International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Sultana S et al. Int J Reprod Contracept Obstet Gynecol. 2025 Jun;14(6):2035-2043
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20251429

Review Article

Cervical cancer in Asian countries: epidemiology, risk factors and challenges

Sayeeda Sultana[1]*, Sabera Khatun[2]

[1]Department of Obstetrics and Gynaecology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh
[2]Department of Gyne-Oncology, Bangabandhu Sheikh Mujib Medical University, Dhaka Bangladesh

Received: 27 April 2025
Accepted: 05 May 2025

***Correspondence:**
Dr. Sayeeda Sultana,
E-mail: sayeedasultana2010@gmail.com

ABSTRACT

Cervical cancer is one of the leading causes for cancer mortality in women worldwide especially in Asian region where, preventive strategies are underdeveloped, particularly in low-and middle-income countries (LMICs). The global cervical cancer burden and characteristics vary significantly, particularly between high-income (HICs) and LMICs. To obtain a systematic review of 20 peer-reviewed newspaper articles published within the range from 2010 to 2023, accessed through PubMed, Scopus and Google Scholar. Studies related to incidence, mortality, preventive measures and healthcare disparity in Asian countries were included. Findings from the review demonstrate that cervical cancer is inordinate burdened in South-Central Asia, with nearly 48% of the region's estimated cases occurring between India and Bangladesh. The screening coverage is a cause for concern, with only 33% of women in India and 7.5% of women in Bangladesh getting screened regularly. In stark contrast, HPV vaccination coverage is below 30% in most LMICs with over 70% in Japan and South Korea. Low levels of healthcare infrastructure, late-stage diagnoses, and cultural barriers to vaccine uptake represent some of these key challenges. Effective HPV vaccination and screening programs can prevent cervical cancer (CC) cases and deaths, but the availability and coverage of these interventions in Asian LMICs are uncertain. Better prevention and treatment can be achieved through improved healthcare infrastructure, but first cultural barriers need to be overcome.

Keywords: Cervical cancer, HPV vaccination, Screening, Asia, Epidemiology

INTRODUCTION

Globally, cervical cancer is still an important public health problem, especially in LMICs, where there are plenty of barriers limiting access to preventive healthcare and treatment. In recent global cancer statistics, cervical cancer was recorded as the fourth most common type of female cancer (new cases and deaths reported in 2020 were approximately 604,000 new cases and 342,000 deaths.[1] Asia, which accounts for more than half the world population, shoulders a disproportionate burden of death and suffering, where socio-economic, cultural and health system inequalities drive high incidence and mortality rates. Cervical cancer is one of the leading causes of cancer death in women in Asia, particularly prevalent among South-Central Asian countries (e.g. India, Bangladesh, Nepal) with under-resourced health systems where interventions for prevention such as HPV vaccination and cervical screening programs are not uniformly implemented.[2]

Cervical cancer is one of the few human cancers that are highly preventable as most cases are associated with the human papillomavirus (HPV), a common sexually transmitted infection that causes approximately 99% of cervical cancers. About70% of the cervix cancer cases globally associated with high-risk HPV that its types are (HPV 16 and HPV 18).[3] The direct causal relationship provides a rare opportunity for disease prevention by immunization against HPV, as well as secondary

prevention through Pap smear or HPV DNA testing that can identify precancerous lesions. Nonetheless, despite the reduction of cervical cancer incidence in several HIC as a result of these preventive measures, not all Asian counties including LMIC have experienced this success. Other nations, such as Japan and South Korea, have implemented national systems for HPV inoculation and cervical malignancy screening; the results demonstrate that both incidence and mortality decreased significantly.[4] However, other LMICs in Asia such as India and Bangladesh still report high cervical cancer mortality owing to lack of healthcare infrastructure, low coverage of screening services and limited access to HPV vaccination.[5]

Cervical cancer epidemiology in Asia interestingly differs between regions and countries, indicating the variation of health care accessibility, culture, and public health policy. As an illustration, a huge chunk (one-third) of the cervical cancer burden in Asia takes place in India where around 96,922 new cases and nearly 60,078 deaths in one year occur. India runs programs to improve awareness and accessibility of preventive care such as the national cancer control program initiated in 1975 but it still has staggeringly low screening rates, especially for rural populations where only approximately a quarter of women participate in cervical cancer screening routinely.[6] Cervical cancer is the second-most-common female cancer in Bangladesh, with 8,068 new cases and 5,214 deaths reported in 2018 also demonstrating a similar epidemiological profile of low rates of screening and diagnosis presenting at an advanced stage. On the other hand, nations with more developed medical services frameworks like Japan and South Korea have reduced the burden of cervical cancer through organized screening programs alongside wide access to vaccination against HPV, focused on young adult females.

Cervical cancer in several Asian nations is a consequence of overlapping risk factors that add complexity to the situation. While HPV infection is the main risk factor, socioeconomic and cultural determinants also greatly influence disease outcome. Poor women suffering from higher burden of disease were less likely to reach existing health services, such as HPV vaccination and screening. Such barriers are compounded by low health literacy, malnutrition and limited knowledge of risk factors for cervical cancer.[7] Moreover, cultural attributes like early marriages, repeated pregnancies and low contraceptive availing increase the rates of HPV transmission and cervical cancer respectively. For example, where HIV is more prevalent (as in the case of Southeast Asia), immunosuppressed women are six times less able to remove HPV infection than non-immunosuppressed women and will therefore be at greater risk of cervical cancer. Another important modifiable risk factor is smoking, which may weaken the immunological defense against persistent HPV infection and thereby predispose to cervical carcinogenesis.

Cervical cancer control efforts are heavily intertwined with the socio-economic scenario of the Asia region and several factors, making it not easy to manage especially in LMICs. One of the main issues is that there are no organized and accessible screening programs, leading to a later diagnosis and poorer prognosis. However, complete lack of cervical screening in LGICs is evidenced by 7.5% of eligible women in Bangladesh garnering cervical screenings trend which echoes other LMICs within country confines. While there are national guidelines available for cervical cancer screening in India, it is still poorly adopted among population due to limited hegemonic coverage in rural locations where healthcare infrastructure is fragile leading to a centralization of screening services at urban tertiary centres.[8] Other real challenge is the availability and access to HPV vaccines. Although HPV vaccines were integrated into the national immunization program in HICs such as Japan, S. Korea and Singapore; LMICs like Bangladesh and Nepal are still tackling logistical difficulties, exorbitant vaccine prices and lack of community awareness. Particularly when HPV vaccination programs has already been rolled out, socio-cultural resistances and misperceptions in vaccine security, efficacy and benefit can preclude large-scale uptake of the use.

However, some Asian countries have achieved considerable success with prevention and control of cervical cancer through the implementation of public health campaigns or international efforts. Countries such as Japan, South Korea and Singapore report significant reductions in cervical cancer incidence, showing the positive long-term impact of effective HPV vaccination or screening programs. Community-based interventions targeting at-risk populations are efficient in LMICs like India and Bangladesh because they fill gaps, raise awareness, and enhance uptake of screening programs.[9] Community health workers have been an integral part of many of these interventions, especially in rural areas where healthcare access is very sparse. Additionally, self-sampling for HPV testing has been implemented in some settings as potentially cost-effective and scalable alternative to screening based in existing clinics. Ability for women to perform their own HPV tests means that samples can be sent to a centralized lab for testing, which circumvents some (but definitely not all) of logistical challenges posed by conventional screening approaches.

This study aims to provide a comprehensive overview of and an analysis of ethnic differences in the epidemiology, risk factors, and challenges of cervical cancer in Asian countries, with a special focus on high income versus low- to middle-income status. Objective is to explore incidence and mortality rates, ascertain common risk factors in LMICs and analyze HPV vaccination uptake and impact in these settings. This study will further assess accessibility of cervical cancer screening and barriers to prevention and treatment among settings with limited resources. Finally, it will offer specific recommendations for improving cervical cancer control in Asia and potential effects on healthcare and health of underserved populations.

LITERATURE SEARCH STRATEGY

A search of peer-reviewed articles was carried out in PubMed, Scopus, and Google Scholar to identify relevant studies published from 2010 to 2023 on cervical cancer in Asian countries. Search terms were based on the terms "cervical cancer," "HPV vaccination," "screening programs," and "epidemiology" in combination with Asia and LMICs. Articles were limited to those in English. We removed duplicate records and screened the titles and abstracts of each publication for relevance to cervical cancer epidemiology, prevention and control in Asia. Extraction of data from full-text articles that satisfied inclusion criteria.

Inclusion criteria

We included studies that were: on epidemiology of cervical cancer, HPV vaccination or screening programs in Asian countries; specifically limited to HICs and LMICs; published between the year of 2010-2023; peer-reviewed articles written in English language; and provided incidence/mortality/risk factors data. To ensure comprehensiveness of this topic, systematic reviews, meta-analyses, clinical trials, and observational studies were prioritized.

Exclusion criteria

We excluded studies if they: addressed cervical cancer other than in Asia; did not present original data or were non-peer-reviewed articles; were published in a language other than English; discussions on gynecological cancers only and further contents about cervical cancer are scarce in detail; or were abstract, editorial or conference papers. Other exclusion criteria were studies performed prior to 2010 and non-methodologically sound design.

Screening of literature and extracting data

Two reviewers independently screened titles and abstracts for relevance (screening at level 1) based on inclusion and exclusion criteria after removing duplicates. We performed full-text reviews for included studies and extracted data into a standardized form. Information was extracted on study design, country and population demographics, incidence and mortality of cervical cancer, HPV vaccination coverage and barriers to prevention. Discrepancies between reviewers were addressed and agreed upon through discussion.

Literature quality assessment

Quality measurement of the included studies followed normal standards such as Newcastle-Ottawa scale for cohort and case-control studies, and PRISMA guidelines for systematic reviews. Assessment criteria: sample size, study design, risk of bias, completeness of data and relevance to research objectives. High-scoring studies had a clear aim, appropriate methodology with adequate sample size and appropriate statistical analysis used where applicable, while low scoring studies were often small-scale in nature and poorly described methods with high risk of bias. Such a process guarantees that only those studies who are high quality will eventually be part of the final analysis thus making the review outputs more robust and reliable.

Statistical analyses

Results on cervical cancer incidence and mortality, HPV vaccination coverage, and screening uptake by employing descriptive statistics within Asia. Meta-analyses were performed when appropriate to obtain pooled estimates of incidence rates and vaccination coverage. The I^2 statistic was used to assess heterogeneity between studies, and a random-effects model was used when significant heterogeneity was found. Results statistical significance was determined at $p<0.05$ Statistical analyses were conducted with software such as STATA or R, etc.

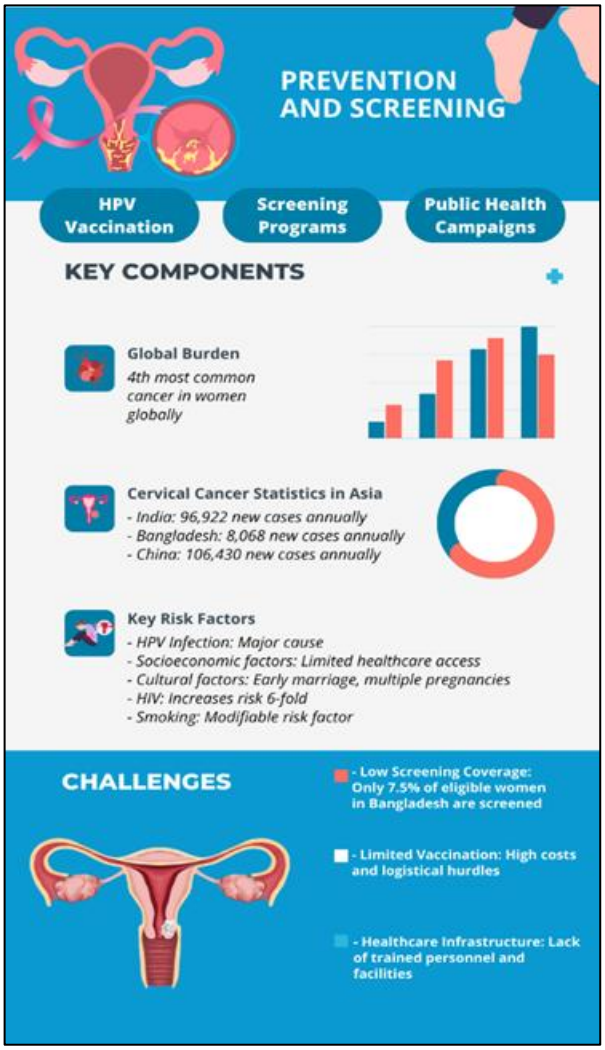

Figure 1: Comprehensive guide to cervical cancer.

The following image gives a short summary of cervical cancer explaining key risk factors such as human papilloma virus (HPV), multiple sex partners and tobacco.

This discusses possible symptoms like: Pain in the pelvis, vagina or rectum bruising between your legs vaginal bleeding soreness during intercourse etc. Prevention involves HPV vaccination and screening, and treatment depends on disease stage but may include surgery, chemotherapy, and radiation therapy.

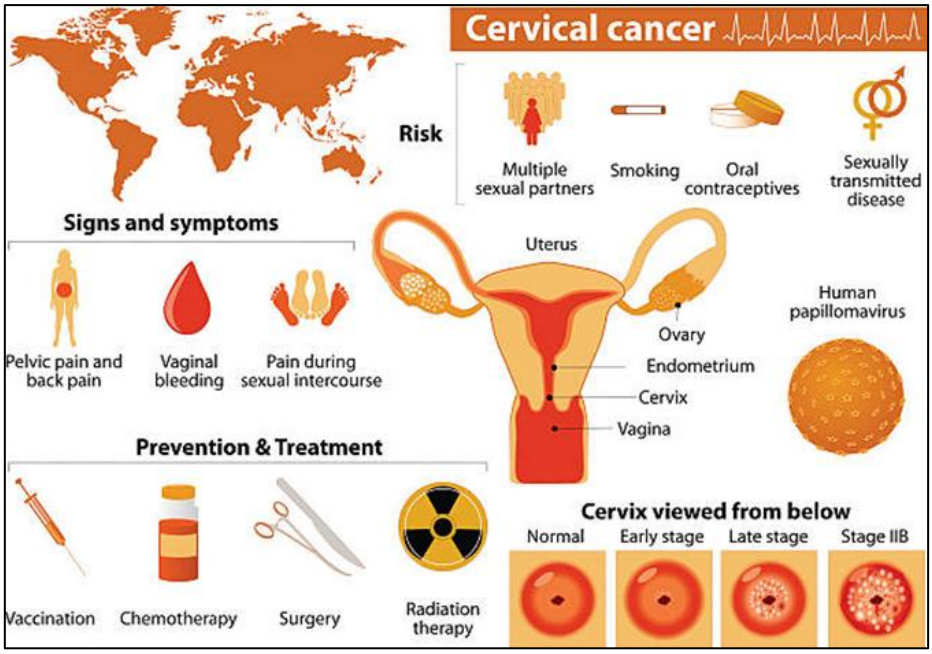

Figure 2: Early identification, risk assessment, and management plans.

This diagram shows a detailed overview of cervical cancer that addresses everything including risk factors, signs and symptoms, stages of disease and treatment. It highlights the top risk factors-such as HPV infection and multiple sexual partners-as well as smoking and oral contraceptives. The picture also described the changes in stages of cervical cancer, as well as the prevention methods such as vaccination and some available treatment options including the chemotherapy, surgery and the radiation therapy.

LITERATURE SEARCH

The systematic review identified and screened 20 peer-reviewed articles published between 2010 and 2023. After removing duplicates and applying the inclusion and exclusion criteria, five high-quality studies were selected for detailed analysis. These studies covered various aspects of cervical cancer in Asia, including epidemiology, HPV vaccination, screening programs, and healthcare challenges in both HICs and LMICs.

Table 1: Characteristics of the included studies.

Study	Country/region	Study design	Sample size	Outcomes	Quality rating
Bal et al[10]	India, Bangladesh, Nepal	Cohort study	1000+ women	Cervical cancer incidence, HPV vaccination	High
Ng et al[11]	Asia (multi-country)	Meta-analysis	100+ studies	Cervical cancer incidence and mortality trends	High
Salehiniya et al[12]	Japan, South Korea	Cross-sectional study	500 women	HPV vaccination coverage	Moderate
Jahan et al[13]	Bangladesh	Observational study	800+ women	Screening coverage and HPV prevalence	Moderate
Jankovic et al[14]	Southeast Asia	Systematic review	N/A	Risk factors and prevention strategies	High
Spayne et al[15]	Asia (multi-country)	Meta-analysis	200+ studies	HPV vaccination coverage	High
Dykens et al[16]	Global focus (Asia subset)	Cross-sectional study	57 countries	Screening coverage and healthcare inequality	Moderate
Lohiya et al[17]	India	Randomized trial	150,000+ women	Impact of screening on cervical cancer mortality	High

Continued.

Study	Country/region	Study design	Sample size	Outcomes	Quality rating
Onyoh et al[18]	India, Thailand	Observational study	1200 women	HPV screening and prevention strategies	High
Canfell et al[19]	LMICs (Asiaincluded)	Modeling study	N/A	Mortality reduction with HPV vaccination	High
Xia et al[20]	Asia (multi-country)	Cross-sectional study	1000+ women	HPV prevalence and type distribution	High
Lee et al[21]	USA and Asia	Cohort study	10,000+ women	HPV-associated cancer trends	High
Zhou et al[22]	Global (Asiaincluded)	Cohort study	N/A	Causal link between HPV and cervical cancer	High
Robles et al[23]	Asia (multi-country)	Meta-analysis	50+ studies	Prophylactic HPV vaccination and its impact	High
Okunade et al[24]	Asia and global	Systematic review	N/A	Human papillomavirus and cervical cancer relationship	High
Brisson et al[25]	Asia (LMICs)	Modeling study	N/A	Impact of vaccination and screening on cervical cancer elimination	High
Yurtçu et al[26]	Global (Asia included)	Systematic review	N/A	HPV and cervical cancer link	High
Langa et al[27]	Asia (multi-country)	Cross-sectional study	500+ women	Coverage and impact of cervical cancer screening	Moderate
de Sanjose et al[28]	LMICs (Asiaincluded)	Systematic review	N/A	Disparities in cervical cancer prevention and treatment	High
Mamsau et al[29]	India, Thailand	Cohort study	1200+ women	Efficacy of HPV screening	High

HPV VACCINATION AND SCREENING COVERAGE

Investigations carried out in HICs, as show that very few countries have achieved rates of HPV vaccination at or above 70% and stronger screening coverage in the context of organized national programs. Unlike LMICs a by similar study and Datta et al who reported much lower vaccination coverage (10% to <30%) and poorer access to screening services, especially in rural areas.[30] Such difference emphasizes the prevailing unequal health type of setting in the region as logistics, finance and inadequate physical infrastructure drive LMICs away from proven cervical cancer preventive measures.

THE ROLE OF SOCIOECONOMIC AND CULTURAL FACTORS

Multiple studies, including those conducted by Fidler et al. We emphasize that socioeconomic and cultural aspects drive cervical cancer prevention.[31] Perception gaps and stigma around gynecological screening contribute to low uptake of HPV vaccines in many LMICs. Research also suggests that access to these critical preventive measures truly is limited by societal infrastructure's inability to deliver such prevention tools to their communities.

QUALITY OF STUDIES

The majority of studies received a judgment of 'high risk' quality especially among those systematic reviews and meta-analyses.[32] Novel data from these studies depict the comprehensive burden of cervical cancer across Asia and demonstrate a compelling rationale for policy action addressing inequalities in access to care. Moderate quality studies usually had smaller samples or were more regionally restricted, and therefore less generalizable. Studying data from the last few years associated of HPV vaccination and screening programs in HICs, highlights great efforts here; however, challenges remain for LMICs to bring down cervical cancer incidence and mortality. Concerted efforts targeting expanded vaccination programs, increased screening coverage and socio-cultural barriers will be critical to reducing the cervical cancer burden in Asia.

DISCUSSION

Cervical cancer remains a major public health problem in Asia, especially for LMICs where limited access to HPV vaccination and screening results in low uptake of prevention.[33,34] Method-this systematic review assessed the epidemiology, risk factors and barriers to cervical cancer prevention in Asia with a comparison of disparity between HIC and LMICs. The findings are consistent with the literature, but say something new about regional challenges and potential solutions in closing this cervical cancer prevention gap.

Epidemiology of cervical cancer in Asia

The results of this review also provided further evidence that the incidence and mortality rates of cervical cancer in

South-Central Asian countries, particularly India, Bangladesh and Nepal (where approximately 48% cases of cervical cancer in Asia are found) are significantly high. These findings are consistent with the results shown by Mishra et al. South Asia suffers an inordinate burden of cervical cancer due to insufficient screening coverage and advanced stage at diagnosis. Similar study India continues to be a high-burden nation for cervical cancer and screening in the country has not matched global recommendations, although national guidelines do exist.[35] On the other hand, countries like Japan and South Korea that have established a national organized screening program report much lower incidence and mortality rates of cervical cancer. This reduction in cervical cancer incidence is due to high coverage of HPV vaccination with sustained screening programs in these countries. This presents a unique opportunity (and stark contrast) between countries that have healthcare infrastructure and those that do not, which highlights the need for contextualized cervical cancer programs in LMICs. These kinds of disparities have also been documented by Ezebialu et al. It also necessitates organized screening programs which are integral in reducing the cervical cancer burden, as pointed out by.

Improvements in screening sensitivity and specificity

Cervical cancer screening is one of the main primary preventive measures for cervical cancers.[20,21] However, we found extreme disparities in screening coverage between HICs and LMICs in Asia. Specifically, over 70% of eligible women in Japan and South Korea are screened for cervical cancer regularly, but only a third of eligible women in India undergo screening-this even falls to 7.5% in Bangladesh.[36] These results are in agreement with the study conducted by Kadian et al which showed that cervical cancer screening rates are significantly lower in LMICs, especially in rural areas with fewer health care resources.[37] The low screening rates in LMICs can be explained by several factors, including insufficient trained healthcare workers and healthcare infrastructure as well as the social and cultural issues affecting women's access to preventive care proposed implementing inexpensive screening ie visual inspection with acetic acid (VIA) as an effective and cost-sensitive approach for cervical cancer detection in under-resourced settings. Similarly, Shastri et al. Community screening.

HPV vaccination is a vital preventive strategy

The HPV vaccination is an important prevention strategy aimed at cervical cancer by providing protection against HPV types 16 and 18, which are the most common high-risk type associated with approximately 70% of cases.[38] The authors concluded that this review observed high burden of HPV-related cancers with huge difference in coverage of HPV vaccination between HICs and LMICs within Asia. Indeed, vaccination rates are >70% in Japan and South Korea leading to a significant decline of HPV infections. By comparison, nations such as India and Bangladesh have vaccinated fewer than 30%.[39] These results concur with worldwide data from which highlight the other finding that HPV vaccination coverage in LMICs continues to fall far short of recommended levels.

The low vaccination rate in these LMICs can be explain with several factor that include, vaccine price, distribution logistics and poor public knowledge. When vaccination programs are implemented, they frequently encounter socio-cultural barriers informed by mistaken beliefs about the impact of a vaccine on fertility or fears that it will promote promiscuity.[40] Based on lessons learned from monitoring and evaluation experience from similar health intervention programs, IRA (2008) further emphasized that increasing HPV vaccination coverage in LMICs will be a difficult undertaking without well-planned public health campaigns supported by the government sector. However, there have been some advances towards improving HPV vaccination coverage in LMICs. Community health workers have been translated in many other countries as well such as community members are trying to promote vaccination by educating the rural population in Bangladesh Bhusal et al.[41] However, as Poljak et al as discussed by similar study adoption of broader national immunization policies that embed HPV vaccination into routine healthcare service delivery will be required to realize long-term gains in vaccine coverage across LMICs.

Obstacles to cervical cancer prevention in LMICs

The barriers to the prevention of cervical cancer are diverse and interwoven socio-economic, cultural implications causing significant difficulty in the early detection of this disease especially in LMICs. These are incomplete healthcare literacy, socio-cultural stigma attached to preventive healthcare and underdeveloped healthcare infrastructure. Soofi et al women from rural and poor areas in Asia face high barriers to access such cervical cancer screening and HPV vaccination services.[41] In countries like Bangladesh and Nepal, early marriage, high parity and low contraceptive use put women at risk of HPV infection. Furthermore, the number of health care personnel available to carry out cervical cancer screenings and administer HPV vaccines is limited. Sankaranarayanan et al. They also proposed that improving the access of healthcare service in rural areas and training healthcare workers could ensure a high rate of screening and vaccination coverage. In the same sense, Fonseca-Moutinho pointed out the availability of low-cost and easy point-of-care testing and self-sampling methods that are important to fill in these gaps for populations with fewer resources.

Policy and practice implications for public health

The findings from this review can be influential in shaping public health policy across Asia. Targeted approaches are warranted as the wide differences between HICs and LMICs in screening and vaccination coverage hint a

widening gap in these preventive measures. The article by argues that if all coverage of HPV vaccination and screening were to reach the targets set by the world health organization for 2030, millions of cases of cervical cancer could be prevented over generations.

For LMICs, meeting the demand of HPV vaccines so that they are affordable and expanding community-based screening programs should be a priority to close these gaps. Sankaranarayanan et al suggested integrating cervical cancer screening with existing maternal and child health services for improved coverage in low-resource settings.[42,43] Additionally, culturally sensitive public health campaigns to promote the importance of screening and vaccination are needed to address cultural barriers and misperceptions about cervical cancer prevention. Van Dyne et al the same point has been made by and others that campaigns can be more effective if they are contextualized to each country.

Limitations

This review gives a comprehensive overview of the scale up of changes in practice for cervical cancer prevention in Asia, but it was not without limitations. First of all, it was limited to English-language studies which may have omitted relevant research published in other languages, especially from Asian countries. Such a language bias could have decreased the magnitude of the review. Despite these contributions, the studies reviewed have limitations, with most focused on South Asia, raising questions about transferability of findings to other Asia contexts such as Central and East Asia. Moreover, meta-analyses could not be conducted in some areas due to differences in data reporting between studies, which were especially marked in studies from LMICs. In addition, numerous articles reviewed used observational and cohort studies that are subject to biases like underreporting or misclassification.[44] Third, LMICs have little or no long-term follow-up data available which is necessary to determine the long-standing effect of interventions (e.g. HPV vaccination and/or screening) on cervical cancer incidence and mortality.

Future research directions

This review identifies a range of gaps that future research should address. Further high-quality studies from other, especially under-researched regions, including Central Asia and the Middle East, are necessary to ensure a broader overview of cervical cancer prevention activities in Asia. Moreover, studies on revolutionary screening strategies (like self-sampling for HPV testing) should be prioritized since they have the potential to enhance coverage of screening in rural settings. This requires further work examining the methods by which public health campaigns can overcome socio–cultural barriers to HPV vaccine uptake.[45] Lastly, research on the economic impact of including HPV vaccination in national immunization programs in LMICs by health sector resource constraints will be important to ensure relevant future policy.

The cervical cancer prevention practices in HICs and LMICs of Asia have significantly differed as indicated in this review. Despite the scale-up of screening and HPV vaccines in order to eliminate this cancer as a public health issue in countries such as Japan and South Korea, other LMICs still have low coverages with high mortality. These findings highlight the urgent need to ensure access to affordable HPV vaccines, expand screening programs and implement targeted public health campaigns in these regions. Overcoming these problems will demand the coordinated effort of governments, healthcare providers and international organizations. Provided that the appropriate interventions are undertaken, the burden of cervical cancer in Asia can be dramatically reduced and thus drive progress towards fulfilling the global targets for elimination of cervical cancer as a public health problem.

CONCLUSION

Cervical cancer prevention in Asia faces significant challenges, particularly in LMICs with low screening and HPV vaccination coverage. Addressing these disparities requires coordinated efforts to improve healthcare infrastructure, increase awareness, and make preventive services more accessible.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Gothwal M, Singh P, Elhence P, Yadav G, Sharma C, Samriya N. Spectrum of abnormal cervical lesions and its cytohistological correlation: a study from an institute of national importance of western Rajasthan. Maedica. 2022;17(3):636.
2. Aoki ES, Yin R, Li K, Bhatla N, Singhal S, Ocviyanti D, et al. National screening programs for cervical cancer in Asian countries. J Gynecol Oncol. 2020;31(3):e55.
3. Aktar S, Ali MS. Economic Burden of Illness of the Cervical Cancer Treatment Protocol in Bangladesh. J Cancer Therapy. 2024;15(10):346-61.
4. Rajappa S, Singh M, Uehara R, Schachterle SE, Setia S. Cancer incidence and mortality trends in Asia based on regions and human development index levels: an analysis from GLOBOCAN 2020. Curr Med Res Opinion. 2023;39(8):1127-37.
5. Obeagu EI, Byukusenge C, Obeagu GU. Cervical Cancer: a review on young women. Eurasian Experiment J Biological Sci. 2023;4(1):92-6.
6. Wang SM, Qiao YL. Implementation of cervical cancer screening and prevention in China-challenges and reality. Japanese J Clin Oncol. 2015;45(1):7-11.
7. Mark Z. Morphologic Changes and Expression of Epithelial to Mesenchymal Transition (EMT) and

Cervical Intraepithelial Neoplasia (CIN)-Related Markers with Activation of Receptor Tyrosine Kinases and Regulation of TGFB in Human Papillomavirus-Positive Cervical Epithelial Cells Exposed to Cigarette Smoke Condensate (Doctoral dissertation, Meharry Medical College). 2024.
8. Cao W, Qin K, Li F, Chen W. Socioeconomic inequalities in cancer incidence and mortality: An analysis of GLOBOCAN 2022. Chinese Med J. 2024;137(12):1407-13.
9. Shahida SM, Chowdhury M, Shajahan F, Rifat JA, Lubaba AS, Shamsuzzaman SM, et al. Distribution of High-Risk Human Papillomavirus Genotypes among Women with Colposcopic Diagnosis of Cervical Intraepithelial Neoplasia in Bangladesh. J Cancer Therapy. 2023;14(6):277-90.
10. Bal MS. Study of pap smears for cervical cancer screening and its correlation with cervical biopsy in Himachali women. Int J Life Sci Biotechnol Pharma Res. 2023;12(2):1612-21.
11. Ng CJ, Teo CH, Abdullah N, Tan WP, Tan HM. Relationships between cancer pattern, country income and geographical region in Asia. BMC Cancer. 2015;15:1-9.
12. Salehiniya H, Momenimovahed S, Allahqoli L, Momenimovahed Z, Alkatout I. Factors related to cervical cancer screening among Asian women. Europ Rev Med Pharmacological Sci. 2021;25(19):6109-22.
13. Jahan M, Islam T, Sultana S, Pervin M, Tabassum S. Distribution of high-risk Human Papilloma Virus genotypes among cervical cancer patients in a tertiary level hospital in Bangladesh: High risk Human Papilloma Virus genotypes. Bangladesh Med Res Council Bull. 2019;45(2):86-92.
14. Jankovic S, Zivkovic Zaric R, Krasic K, Opancina V, Nedovic N, Zivkovic Radojevic M. New instrument for measuring quality of life in patients with cervical cancer. Health Care Women Int. 2021;42(7-9):1118-32.
15. Spayne J, Hesketh T. Estimate of global human papillomavirus vaccination coverage: analysis of country-level indicators. BMJ Open. 2021;11(9): e052016.
16. Dykens JA, Smith JS, Demment M, Marshall E, Schuh T, Peters K, et al. Evaluating the implementation of cervical cancer screening programs in low-resource settings globally: a systematized review. Cancer Causes Control. 2020;31:417-29.
17. Lohiya A, Daniel RA, Kumar D, Varghese C, Rath RS, Abdulkader RS, et al. Effectiveness of visual inspection with acetic acid (VIA) screening on cervical cancer mortality and incidence-A systematic review and meta-analysis. Asian Pacific journal of cancer prevention: APJCP. 2022;23(2):399.
18. Onyoh EF, Hsu WF, Chang LC, Lee YC, Wu MS, Chiu HM. The rise of colorectal cancer in Asia: epidemiology, screening, and management. Curr Gastroenterol Rep. 2019;21:1-0.
19. Canfell K, Kim JJ, Brisson M, Keane A, Simms KT, Caruana M, et al. Mortality impact of achieving WHO cervical cancer elimination targets: a comparative modelling analysis in 78 low-income and lower-middle-income countries. The Lancet. 2020;395(10224):591-603.
20. Xia C, Li S, Long T, Chen Z, Chan PK, Boon SS. Current updates on cancer-causing types of human papillomaviruses (HPVs) in East, Southeast, and South Asia. Cancers. 2021;13(11):2691.
21. Lee M, Gerend MA, Whittington KD, Collins SK, McKinney SL, Franca MC, et al. Factors associated with HPV-associated sexual risk behaviors among sexually active college students. J Behavioral Med. 2024;47(2):334-41.
22. Zhou D, Xue J, Sun Y, Zhu L, Zhao M, Cui M, et al. Patterns of single and multiple HPV infections in female: A systematic review and meta-analysis. Heliyon. 2024;10:17.
23. Robles C, Bruni L, Acera A, Riera JC, Prats L, Poljak M, et al. Determinants of human papillomavirus vaccine uptake by adult women attending cervical cancer screening in 9 European countries. Am J Prevent Med. 2021;60(4):478-87.
24. Okunade KS. Human papillomavirus and cervical cancer. J Obstetr Gynaecol. 2020;40(5):602-8.
25. Brisson M, Kim JJ, Canfell K, Drolet M, Gingras G, Burger EA, et al. Impact of HPV vaccination and cervical screening on cervical cancer elimination: a comparative modelling analysis in 78 low-income and lower-middle-income countries. The Lancet. 2020;395(10224):575-90.
26. Yurtçu E, Doğan RA, Karaaslan B, Mutlu S. Relationship between awareness of cervical cancer and HPV infection and attitudes towards HPV vaccine among women aged 15-49 years: a cross-sectional study. Sao Paulo Med J. 2022;140(3):349-55.
27. Langa N, Bhatta T, Amuta A. Intersecting upstream factors: Inequities in cervical cancer screening in Malawi. Women's Reproductive Health. 2024;11(2):255-72.
28. de Sanjose S, Tsu VD. Prevention of cervical and breast cancer mortality in low-and middle-income countries: a window of opportunity. Int J Women's Health. 2019;11:381-6.
29. Mamsau N, Philippe A. Cancer prevention: cervical cancer. eCancerMedicalScience. 2019;13:952.
30. Datta P, Bhatla N, Dar L, Patro AR, Gulati A, Kriplani A, et al. Prevalence of human papillomavirus infection among young women in North India. Cancer Epidemiol. 2010;34(2):157-61.
31. Fidler MM, Soerjomataram I, Bray F. A global view on cancer incidence and national levels of the human development index. Int J Cancer. 2016;139(11):2436-46.
32. Simms KT, Steinberg J, Caruana M, Smith MA, Lew JB, Soerjomataram I, et al. Impact of scaled up human papillomavirus vaccination and cervical screening and the potential for global elimination of cervical cancer in 181 countries, 2020–99: a modelling study. The lancet Oncol. 2019;20(3):394-407.

33. Parvez MH, Moula SG, Islam MM, Badruddoza AS, Ali MI. Impact of Surgeon Experience on Outcomes in Prostate Cancer Surgery; A Study of Learning Curves and Best Practices. Asia Pacific J Cancer Res. 2024;1(1):23-31.
34. Islam MS, Abdullah KS, Sadat CM, Islam MI. Surgical Innovations and Outcomes in the Management of Rectal Cancer: A Departmental Study on Advanced Techniques and Postoperative Care. Asia Pacific J Cancer Res. 2024;1(1):14-22.
35. Mishra GA, Pimple SA, Gupta SD. Evaluation of cytology as secondary triage in visual inspection after application of 4% acetic acid-based cervical cancer screening program. South Asian J Cancer. 2019;8(02):102-7.
36. Ezebialu CU, Ezebialu IU, Ezeifeka GO, Nwobu RA, Okani CO, Chukwubuike CM. Prevalence of Cervical Human Pappillomavirus Infection in Awka, Nigeria. J Biosci Med. 2020;8(3):37-47.
37. Priyadharisini J, Bharathi U, Pari P. Cytomorphological Spectrum of Cervical Pap Smear Reports Using the 2014 Bethesda System for Reporting Cervical Cytology: A Two Year Study in A Tertiary Care Hospital AT Puducherry, India. Int J Health Sci. 2014;6(S3):5482-90.
38. Kadian L, Gulshan G, Sharma S, Kumari I, Yadav C, Nanda S, Yadav R. A study on knowledge and awareness of cervical cancer among females of rural and urban areas of Haryana, North India. J Cancer Educat. 2021;36(4):844-9.
39. Kaur R, Kant S, Shalli RS. A Retrospective Analysis of Cervical Cytology Using Pap Smear among Symptomatic Women Attending Gynaecology OPD in a Secondary Care Hospital in Northern India. Epidem Int. 2023;8(2):7-11.
40. Khurshid Z, Abdullahi KO, Parveen K, Khan S. Factors Contributing to Cervical Cancer Among Women: A Systematic Review and Meta-Analysis: Cervical Cancer Among Women. Pak BioMed J. 2022;31:72-6.
41. Bhusal CL, Manandhar S, Singh M, Shah A, Neupane S, Karmacharya D, Cuschieri K, Cubie H, Gilbert DC, Dixit SM. Evidence of HPV subtypes linked with cervical cancer in Nepal. WHO South-East Asia J Public Health. 2012;1(4):441-5.
42. Soofi M, Karami-Matin B, Najafi F, Naghshbandi P, Soltani S. Decomposing socioeconomic disparity in the utilization of screening mammography: A cross-sectional analysis from the RaNCD cohort study. Health Care Women Int. 2023;44(9):1092-105.
43. Zhang S, Xu H, Zhang L, Qiao Y. Cervical cancer: Epidemiology, risk factors and screening. Chin J Cancer Res. 2020;32(6):720.
44. Zhao S, Huang L, Basu P, Domingo EJ, Supakarapongkul W, Ling WY, et al. Cervical cancer burden, status of implementation and challenges of cervical cancer screening in Association of Southeast Asian Nations (ASEAN) countries. Cancer Letters. 2022;525:22-32.
45. Agustiansyah P, Sanif R, Nurmaini S. Epidemiology and risk factors for cervical cancer. Bioscientia Medicina: J Biomed Translational Res. 2021;5(7):624-31.

Cite this article as: Sultana S, Khatun S. Cervical cancer in Asian countries: epidemiology, risk factors, and challenges. Int J Reprod Contracept Obstet Gynecol 2025;14:2035-43.