INPLASY

The Research Progress in Disease Burden of Low-risk Human Papillomavirus (HPV) infection among Males in China: a New Method Exploration in Evidence Mapping

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ADMINISTRATIVE INFORMATION

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Conflicts of interest - Yin wang is an employee of MSD China. Other authors have none to declare.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 June 2025 and was last updated on 12 June 2025.

INTRODUCTION

Review question / Objective The aim of this mapping reviews is to estimate the prevalence and incidence of LR-HPV related diseases in Chinese male population and HPV infection in LR-HPV related diseases in Chinese male population primarily as well as the life quality and cost of diseases associated with LR-HPV related diseases in Chinese male population secondarily. To this end, the proposed mapping reviews will address the following question: How is the research progress in disease burden of low-risk Human Papillomavirus (HPV) infection among males in China by a New Method Exploration in Evidence Mapping?

Condition being studied Human Papillomavirus (HPV) is a significant public health concern globally, with its association with various cancers well-documented (1, 2). HPV is a diverse group of viruses, with over 200 identified genotypes, of which approximately 30-40 can infect the genital tract (3). These genotypes are categorized based on their oncogenic potential, with high-risk (HR) HPV types such as HPV-16 and HPV-18 being strongly associated with cervical, anal, and other cancers (4). In contrast, low-risk (LR) HPV types, such as HPV 6 and 11, are primarily associated with non-cancerous growths like genital warts (3).

While the epidemiological and clinical aspects of HPV infection in women have been extensively studied, there is a growing recognition of the importance of understanding HPV characteristics in males (5). Recent studies indicate that the lifetime prevalence of HPV infection in males is as high as 91.3%, with the global prevalence of any HPV type in men estimated at 31% (1). This highlights the need for further investigation into the role of HPV in male populations, as the virus can also lead to significant health issues in men, including genital warts and cancers of the anus, penis, and oropharynx (6).

Low-risk HPV genotypes, such as HPV 6 and 11, are particularly known for causing genital warts, which are a common sexually transmitted infection

(7). The incidence rates of new anogenital warts among males range from 103 to 168 per 100,000, with a median of 137 per 100,000 per annum (8). These infections not only contribute to direct medical costs but also result in productivity loss and increased psychosocial impact. For instance, studies have shown that HPV-related diseases impose a substantial economic burden on healthcare systems, with direct costs ranging from millions to billions of dollars (2). The psychological impact of HPV infection, particularly in the context of genital warts, can include anxiety, depression, and stigma (9).

In China, the disease burden and research progress regarding LR-HPV among males have begun to garner attention, reflecting a broader global trend towards understanding the impact of HPV on both genders. This shift in focus is essential, as HPV affects both men and women, and a comprehensive understanding of its epidemiology and clinical manifestations is crucial for developing effective prevention and treatment strategies.

This study aims to utilize a customized PICOST method to label and categorize HPV-related papers from different databases in English and Chinese, so as to efficiently identify relevant researches from variables, and gain an overview of the evidence landscape and explore crucial data gaps in HPV field among males.

METHODS

Participant or population Chinese men with LR-HPV related diseases including common skin warts (e.g., common warts, plantar warts, flat warts, epidermodysplasia verruciformis), recurrent respiratory papillomatosis (RPP) and genital warts (condylomata acuminata,CA) will be eligible for this review.
Review authors would include studies involving a mixed population concerning the above including participants (e.g., mixed sex, ethnicity/region and three categories of LR-HPV related diseases).
Studies that include populations that are not Chinese, not male, and not three categories of LR-HPV related diseases will be excluded.

Intervention Not applicable.

Comparator Not applicable.

Study designs to be included Observational study (Epidemiological study, Prevalence study,Survey).

Eligibility criteria Inclusion Criteria
1、Population: Chinese men with LR-HPV related diseases.
Diseases associated with LR-HPV infection: 1) Common skin warts (Common warts, plantar warts, flat warts, epidermodysplasia verruciformis), 2) Recurrent respiratory papillomatosis (RPP), 3) Genital warts (Condylomata acuminata,CA).
2、Interventions: Not available since the study will focus on the disease burden.
3、Comparisons: Not available since the study will focus on the disease burden.
4、Outcomes: Prevalence and incidence of low-risk HPV related diseases, Prevalence and incidence of HPV infection in LR-HPV related diseases, Quality of life scores, Disease-related costs
5、Time: This study will include published research from Jan 1st 2015 to present.
6、Study Design: Observational study (Epidemiological study, Prevalence study, Survey)
Exclusion criteria
1、Studies that did not focus on LR-HPV related diseases will be excluded.
2、Studies that did not report male-related outcomes will be excluded.
3、International multicenter study without a Chinese subgroup will also be excluded.

Information sources The following databases will be used to search original research publications: Medline, EMBASE, Cochrane Library, Web of Science, China National Knowledge Infrastructure (CNKI), Wanfang and China Science and Technology Journal Database (VIP).

Main outcome(s) Main outcomes will be the prevalence and incidence of LR-HPV related diseases in Chinese male population and HPV infection in LR-HPV related diseases in Chinese male population with unlimited the timing and methods of measurement.

Quality assessment / Risk of bias analysis We will assess the quality of the included prevalence studies by using the JBI checklist (10) which rates the quality of selection, measurement, and the comparability of studies for prevalence studies. The quality of included cohort studies will be assessed by using the Newcastle-Ottawa Scale (NOS). The quality of included cross-sectional studies will be assessed by using assessment scale from the National Institutes of Health (NIH).

Strategy of data synthesis Statistical Analysis for Meta-Analysis

We will consider the clinical and methodological heterogeneity across included studies. Where the heterogeneity was considered as significant, we will narratively describe the result of each included studies. Meta-analyses will only be done when clinical and methodological heterogeneity is non-obvious (homogeneous enough). When there are at least 3 studies, meta-analysis will be completed using the meta and meta for packages of the statistical software R.

A random-effect model will be used for the meta-analysis since the disease types may be various among included population. All analysis will be performed using the statistical software R4.3.1 and Revman 5.3. All statistical tests are two sided and use a significant P-value 10), a funnel plot will be used to examine the presence of publication bias.

Visualization results of rapid SR

In this study, patients' age, sexual orientation, geographical location, disease type, disease burden, as well as the study design and study period of the included studies, HPV attribute fraction will be summarized in the form of coding in an Endnotes file. The data will then be visualized using R software and Microsoft BPI, and visual representation of different dimensions of the studies included (publication time, region, study type, etc.).

Subgroup analysis This study will focus on subgroups of different disease types, such as common skin warts, RPP, and genital warts, and subgroups of different LR-HPV genotypes (e.g., HPV 6, HPV 11, etc.).

Sensitivity analysis Where substantial statistical heterogeneity was identified (I2 >75%), we will explore the source of heterogeneity by sensitivity analysis. The fixed-effects model will be used for sensitivity analysis. Or, studies caused substantial heterogeneity will be excluded, and then a meta-analysis of the remaining studies can be performed to observe changes in the pooled results.

Country(ies) involved China.

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