World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-51 October 2025
ISSN: 2749-3644

EDUCATIONAL STRATEGIES FOR CERVICAL CANCER PREVENTION IN YOUNG PEOPLE: DEVELOPING A CONSCIOUS ATTITUDE TOWARDS WOMEN'S HEALTH

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Article history:

Received: August 14th 2025
Accepted: September 11th 2025

Abstract:

This article assesses young people's awareness of the human papillomavirus (HPV), prevention methods, and vaccination against it, as well as identifies barriers to vaccination. The study is based on a survey of girls aged 16–25 in Tashkent. The findings indicate fragmented knowledge and insufficient vaccination coverage, despite government efforts. Social, educational, and cultural factors influencing attitudes toward HPV and vaccination are discussed, and strategies for increasing youth awareness and prevention coverage are proposed.

Keywords: Human papillomavirus, vaccination, awareness, cervical cancer, prevention, adolescents.

PURPOSE OF THE STUDY:

To assess the level of awareness of adolescents about precancerous and cancerous conditions of the cervix using a questionnaire, with the subsequent identification of areas for the development of an effective educational program for the prevention of these diseases.

INTRODUCTION

Cervical cancer (CC) remains a leading cause of cancer death among women worldwide, despite the availability of effective prevention and early detection methods. According to the World Health Organization (WHO), more than 600,000 new cases of CC were registered in 2020, with approximately 90% of deaths from this disease occurring in low- and middle-income countries where access to screening and vaccination is limited [1]. The primary etiologic factor for cervical cancer is persistent human papillomavirus (HPV) infection, which is primarily sexually transmitted. HPV vaccination is recognized as an effective primary prevention measure, especially when administered before the onset of sexual activity [2]. However, awareness among young people about HPV and its associated risks remains insufficient, reducing the effectiveness of prevention programs [3,4].

Research shows that educational strategies aimed at raising awareness among young people about cervical cancer and its prevention contribute to the development of a conscious attitude toward women's health. For example, the introduction of sexuality education and HPV awareness programs in educational institutions leads to an increase in the number of young women receiving vaccinations and regular screening [5].

Despite this, in a number of countries, coverage of young people with preventive measures remains low. According to regional estimates, only a small proportion of young women are aware of the existence of the HPV vaccine and the need for regular cytological screening.[6]

Thus, the development and implementation of effective educational strategies aimed at young people are key tasks in the fight against cervical cancer. Forming a conscious attitude toward women's health at a young age helps reduce the incidence and mortality of cervical cancer in the long term [7].

MATERIALS AND METHODS:

The study is a quantitative survey conducted among young women aged 16 to 25 living in three districts of Tashkent (Yunusabad, Sergeli, and Shaykhantaur). The survey was anonymous and conducted using Google Forms. The total sample size was overThere were 300 respondents. The data was processed in Microsoft Excel. Frequency characteristics were calculated, bar charts were constructed, and a descriptive analysis of the responses was performed.

RESULTS

The study involved 324 young women living in three administrative districts of Tashkent: Yunusabad,

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Volume-51 October 2025
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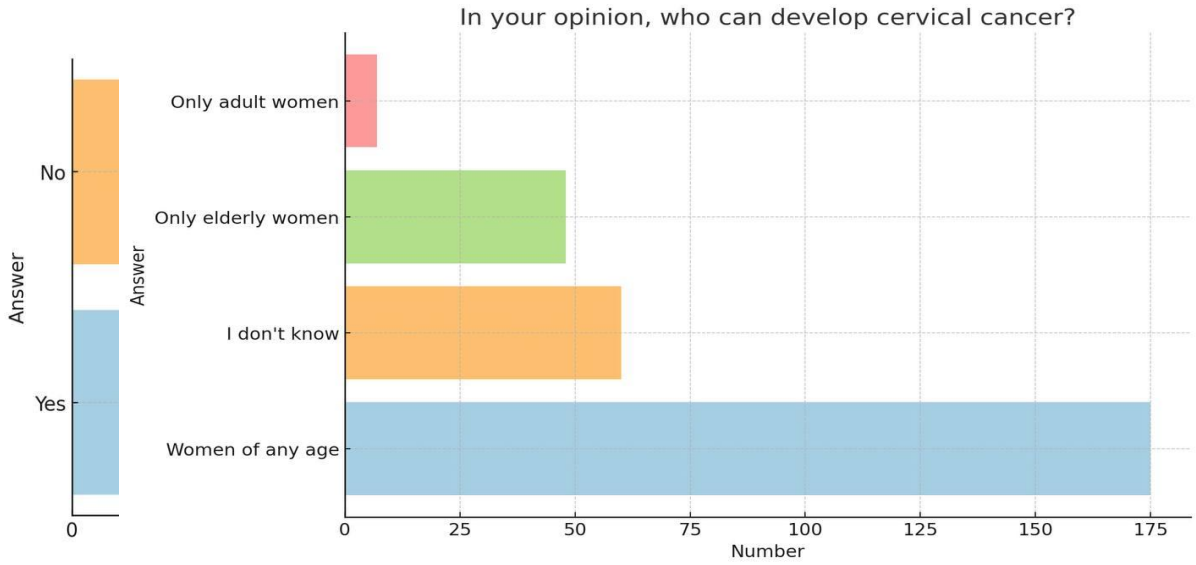
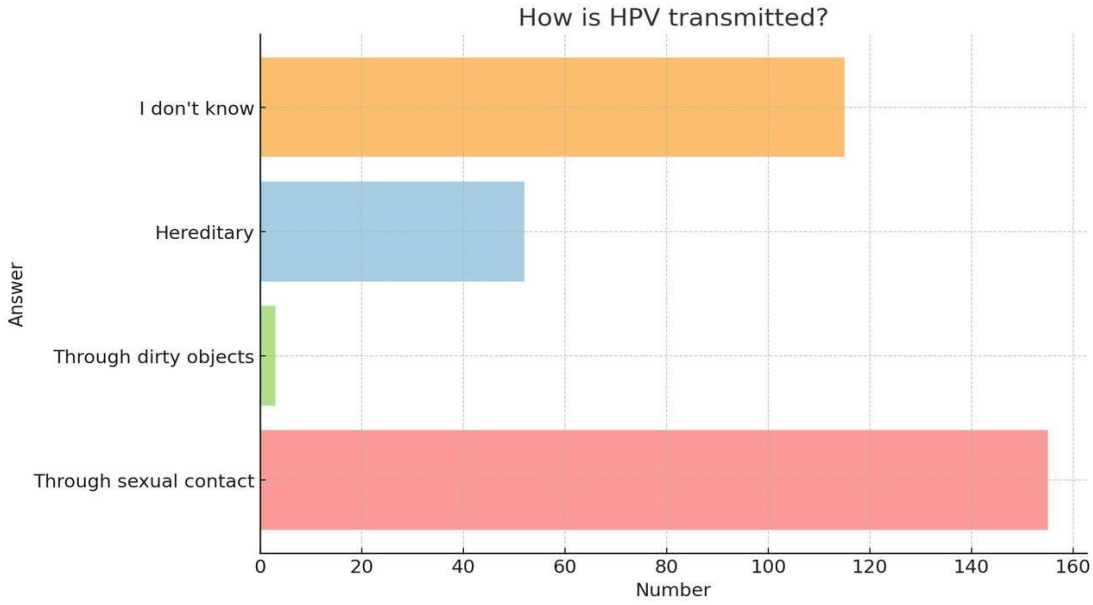
Sergeli, and Shaykhantaur. Respondents ranged in age from 16 years and older, with a predominance of those aged 18–21. The survey covered questions about awareness of cervical cancer (CC), human papillomavirus (HPV), preventive practices, and attitudes toward vaccinations and regular gynecological examinations.

1. Awareness of cervical cancer and HPV. Most young women (87%) had heard of cervical cancer. However, only about half (50.3%) of respondents knew what the human papillomavirus was. 29.6% had only heard of it, but lacked accurate information, and 20.1% had no idea at all.



2. Transmission routes and vaccination. 62% of respondents correctly identified the sexual route of HPV transmission, 28% were undecided, and 10% chose incorrect options.Despite the availability of an effective vaccine, only 7.4% of girls reported having been vaccinated against HPV, while 92.6% had not been vaccinated.



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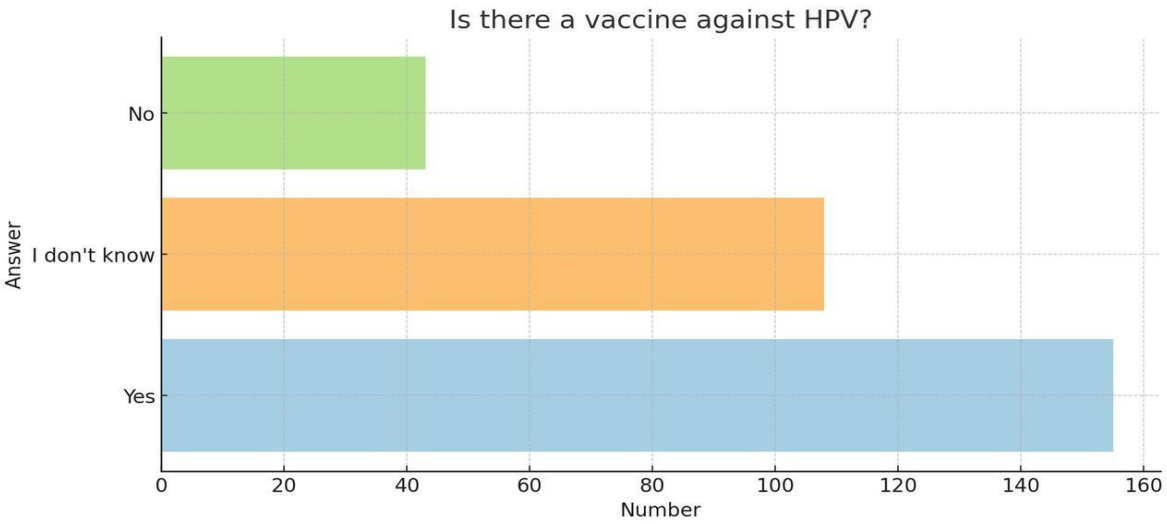
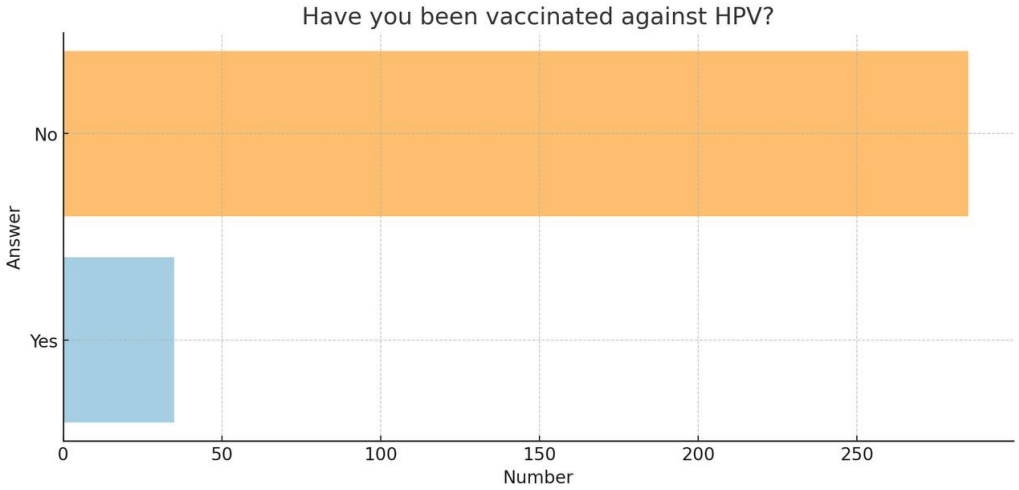


3. Attitudes toward gynecological examinations. 78.6% of respondents consider gynecological examinations important, 13.2% were undecided, and 8.2% do not consider them necessary



4. IsSources of information. More than 65% of respondents obtain knowledge from the internet and social media. Only about 20% cited educational institutions, and less than 15% cited medical specialists.

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Available Online at: https://www.scholarexpress.net
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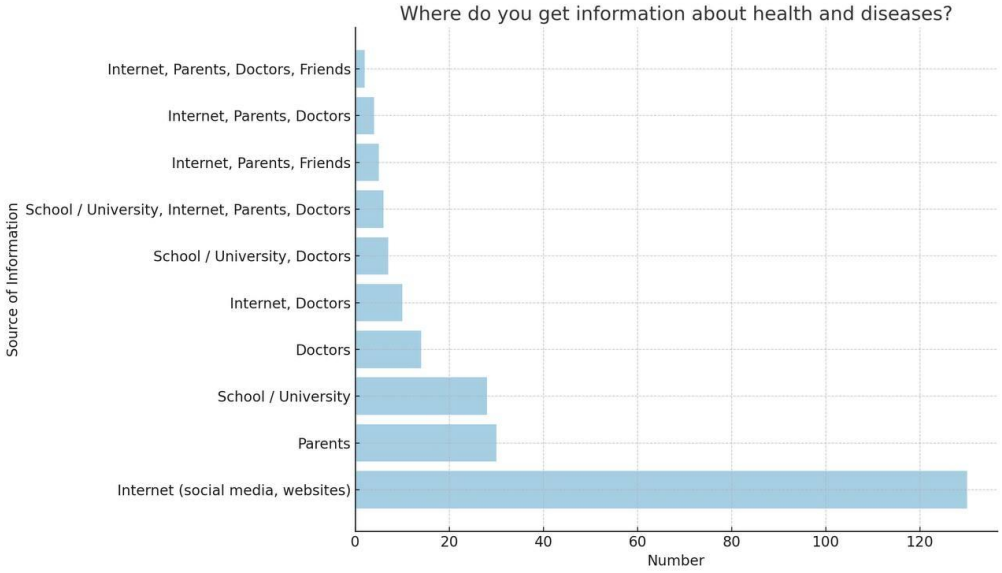

5. Regional differences. The lowest level of awareness was recorded in the Shaikhantaur district. Higher levels of awareness and positive attitudes toward prevention were observed in the Yunusabad and Sergeli districts.

DISCUSSION OF RESULTS

Level of awareness of HPV and cervical cancer among young people

Numerous studies show that awareness of human papillomavirus (HPV) and the associated risk of cervical cancer (CC) among young people remains insufficient in many countries [8]. Despite global efforts, a significant proportion of young people have either not heard of HPV or have only fragmentary knowledge of it [9]. For example, a survey of 15-24 year olds in Europe found that only about 60% of respondents knew about HPV, while a quarter had never heard of the virus [10]. In Central Asian and Eastern European countries, awareness rates are also far from optimal: in Kazakhstan, approximately 53% of women were informed about HPV, while in comparative studies in Serbia, China, and Brazil, this figure was ~40–61% [11]. Even in relatively affluent populations, knowledge gaps are observed. For example, in a sample of women in Tashkent, approximately 79% had heard of HPV and were aware of its link to cancer; however, detailed knowledge was fragmented: less than half of respondents understood that HPV infection often resolves spontaneously, and not all understood the need for screening after vaccination [12]. Insufficient awareness among young people about HPV transmission routes, its consequences, and preventive measures reduces the effectiveness of cervical cancer control programs [13]. This highlights the need for more active information dissemination: without basic knowledge about HPV, young women may not take the risk of cervical cancer seriously and miss out on prevention opportunities such as vaccination and screening [14].

Reasons for low vaccination rates and barriers

Despite the availability of an effective HPV vaccine, vaccination coverage remains low in many regions. A number of barriers hinder vaccination among adolescents and young women:

• Lack of knowledge and information. In many cases, young girls and their parents simply do not understand the importance of HPV vaccination or are unaware of its existence [15]. Low awareness that HPV is sexually transmitted and causes cancer leads to an underestimation of the vaccine as a preventative measure [16]. Surveys show that a significant proportion of those undecided about vaccination attribute their doubts to a lack of information (for example, 78% of hesitant adolescents in one study) [17].

• Myths and misinformation. Misconceptions about the safety and consequences of the vaccine are widespread. One of the most common fears is the alleged negative impact of vaccination on reproductive health (future infertility) [18]. There are also unfounded concerns about side effects and the overall safety of the vaccine [19]. In the age of social media, misinformation spreads quickly, creating vaccine hesitancy [20]. For example, in Uzbekistan, during the introduction of the vaccine, rumors circulated on social media about the "harm" of the vaccine, which required urgent refutation by doctors [21].

• Cultural and religious attitudes. In some communities, discussing topics related to sexually transmitted

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Volume-51 October 2025
ISSN: 2749-3644

infections is difficult due to traditional views. Vaccinating girls before they become sexually active may be perceived by parents as unnecessary or contrary to moral values [22]. Some fear that talking about HPV or the vaccination itself will indirectly encourage early sexual activity, although there is no research to support such concerns [23]. In conservative communities, religious leaders and older relatives may be skeptical about the new vaccine, which creates an additional barrier to its acceptance [24].

The role of educational institutions and digital media

The educational environment and digital communications play a key role in shaping young people's awareness of HPV and vaccination. Schools and universities have the potential to systematically provide education on reproductive health issues. The implementation of sexuality education programs that include information about HPV, cervical cancer, and vaccination has proven effective in a number of countries [25]. Research has shown that young women who received information about cervical cancer prevention at school are significantly more likely to exhibit positive attitudes toward screening and vaccination [26]. For example, a survey in northwestern Russia showed that among respondents with a high level of knowledge about HPV, the majority learned about it in school [27]. In Uzbekistan, where vaccination is introduced through schools, teachers received special training and actively explained the benefits of vaccination to students and their parents in simple and understandable language [28].

Digital media—the internet, social networks, and instant messaging apps—are now among the primary sources of information for adolescents and young adults [29]. According to surveys, up to 30–40% of young people prefer to obtain health information via the internet and social media, which is almost comparable to the number of those who trust doctors' advice [30]. This opens up extensive opportunities for disseminating educational materials about HPV: short videos, infographics, and stories on social media can convey key facts about the virus and the vaccine to the audience. Active social media users have been noted to be generally more knowledgeable about HPV [31], especially if they follow medical pages or view popular science content. However, the digital environment also poses risks: it also promotes the spread of myths and misinformation that influence perceptions of vaccination [32]. Therefore, it is important for official bodies and experts to occupy the information space—publishing reliable data, refuting rumors, and engaging with the audience through popular platforms. A successful example is the experience of Uzbekistan: when negative rumors about the vaccine appeared on social media, the authorities quickly organized a meeting between doctors and parents at school and simultaneously launched clarifications through the media and the Internet [33].

Differences in social and regional characteristics

Knowledge and attitudes toward HPV prevention vary significantly across social groups and regions. Socioeconomic factors such as education and income directly influence awareness and behavior. Women with higher education demonstrate significantly higher levels of awareness about HPV/CC and preventive measures [34]. For example, studies in Central Asia and the United States have shown that the proportion of those aware of the vaccine increases from ~35% among individuals with incomplete secondary education to ~75% among university graduates [35]. This is not surprising, given that education improves skills in searching for and critically evaluating medical information. Conversely, young people from low-income families or without access to a good education are less likely to have heard of HPV and are less likely to be vaccinated [36]. Financial factors also play a role: the commercial vaccine is less accessible to socially vulnerable groups, widening the gap in vaccination coverage [37].

Geographical differences are observed between urban and rural populations, as well as between countries. Urban residents tend to be better informed about HPV and have greater access to vaccination than rural youth [38]. Information campaigns are conducted in capitals and large cities, and there are more specialists and clinics, whereas in remote areas, a lack of medical infrastructure and educational activities leads to knowledge gaps [39]. Experts in Uzbekistan note that rural residents would likely show a lower level of knowledge about HPV compared to the Tashkent sample [40]. A similar picture is observed in other countries in the region. Moreover, ethnocultural differences in awareness are possible within multiethnic societies. For example, in Kazakhstan, it was found that women of the Russian ethnic group were more knowledgeable about HPV and the vaccine than women of other ethnicities [41]. This is likely due to the language factor (greater access to Russian-language information sources) and some cultural characteristics of health perception.

At the regional level, the scale of the cervical cancer problem correlates with historical differences in prevention. Countries with well-established screening and vaccination programs (North America, Western Europe, Australia) have achieved a significant reduction in incidence in recent decades, whereas in Eastern Europe and Central Asia, cervical cancer remains the leading cause of mortality among women of reproductive age [42]. For example, in Romania, a country with insufficient prevention coverage until recently, cervical cancer incidence is 2.5 times higher than the EU average, and mortality is 4 times higher

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[43]. This reflects a lack of information and prevention among past generations of young women. Encouragingly, the situation is beginning to change: virtually all countries in Eastern Europe and Central Asia have introduced the HPV vaccine into their national vaccination schedules in recent years [44], and as educational campaigns intensify, awareness among young people is gradually increasing. However, differences between regions remain – and overcoming these disparities requires sharing successful experiences and additional attention to less-served population groups [45].

Effective strategies to increase awareness and vaccination coverage

To significantly improve the situation, a comprehensive approach is needed, combining education, service accessibility, and targeted interventions to address barriers. International benchmarks have already set ambitious targets: the WHO cervical cancer elimination strategy calls for 90% vaccination coverage for girls and 70% screening coverage for women by 2030 [46]. Achieving these goals is particularly dependent on how effectively young people themselves are informed and motivated.

Some of the most effective strategies include:

• Information and educational campaigns tailored to the target audience. Mass campaigns through television, radio, the internet, and social media can increase knowledge about HPV and belief in the need for prevention. It is important that the information is scientifically accurate, easy to understand, and culturally sensitive [47]. For example, in Uzbekistan, vaccination promotion emphasized positive motivation – protecting the health and future motherhood of girls [48]. This approach, taking into account the audience's values, increased vaccine acceptance.

• Involvement of education and health systems. Schools, colleges and universities should be used as a platform for ongoing education on cervical cancer issues. Incorporating HPV topics into the school curriculum or extracurricular activities ensures the early formation of correct ideas [49]. At the same time, primary care healthcare workers should actively recommend vaccination during preventive examinations of adolescents [50].

• Combating myths and targeted communication. A system for monitoring public opinion and a rapid response to outbreaks of misinformation is needed. For example, when rumors about the dangers of the vaccine were spreading on social media in Uzbekistan, a communication circle was organized with doctors and parents in schools, which helped quickly dispel fears [51]. Such activities, supported by statistics and facts, build trust and encourage vaccination.

• Ensuring accessibility and funding for vaccination. State funding, inclusion of the vaccine in the national schedule, and free provision are key steps. In countries where such measures have been taken (e.g., Uzbekistan), coverage has increased significantly—up to 94% among girls aged 12–14 [52].

• Intersectoral collaboration and sustainable programs. Success is achieved by combining the efforts of health care, education, local communities and international organizations [53]. Regular training of medical personnel is also necessary so that they can inform patients competently and convincingly. Significantly, in recent years, the number of countries with national vaccination programs in the Eastern Europe and Central Asia region has increased, and public awareness efforts have led to increased trust in prevention [54]. Continuing to implement these strategies can lead to a significant reduction in cervical cancer incidence and mortality in future generations.

CONCLUSIONS

1. Despite high awareness of the existence of HPV and its link to cervical cancer, the level of in-depth knowledge among young people remains insufficient.
2. The majority of respondents are not vaccinated against HPV, which is due to a lack of information, cultural barriers and the spread of misinformation.
3. Digital media and educational institutions play a key role in shaping knowledge and attitudes towards vaccination, but require the active participation of specialists.
4. There are significant socio-economic and regional differences in awareness levels, requiring strategies to be tailored to specific audiences.
5. To increase vaccination coverage, a multisectoral approach is needed, including government support, educational programs, myth-busting, and increased access to the vaccine.

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