

KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING CERVICAL CANCER AWARENESS AND PREVENTION IN SOUTHERN EASTERN EUROPE: A NARRATIVE REVIEW

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ABSTRACT

This narrative review examines the knowledge, attitudes, and practices (KAP) related to cervical cancer across Southeastern Europe, with a focus on disparities in awareness, prevention efforts, and healthcare access. A comprehensive search of PubMed over the past 12 years was conducted to assess gaps in KAP regarding cervical cancer and human papillomavirus (HPV) prevention. The findings revealed significant gaps in KAP, including limited knowledge about cervical cancer risk factors, inadequate attitudes toward screening, and poor preventive practices, such as low participation in screening programs and HPV vaccine uptake. Economic challenges and inconsistent healthcare communication further hinder progress. The review emphasizes the need for targeted public health strategies, focusing on improving education, social mobilization, and access to essential services. Further research is necessary to address sociocultural and economic factors contributing to these gaps and to develop tailored interventions suited to the region's diverse populations.

KEYWORDS: Cervical Cancer, HPV Vaccination, KAP (Knowledge, Attitudes, Practices), HPV Screening, Southeastern Europe.

INTRODUCTION

Cervical cancer, the fourth most prevalent cancer in women globally, is primarily caused by high-risk types of human papillomavirus (HPV), which can lead to cervical intraepithelial lesions that may eventually progress to cancer ⁽¹⁾. With a population of over 151 million and a median age of 46 years, Southern Europe is likely to face a growing burden of cervical cancer ⁽²⁾. Based on the data from a study conducted, cervical cancer holds a significant place among cancers in women across Southeastern European countries, being the second most common cancer in Romania and Central Serbia, following breast cancer, and underscoring its considerable public health impact in these regions ⁽³⁾. Knowledge, attitudes, and practices (KAP) surveys, developed in the 1950s for family planning and population research, are now widely used to assess health behaviors and practices by examining what a population

knows, believes, and does regarding a specific health topic ⁽⁴⁾. In Southeastern European countries, where cultural norms, economic challenges, and varying levels of healthcare access shape public health outcomes, KAP surveys are essential tools to uncover gaps in awareness and attitudes toward cervical cancer prevention. The stark disparities in cervical cancer outcomes between Eastern and Western Europe, with significantly higher incidence and mortality rates in the East (16.0/100,000 and 6.1/100,000) compared to the West (6.8/100,000 and 2.1/100,000), underscore the existing inequalities in healthcare access and prevention efforts in Southeastern Europe ⁽⁵⁾. The healthcare systems in Southeastern European countries are not fully strengthened, considering the political, economic, and epidemiological transitions many of these nations have undergone, therefore, it is crucial to thoroughly investigate KAP, access to primary and screening services, and the associated factors for non-communicable diseases, such as cervical cancer ⁽⁶⁾. The aim of this narrative review is to analyze the current KAP regarding cervical cancer and its associated factors in Southeastern Europe, with a focus on identifying gaps and disparities in awareness, prevention, and healthcare access that contribute to the region's elevated burden of disease.

METHODS

Study Design

This narrative review aimed to gather and analyze available research on KAP related to cervical cancer and associated factors in Southern Eastern Europe. The goal was to provide an overview of the current state of awareness, perceptions, and preventive behaviors in the region, helping to identify potential areas for improvement in cervical cancer prevention efforts.

Search Strategy

A comprehensive search was conducted using PubMed as the primary database. The search terms included: ("cervical cancer" OR "cervical neoplasms" OR "HPV-related cancer") AND ("knowledge" OR "awareness") AND ("attitudes" OR "perceptions" OR "beliefs") AND ("practices" OR "behaviors" OR "screening" OR "prevention") AND ("Southern Eastern Europe" OR "Balkans" OR "Albania" OR "Bosnia and Herzegovina" OR "Bulgaria" OR "Croatia" OR "Greece" OR "Kosovo" OR "Montenegro" OR "North Macedonia" OR "Romania" OR "Serbia" OR "Slovenia"). The search was limited to English-language articles published over the last 12 years. Relevant studies were selected based on their focus on cervical cancer, HPV-related cancers, and the KAP framework. The literature review also incorporated relevant studies and literature outside of the initial search strategy, ensuring a more comprehensive understanding of the topic.

Inclusion and Exclusion Criteria

- Inclusion criteria: Studies addressing cervical cancer or HPV-related cancers, focusing on KAP, and conducted in Southern Eastern Europe.
- Exclusion criteria: Studies unrelated to the KAP framework, those conducted outside the specified region, and articles not available in English or full-text.

A narrative synthesis was conducted to summarize the findings across the included studies. Themes related to KAP were identified and grouped, allowing for comparisons across countries. The synthesis highlighted gaps in the literature and areas for future research.

Ethical Considerations

Since this review was based on previously published research, no ethical approval was required. All sources were properly cited and credited.

RESULTS AND DISCUSSION

Based on our Boolean search in the PubMed database, as outlined in the methodology, we identified 28 studies conducted since 2012 that explored KAP related to cervical cancer and HPV prevention in Southeastern Europe, specifically covering Romania, Greece, Serbia, Albania, Kosovo, and Slovenia.

We begin this discussion with Romania, which, by far, has the highest cervical cancer mortality rate in the EU, warranting greater attention to the KAP among women regarding prevention and screening in the country ⁽⁷⁾. In an evaluation of the free cervical cancer screening program implemented in Romania between 2012 and 2017, the results indicated it was largely unsuccessful, with only 33.1% of women being aware of the program and just 6.3% actually utilizing it ⁽⁸⁾. In a 2014 study of Romanian parents, 85.8% were aware of HPV infection, but only one-third were willing to vaccinate their children, citing concerns about side effects, the vaccine's novelty, and insufficient information ⁽⁹⁾. Although the HPV vaccination program was interrupted and restarted in 2020, most population of interest relied on the Internet for information about HPV infection and vaccination, with many self-assessing their knowledge as satisfactory or poor, while few sought advices from healthcare professionals, despite believing that physicians should be the primary source of accurate information ^(10,11). Thus, increasing awareness, which relies on multisectoral components including policymakers, healthcare, and education, is a critical need in Romania to reduce the burden of this disease. Despite significant efforts to raise awareness, another study on Romanian female migrants revealed that their understanding of the purpose of screening and their trust in the Romanian healthcare system remains limited, indicating that awareness alone may not be enough to ensure proper engagement with preventive services ⁽¹²⁾.

Following Romania, we turn to a study conducted in Greece revealed that while 96% were aware of HPV infection, only 40% of women and 3.9% of men were vaccinated, and significant misconceptions about transmission persisted—24.1% of men and 23.4% of women believed condoms offer full immunity ⁽¹³⁾. Another study of young Greek adults further demonstrated moderate knowledge about HPV and vaccination, with 52.3% already vaccinated and an encouraging 65.5% willing to get vaccinated in the future, indicating the positive impact of ongoing HPV promotion and education campaigns ⁽¹⁴⁾. Previous explorations in Greece of factors affecting women's behavior regarding their KAP toward cervical cancer and the HPV vaccine have identified predisposing factors such as older age, low educational background, menopausal status, ethnic minority (Roma) background, and lack of insurance coverage, all of which are linked to insufficient knowledge and misconceptions about cervical cancer prevention ⁽¹⁵⁾. It is important to note that women's intention to get vaccinated in Greece dropped slightly during the economic crisis compared to before it, herefore, it is crucial that additional studies are conducted in the present day, and that educational interventions continue to improve awareness and vaccination rates ^(16,17).

Initial research from Serbia (2014) highlighted that while midwives are key to cervical cancer prevention, women in the general population had significantly lower knowledge about HPV, cervical cancer causes, and vaccine benefits, except healthcare students ⁽¹⁸⁾. A study of cervical cancer screening primary health care services in Serbia revealed performance indicators showing 61.9% coverage by

invitation, 35.5% coverage by examination, and 57.3% compliance with invitations, highlighting the need for improved social mobilization, education, promotion strategies, and better coordination of resources to enhance the effectiveness of the screening program ⁽¹⁹⁾. Another study conducted during the COVID-19 pandemic in Serbia among pregnant women revealed that, despite relatively high awareness of HPV, knowledge about the HPV vaccine was limited, with higher vaccine knowledge and number of children being key factors influencing the willingness to vaccinate their children, and gynecologists serving as the preferred source of information ⁽²⁰⁾. Recently, studies from Serbia have highlighted both parents' strong reliance on pediatrician recommendations as a key motivator for HPV vaccination and the need for increased awareness among young women, as many female students, despite good general knowledge about cervical cancer prevention, remain underinformed about the availability and access to the HPV vaccine, underscoring the importance of targeted education and public health efforts ^(21,22).

For Albania and Kosovo, two countries with Albanian populations, as well as Slovenia, the publications were more limited.

In Albania, despite the establishment of a national cervical cancer screening program, a 2022 study among university female students revealed low awareness of HPV as a risk factor and limited vaccination uptake (7.5%), emphasizing the need for enhanced educational efforts to promote preventive behaviors ⁽²³⁾. Given that clinical management of cervical cancer has received more attention in Albania, it wasn't until 2019 that a national screening program using high-risk HPV testing was introduced, with the initial evaluation showing high acceptance but highlighting the need to address the fact that some women opted for private clinics for follow-up examinations ^(24,25). The same situation is observed in Kosovo, where a 2018 study revealed that only 0.5% of women were vaccinated against HPV, and 66.4% had no prior knowledge of the virus ⁽²⁶⁾. In Slovenia, HPV vaccination acceptance varied significantly by region, with a low overall rate (49.7%), reflecting the disparities seen in immunization program for young girls, where uptake ranged from 33.9% to 78.3% across different areas ^(27,28).

Across Southeastern Europe, significant disparities in cervical cancer prevention emerge, with Romania showing low screening participation and HPV vaccine uptake due to widespread misconceptions, while Greece, despite higher HPV awareness, struggles with low vaccination rates, particularly among men, exacerbated by economic crises; similarly, Serbia highlights the critical role of midwives, but overall population knowledge remains insufficient, whereas Albania and Kosovo exhibit parallel trends of limited awareness and vaccination uptake, and Slovenia, though more progressive, still faces regional disparities in vaccine acceptance. In comparison, Western Europe has adopted more robust cervical cancer prevention policies, featuring higher HPV vaccination rates and better-organized screening initiatives, as emphasized by the Cervical Cancer Prevention Atlas, which underscores the significant disparity between the more comprehensive approaches in Western and Northern Europe and the less effective measures in Eastern and Southern Europe, resulting in higher cervical cancer incidence and mortality in these regions ⁽²⁹⁾.

Further research is urgently needed to better understand the factors driving these disparities and to develop effective, region-specific interventions for improving cervical cancer prevention and HPV vaccination rates in Southeastern Europe.

Limitations

The review was limited to English-language studies, potentially missing relevant research in other languages. Additionally, only PubMed was used as the primary database, which may have excluded studies from other relevant databases. Variations in study design, population characteristics, and measurement tools across studies may also have affected the comparability of findings, which was noted in the discussion.

CONCLUSIONS

The review highlights significant disparities in KAP regarding cervical cancer prevention across Southeastern Europe, with varying levels of awareness and vaccine uptake influenced by socioeconomic and cultural factors. To effectively address these gaps, targeted education, improved healthcare access, and coordinated public health efforts are crucial to enhance cervical cancer prevention and control in the region.

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