	34	42.5
36–45	20	25.0
46–49	8	10.0

Marital status		
Married	61	76.3
Unmarried	15	18.7
Divorced/Widowed	4	5.0
Educational status		
Illiterate	25	31.3
Primary education	22	27.5
Secondary education	19	23.7
Higher education	14	17.5
Occupation		
Housewife	55	68.8
Employed	15	18.7
Student/Other	10	12.5
Place of residence		
Rural/Peripheral area	49	61.3
Urban area	31	38.7

The knowledge and awareness assessment showed that there are significant gaps in knowledge and awareness about cervical cancer and prevention. 30.0% had heard of cervical cancer, and 18.8% had heard of HPV, before. Limited knowledge about cervical cancer screening was also found, as only 27.5% were aware of the Pap smear test. Awareness of the preventability of cervical cancer by regular screening was less than one-quarter of participants and the awareness of HPV vaccination was especially low (16.3%). In general, 62.5% had below average knowledge about screening for cervical cancer.

Table 2. Knowledge and Awareness Regarding Cervical Cancer and Screening (N = 80)

Knowledge/Awareness Variable	Yes n (%)	No n (%)
Heard about cervical cancer	24 (30.0)	56 (70.0)
Heard about HPV infection	15 (18.8)	65 (81.2)
Aware of cervical cancer risk factors	18 (22.5)	62 (77.5)
Aware of warning signs/symptoms	21 (26.3)	59 (73.7)
Heard about Pap smear screening	22 (27.5)	58 (72.5)
Aware that early screening can prevent cervical cancer	19 (23.8)	61 (76.2)
Aware of HPV vaccination	13 (16.3)	67 (83.7)
Ever undergone cervical cancer screening	7 (8.8)	73 (91.2)
Willing to undergo screening after receiving information	58 (72.5)	22 (27.5)

After having little awareness of the situation, participants' willingness to provide screening for cervical cancer was found to be quite high if the information and the available services were appropriate. Limited access to healthcare facilities (22.5%), financial barriers (17.5%), embarrassment or fear of screening (15.0%) and limited family support or decision making autonomy (10.0%) were the most common barriers reported.

Table 3. Reported Barriers to Cervical Cancer Screening (N = 80)

Barrier	Frequency (n)	Percentage (%)
Lack of knowledge/information	28	35.0
Limited access to screening facilities	18	22.5
Financial constraints	14	17.5
Fear/embarrassment regarding screening	12	15.0
Lack of family support/decision-making autonomy	8	10.0

Overall knowledge scores were divided into two groups: good and poor, according to the answers to the questions about cervical cancer, HPV infection, the risk factors, the signs, the screening, and the vaccination. The poor and the good knowledge of the 50 participants (62.5%) and 30 (37.5%) respectively. The awareness of the women with secondary and higher education was better than illiterate and primary level educated women. Likewise, women living in urban areas showed relatively high knowledge compared to women living in peripheral and rural areas.

Results showed that low education level, poor access to health care services, and living in peripheral areas were negatively related to knowledge about cervical cancer screening. Yet, there is a high uptake of screening after receiving relevant information indicating that targeted educational activities and better access to affordable screening facilities could significantly increase screening uptake among women of reproductive age.

Figure 1. Overall Level of Knowledge Regarding Cervical Cancer Screening

A pie chart illustrate the predominance of poor knowledge among study participants.

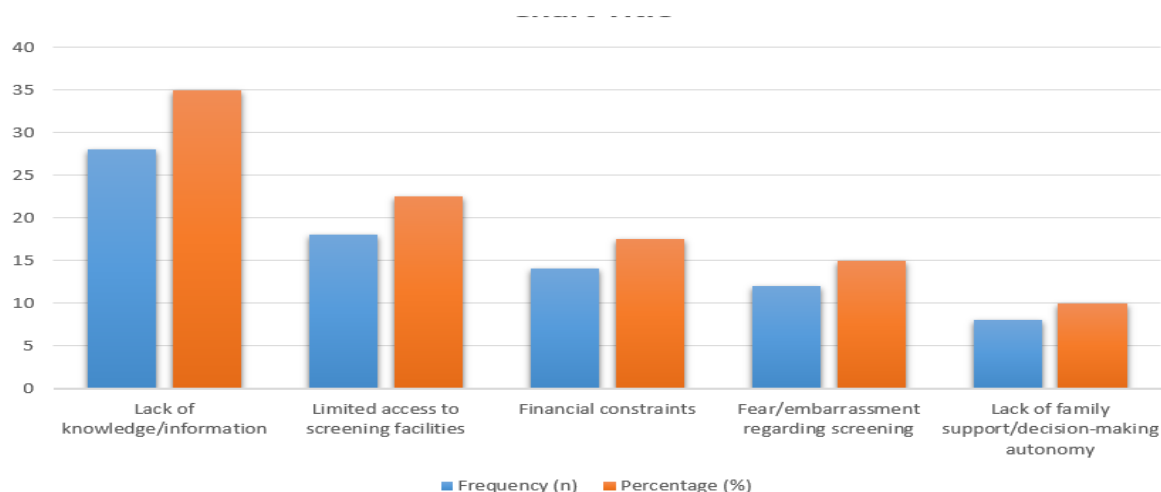


Figure 2. Major Barriers to Cervical Cancer Screening

The problem of lack of information and poor healthcare access is evident in a bar chart and is the highest barrier. The findings are similar to recent studies conducted in Pakistan which reported significant gaps in cervical cancer awareness and uptake of screening, especially among women from lower socio-economic status and with limited access to healthcare.

DISCUSSION

This study evaluated knowledge, awareness about cervical cancer screening among 80 women of reproductive age in a tertiary care hospital. The results showed significant lack of knowledge about cervical cancer, risk factors, HPV infection, screening and prevention. Less than one-third (30.0%) of participants had heard of cervical cancer, with just one-fifth (18.8%) reporting hearing about HPV infection and 16.3% about HPV vaccination. In addition, only 27.5% of participants knew about the Pap smear, and only 8.8% had ever been screened for cervical cancer. In general, 62.5% of the participants had poor knowledge about cervical cancer screening. The lack of awareness and utilization of available preventive measures suggests persistent disparities between the supply and demand of preventive measures, especially in populations with low literacy and resource access.

In terms of knowledge, the findings in the current study were similar to those from low- and middle-income countries where knowledge is one of the primary barriers to cervical cancer screening. In LMICs, Petersen et al. found that the lack of understanding of cervical cancer and screening was the most common individual-level barrier to screening experienced by women. Structural barriers such as geographical distance, low educational level, financial constraints and poor health care systems are also found to play important roles in the poor uptake of screening [16]. Also, Akoto and Allsop found that in LMICs, women's experiences of cancer screening are affected by socioeconomic inequalities, cultural expectations, access to health care, and low levels of health literacy [17].

One of the most significant results presented in the present study was the high percentage of females living in rural or peripheral parts (61.3%). For women residing in geographically remote areas, there are several challenges that may occur at once: getting to a healthcare facility, transportation issues, limited access to screening services and lack of trained healthcare providers. There has been recent evidence that weak healthcare infrastructure is still a significant factor in the low uptake of cervical cancer screening in low-resource countries. Poorly designed laboratory facilities, sub-optimal referral practices, lack of trained personnel, and lack of screening service integration in primary healthcare services can reduce women's access to preventive health services [18]. These results are particularly relevant in the peripheral areas, where primary health care attention might be less towards cancer prevention than towards curative care.

Another crucial characteristic of the study population was low literacy rate among women. Over half of the respondents did not have any further education or literacy skills after primary. The educational level of a woman may have a significant impact on her health information obtaining, understanding and use. Some women with less formal education may not know about medical terms like HPV infection, precancerous lesions, Pap smear testing, and vaccination. Moreover, there may be a limitation of the effectiveness of written health education campaigns for low-literacy populations. Educational attainment and exposure to health information have been found to be positively related to knowledge acquisition and participation in screenings, respectively, in previous studies [19]. Thus, traditional awareness raising programs based on written materials might not be sufficient to meet the needs of women in peripheral and low-literacy areas.

The results also showed a very low prevalence of previous cervical cancer screening with only 7 participants (8.8%) reporting having had a previous screening test. This is part and parcel of the issue of low screening rates

faced by many LMICs. However, the lack of awareness cannot account for this disparity, as health system and sociocultural barriers are also a significant factor. Tin et al. performed a systematic review that showed that interventions to boost uptake of cervical cancer screening in LMICs should incorporate educational components alongside enhancing accessibility and service delivery strategies [20]. Screening participation can be enhanced through educational interventions, reminders, community mobilization and health care provider engagement if done in a context appropriate to the local health care environment.

The most common barrier identified in the present study was lack of information followed by limited access to screening facilities and financial limitations. These results indicate that many women may not be refusing screening, but rather they are not aware of the importance of screening or not able to obtain the services needed. A significant number of participants also reported fear and embarrassment. Discussion of sexual and reproductive issues and in some situations, a pelvic examination, is required for cervical cancer screening. Women may be discouraged from screening because of cultural modesty, concerns about privacy, the fear of pain and anxiety about a possible cancer diagnosis. These obstacles have been frequently cited in resource-poor populations among women and are not limited to provision of screening technology but must be addressed in ways that are culturally sensitive [21].

Despite the generally poor level of baseline awareness, an encouraging finding was that 72.5% of participants expressed willingness to undergo cervical cancer screening after receiving appropriate information. This suggests that there may be potential to improve the uptake of screening by enhancing health education and access to screening. Community-based interventions may, therefore, be a key component of increasing women's reproductive age awareness. Healthcare providers should communicate in a simple, understandable and culturally appropriate manner, especially when discussing with women with limited literacy. Using verbal education, pictorial materials, local-language messages, group awareness sessions can be more effective than written information alone, along with counseling by female healthcare workers.

Other screening options can also help increase access for women who have geographical, cultural, and/or practical barriers. Recent studies have demonstrated the potential of HPV self-sampling to boost uptake of cervical cancer screening by offering a more private and convenient option than clinician-collected samples. Self-sampling can be particularly useful for women in remote areas or women who do not wish to have a traditional pelvic examination [22]. But for this to work, the community needs to be aware of the need for such approaches, women must have access to affordable testing facilities, there must be suitable laboratory infrastructure and effective referral pathways for women who test positive.

Especially in low-resource areas, the screening technology and healthcare infrastructure must go hand in hand. A recent systematic review and meta-analysis identified a number of screening tools for cervical neoplasia that have the potential to be effective in LMIC settings, with the effectiveness and feasibility relying on local resources, trained personnel, and the health system capacity [23]. Thus, screening programs must not be implemented in a standard way, but must take into account the socioeconomic and health conditions of the intended population. A strategy to incorporate cervical cancer education and screening into the existing maternal, reproductive and primary healthcare services might be feasible and cost effective in peripheral areas.

The findings of the present study further highlight the need to focus on an equity approach in prevention of cervical cancer. Multiple disadvantages that restrict rural women's access to preventive health care are more likely to affect women from poor and low-literacy backgrounds. In recent literature, it is pointed out that factors that hinder cervical cancer screening are not just about individual knowledge, but also gender norms, family support, cultural beliefs, constraints of the health care system and financial considerations [24]. It is important to tackle the various interconnected barriers by working together between health care institutions, public health authorities, community workers, and policy-makers.

The present study showed that overall, women's awareness of cervical cancer screening is inadequate, especially in peripheral and resource-constrained women. While there are low levels of knowledge and very little uptake of previous screening, there is a strong desire for screening when women receive the proper information. This discovery is a significant one that offers an intervention opportunity. Community-based health education, access to affordable screening services, participation of female health care providers and community health workers, and adaptability of educational approaches for women with low literacy are likely to significantly enhance awareness and engagement within cervical cancer screening programs.

CONCLUSION

This study has shown that awareness and knowledge about cervical cancer and screening was generally low amongst women of reproductive age in a tertiary care hospital. Knowledge about HPV infection, risk factors for cervical cancer, Pap smear screening and HPV vaccination was especially low, and the numbers of women who had previously been screened for cervical cancer was very low. The results were particularly pertinent for women in the peripheral and resource-poor communities who might have even lower literacy rates, poverty, geographical restrictions and access to specialty healthcare services, all of which may limit awareness and uptake of preventive services. Although a knowledge deficit was observed at baseline, most participants reported their willingness to be screened, suggesting that perhaps a lack of awareness, rather than unwillingness, is a significant modifiable barrier to screening. Thus, better health education and access to low-cost screening service could significantly boost the cervical cancer prevention of underserved women.

RECOMMENDATIONS

From the results of this study, it is recommended to conduct the awareness programme in the community regularly to enhance women's knowledge about cervical cancer, HPV infection, available screening tests and the significance of early detection. Educational interventions need to be specifically tailored to women with low levels of literacy and should be presented in a clear and simple language, local language, pictorial material, and community health sessions. Education, especially in peripheral and rural areas, should be actively carried out by female health workers, nurses/midwives and other primary healthcare providers in a culturally appropriate manner. Cervical cancer awareness and counselling for screening should also be embedded within existing reproductive health, family planning, antenatal and gynecological services. Screening facilities that are affordable and accessible should be expanded to underserved communities in primary healthcare centers, outreach, and by providing mobile screening services. Larger multicenter studies are recommended for further evaluation of knowledge, attitudes, screening practices, and effectiveness of targeted education of women from various socioeconomic and geographic backgrounds in the future.

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