OPEN PEER REVIEW

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Peer Review

Health Scope
Article DOI: https://doi.org/10.5812/healthscope-163343
Published in: Health Scope: 14(4) ; e163343

Peer Review Report for "Spatial Distribution Analysis of High-Risk Human Papillomavirus (hrHPV) Infection Rates in Guizhou Province, 2023 - 2024: A Population-Based Study of 1.35 Million Individuals"

Author(s): Lei He, Xingjing Luo, Fan Qi, Ying Chen, Sihan Liu, Fei Zhang, Bing Liu, Honghong Zhang, Yan Ma

Review Timeline:

Submit Date:	28 May 2025
Revised Date:	30 Jun 2025
Accepted Date:	12 Jul 2025

Revision (0)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

Hossein Ansari : Reviewer — 31 May 2025

Dear Author:
1-It is better to explain about factors related to hrHPV based on the analyses conducted in this study
2-There is no discussion about how to evaluate the presented models and whether these results are reliable or not
3-It would be better to provide some practical suggestions that would be useful for other countries as well.

Mahdi Mohammadi : Reviewer

16 Jun 2025

This article investigates the spatial distribution of hrHPV infection rates. There are some issues to be considered:

1. There is no explanation whether or not the assumptions of spatial autocorrelation analysis and spatio-temporal scanning analysis are satisfied.

2. A P value of 0.000 should be written as <0.001

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Maryam Seraji : Associate Editor

17 Jun 2025

Dear Author:

Reviewer 1;

1- Where was the screening conducted?

2- What are the inclusion criteria for the study?

3- What are the latest cervical cancer statistics from the World Health Organization in 2024?

4- Is screening routinely done annually in China?

5- Is the screening campaign for the diagnosis of...?

6- Are all people screened every 5 years or only those who test negative?

What is the mortality rate from this disease?

Reviewer 2;

This article investigates the spatial distribution of hrHPV infection rates. There are some issues to be considered:

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Reviewer 3:

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Ramazan Mirzaei : EIC

21 Jun 2025

Dear Author:

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1- Where was the screening conducted?

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OPEN PEER REVIEW

Revision (1)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

Response to comments of the reviewers on the paper: 163343

The authors are deeply grateful to the reviewers for their valuable and professional comments on our manuscript and express their high respect for the profound knowledge of the reviewers. According to the valuable comments of reviewers, we have revised and improved the manuscript.

Reviewers' comments and authors' responses:

Reviewer 1:

1-Where was the screening conducted?

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct. The manuscript addition of where the screening was conducted reads as follows:

In Page4-5 : "hrHPV testing encompasses specimen collection, preservation, laboratory testing, reporting, and data review/submission: Collection is performed at designated township-level or county-level medical institutions across the province; specimens are preserved according to standards mandated by the designated hrHPV testing institutions; these testing institutions, appointed through public bidding, regularly collect specimens from designated medical facilities and complete testing within stipulated timeframes; all test data undergoes hierarchical review and feedback ascending through township-level, county-level, and municipal-level maternal and child health (MCH) hospitals, ultimately reaching the provincial MCH hospital for province-wide data verification and aggregation."

2-What are the inclusion criteria for the study?

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct.

The relevant elements of the study's inclusion criteria were added as follows :

In Page5 : "Inclusion criteria: Meet eligibility for free cervical cancer screening (i.e., women aged 35-64 across the province, with priority given to rural women and urban women receiving subsistence allowances as part of rural revitalization efforts); comprehend the screening procedures and voluntarily participate by signing

informed consent forms; and have their initial screening (hrHPV DNA testing) results accurately recorded in the multi-tiered systems.”

3-What are the latest cervical cancer statistics from the World Health Organization in 2024?

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct.

Add the latest World Health Organization cervical cancer statistics for 2024 as follows：

In Page 2：“Cervical cancer ranks as the fourth most common cancer in terms of both incidence and mortality among women worldwide. As reported in the "Global Cancer Statistics 2022" published in February 2024 in CA: A Cancer Journal for Clinicians, approximately 662,000 new cervical cancer cases and 349,000 deaths occurred globally in 2022, accounting for 6.8% and 8.1% of total female cancer incidence and mortality, respectively. In China specifically, an estimated 151,000 new cases and 56,000 deaths were recorded in 2022, representing 22.8% and 16.0% of the global totals. Furthermore, both incidence and mortality rates in China have been rising over the past two decades, reaching age-standardized incidence and mortality rates of 13.83 and 4.54 per 100,000 women in 2022, indicating a significant disease burden.”

4-Is screening routinely done annually in China?

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct.

Add China's regular screening for cervical cancer as follows：

In Page3：“Since its initiation in 2009, Guizhou Province has annually conducted the free 'Two-Cancers' Screening Program for rural women in accordance with project protocols, achieving full coverage across all 88 counties (districts) in its 9 prefecture-level cities (autonomous prefectures) by 2020.”

5-Is the screening campaign for the diagnosis of...?

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct.

Add the relevant elements of the diagnostic screening activities as follows：

In Page3：“Since its initiation in 2009, Guizhou Province has annually conducted the free 'Two-Cancers' Screening Program for rural women in accordance with

project protocols, achieving full coverage across all 88 counties (districts) in its 9 prefecture-level cities (autonomous prefectures) by 2020."

In Page 5： "Women aged 35-64 eligible for free cervical cancer screening across the province are eligible for one free screening every five years, following high-risk HPV testing protocols. Annually, staff in project areas conduct duplicate checks for negative cases according to screening cycles and follow up on abnormal cases as required. Specifically: those with negative screening results may only participate in the next free screening round after five years, while those with positive results are no longer eligible for subsequent free screenings."

6. Are all people screened every 5 years or only those who test negative?

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct.

Add the relevant parts of the screening cycle and rules as follows：

In Page 5： "Women aged 35-64 eligible for free cervical cancer screening across the province are eligible for one free screening every five years, following high-risk HPV testing protocols. Annually, staff in project areas conduct duplicate checks for negative cases according to screening cycles and follow up on abnormal cases as required. Specifically: those with negative screening results may only participate in the next free screening round after five years, while those with positive results are no longer eligible for subsequent free screenings."

7-What is the mortality rate from this disease?

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct.

Add the latest mortality rates for cervical cancer disease as follows：

In Page 2： "Cervical cancer ranks as the fourth most common cancer in terms of both incidence and mortality among women worldwide. As reported in the "Global Cancer Statistics 2022" published in February 2024 in CA: A Cancer Journal for Clinicians, approximately 662,000 new cervical cancer cases and 349,000 deaths occurred globally in 2022, accounting for 6.8% and 8.1% of total female cancer incidence and mortality, respectively. In China specifically, an estimated 151,000 new cases and 56,000 deaths were recorded in 2022, representing 22.8% and 16.0%

of the global totals. Furthermore, both incidence and mortality rates in China have been rising over the past two decades, reaching age-standardized incidence and mortality rates of 13.83 and 4.54 per 100,000 women in 2022, indicating a significant disease burden.”

Reviewer 2;

This article investigates the spatial distribution of hrHPV infection rates. There are some issues to be considered:

1. There is no explanation whether or not the assumptions of spatial autocorrelation analysis and spatio-temporal scanning analysis are satisfied.

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct. The assumptions of the spatial autocorrelation analysis and the spatio-temporal scanning analysis are added as follows：

In Page6：“and I=0 suggests spatial randomness.”

In Page 7：“Here, |Z|≥1.96 and P<0.05 indicate that the spatial autocorrelation is statistically significant.”

2. A P value of 0.000 should be written as <0.001

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct. Add the relevant elements as follows：

In Page8：“and the P value <0.001”

Reviewer 3:

1.It is better to explain about factors related to hrHPV based on the analyses conducted in this study

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct. Based on the content in this study, the content of HR-HPV-related factors was added as follows：

In Page 13-14：“Relevant studies indicate that disparities in HPV infection rates are primarily attributed to geographic location, economic levels, and cultural diversity [16-17]. This study identified high clusters of hrHPV infection primarily in

Qiandongnan, Qianxinan, and Qiannan Prefectures. Compared to other regions in Guizhou, these three autonomous prefectures exhibit distinct demographic characteristics: Qiandongnan Prefecture, located in southeastern Guizhou, is home to 46 ethnic groups including Miao, Dong, and Han, with ethnic minorities comprising 82.1% of its population; Qianxinan Prefecture, situated in southwestern Guizhou at the junction of Yunnan, Guangxi, and Guizhou, hosts 46 ethnic groups including Han, Buyi, and Miao, with minorities accounting for 39.09% of its population; Qiannan Prefecture, in south-central Guizhou, has a minority population proportion of 60.43% [18]. Ethnic minority regions often face challenges such as poorer economic development, lower educational attainment, harsh working conditions, and inadequate health expenditure [19]. Studies demonstrate higher HPV positivity rates among individuals with lower education levels [20], and HPV vaccination has proven effective in preventing infections [16]. However, vaccination uptake is influenced by ethnicity, affordability of HPV vaccines, and awareness [21-22]. Current initiatives, including China's "Healthy China 2030" plan and the WHO's "Global Strategy to Accelerate the Elimination of Cervical Cancer" [23], are advancing HPV vaccination and cervical cancer screening efforts. Therefore, future work should involve targeted policy support from Guizhou authorities for these regions, including increased funding to reduce the financial burden of HPV vaccination. Concurrently, multi-channel health education campaigns should be implemented to enhance women's health awareness, improve understanding of HPV infections, and ultimately increase vaccination coverage. These measures would reduce HPV positivity rates and contribute to the global acceleration of cervical cancer elimination.”

2. There is no discussion about how to evaluate the presented models and whether these results are reliable or not

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct.

Based on the content in this study, the relevant content is added as follows：

In Page 13：“This may be related to seasonal variations in HPV infection rates or interventions of prevention and control measures in Guizhou [15].”

3. It would be better to provide some practical suggestions that would be useful for other countries as well.

√Thanks for the reviewer's suggestions. The reviewer's comments are quite correct. However, according to the contents of this study, at present, we only give some recommendations that are suitable for the region or the country according to the contents of the study, and the relevant recommendations are added as follows:

In Page 13-14：“Relevant studies indicate that disparities in HPV infection rates are primarily attributed to geographic location, economic levels, and cultural diversity [16-17]. This study identified high clusters of hrHPV infection primarily in Qiandongnan, Qianxinan, and Qiannan Prefectures. Compared to other regions in Guizhou, these three autonomous prefectures exhibit distinct demographic characteristics: Qiandongnan Prefecture, located in southeastern Guizhou, is home to 46 ethnic groups including Miao, Dong, and Han, with ethnic minorities comprising 82.1% of its population; Qianxinan Prefecture, situated in southwestern Guizhou at the junction of Yunnan, Guangxi, and Guizhou, hosts 46 ethnic groups including Han, Buyi, and Miao, with minorities accounting for 39.09% of its population; Qiannan Prefecture, in south-central Guizhou, has a minority population proportion of 60.43% [18]. Ethnic minority regions often face challenges such as poorer economic development, lower educational attainment, harsh working conditions, and inadequate health expenditure [19]. Studies demonstrate higher HPV positivity rates among individuals with lower education levels [20], and HPV vaccination has proven effective in preventing infections [16]. However, vaccination uptake is influenced by ethnicity, affordability of HPV vaccines, and awareness [21-22]. Current initiatives, including China's "Healthy China 2030" plan and the WHO's "Global Strategy to Accelerate the Elimination of Cervical Cancer" [23], are advancing HPV vaccination and cervical cancer screening efforts. Therefore, future work should involve targeted policy support from Guizhou authorities for these

regions, including increased funding to reduce the financial burden of HPV vaccination. Concurrently, multi-channel health education campaigns should be implemented to enhance women's health awareness, improve understanding of HPV infections, and ultimately increase vaccination coverage. These measures would reduce HPV positivity rates and contribute to the global acceleration of cervical cancer elimination.”

OPEN PEER REVIEW

Revision (1)

Maryam Seraji : Reviewer — 6 Jul 2025

Dear EIC:
All requested comments have been revised and responded to, and are acceptable for publication in this journal.

Hossein Ansari : Reviewer — 8 Jul 2025

Dear EIC:
The authors have revised the manuscript in response to the reviewers' comments.

Maryam Seraji : Associate Editor — 11 Jul 2025

Dear EIC:
All requested comments have been revised and responded to, and are acceptable for publication in this journal.

Ramazan Mirzaei : EIC — 12 Jul 2025

Dear EIC:
All requested comments have been revised and responded to, and are acceptable for publication in this journal.