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## Methodological Assessment of a Review of Knowledge, Attitude and Practice about Human Papilloma Virus Vaccination in India

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## LETTER to the EDITOR

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# Methodological Assessment of a Review of Knowledge, Attitude and Practice about Human Papilloma Virus Vaccination in India

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### Abstract

A well-conducted review provides quality evidence to inform policy and practice. It is important that the review is as rigorous and as fully reported as possible if the evidence from the review is incorporated into clinical practice. We are writing in response to an article titled, 'Evidence of Knowledge, Attitude, and Practice Regarding Human Papilloma Virus Vaccination at the Community Level in India: A Systematic Review and Meta-Analysis' by Pal et al published in *Asian Pacific Journal of Cancer Prevention* in March 2024. There are some major methodological flaws in the paper that might have biased the conclusions drawn from the review to inform strategies to improve HPV vaccine uptake by the target population in India. There was clear evidence of substantial heterogeneity ( $I^2=96.0\%-100\%$ ) among the studies that were included in the meta-analysis. In addition, the outcomes measured were not specific. Moreover, the authors did not strictly follow the PRISMA guidelines for screening. Furthermore, the data extraction process and the reasons for language restriction were not clear, all of which could contribute to biased results, lowering the validity of the findings.

**Keywords:** Methodological flaws, review, knowledge, practice, HPV vaccine, India

### Dear Editor

A well-conducted review provides quality evidence to inform policy and practice. It is important that the review is as rigorous and as fully reported as possible if the evidence from the review is incorporated into clinical practice. We read, with great interest, the systematic review and meta-analysis by Pal et al. (2024) titled 'Evidence of Knowledge, Attitude, and Practice Regarding

Human Papilloma Virus Vaccination at the Community Level in India: A Systematic Review and Meta-Analysis' that attempts to give information on the prevalence of knowledge, attitude, and practice of HPV vaccination in the Indian population. [1]. The information is useful for planning strategies to improve HPV vaccine uptake by the target population in India. However, the review has flaws that may limit the potential to convince readers about its validity and reproducibility [2].

There was clear evidence of substantial heterogeneity ( $I^2 =100\%$  for positive attitudes towards the uptake of HPV vaccines;  $I^2 =99.5\%$  for Knowledge about HPV vaccine;  $I^2 =96.0\%$  for coverage of HPV vaccines) among the studies that were included in the meta-analyses. The heterogeneity level continued to remain very high even after outlier studies were removed. Hence, the current pooled estimates for the knowledge, attitude, and practice regarding HPV vaccine in India might be a biased estimate/overestimated. The authors could have considered conducting meta-regression analysis to identify the sources of this substantial heterogeneity followed by

subgroup analysis based on the identified factors if they wanted to proceed with the meta-analysis [3]. The studies included in the review should not have been combined in a meta-analysis if they were so very different [3].

In addition, some of the outcomes measured in this study were not specific, affecting the eligibility of the studies for inclusion using the meta-analysis technique. For example, studies that reported knowledge about the safety of the HPV vaccine could be very different from those that reported knowledge about the benefits, effectiveness, or cost of the vaccine. The words used to describe the outcomes were also inconsistent throughout the paper (e.g. HPV vaccine coverage vs HPV vaccine uptake vs HPV vaccine acceptance), further complicating the interpretation of and duplication of the study findings (e.g., complete dose vs incomplete dose).

Moreover, a thorough PRISMA guideline was not strictly followed for screening articles, further weakening duplication of the study findings and the review's conclusions [4]. For example, the authors have missed to include some relevant articles that examined the knowledge and attitude toward the HPV vaccine by the Indian population in the current review [5,6]. Another concern was the number of articles excluded, and the corresponding criteria used for screening the articles by reading the titles and abstracts were not detailed, which could have led to misclassification bias affecting scientific evidence quality. Furthermore, the data extraction process and the reasons for language restriction were not clear, all of which could contribute to biased results, lowering the

validity of the findings [7].

Overall, Pal et al. [1] review could guide clinical practitioners and policymakers to plan strategies to improve HPV vaccine uptake in India. However, the review should be carefully interpreted due to concerns related to literature screening and the combination of the studies through meta-analysis, which impedes the review's reproducibility and validity of findings. Addressing the mentioned limitations would lead to a more thorough review and reliably inform policy and guidelines to increase HPV vaccine uptake in India.

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## Reply to the letter to the editor: Methodological Assessment of a Review of Knowledge, Attitude, and Practice about Human Papilloma Virus Vaccination in India

### Dear Editor

In response to the valuable comments of the letter regarding our published article titled "Evidence of Knowledge, Attitude, and Practice Regarding Human Papilloma Virus Vaccination at the Community Level in India: A Systematic Review and Meta-analysis" [1]. We appreciate the author's interest in carefully understanding our paper and acknowledging that this review could guide clinical practitioners and policymakers in planning strategies to improve HPV vaccine uptake. However, we also had a few limitations apart from its importance in public health policy. We acknowledge the concerns raised by the authors and mention many of the concerns raised in the limitation section of our paper. There are a few concerns we would like to address in response.

The outcomes were specifically mentioned as knowledge, attitude, and practice. The data extraction process is mentioned in the article. The observational studies were only part of this systematic review and meta-analysis. Independent reviewers screened the title and abstract with the full text of all records. Final eligibility was confirmed by the inclusion and exclusion criteria, and the third researcher resolved the disagreement. The detailed search strategy for individual databases is provided in the supplementary file. The English language was considered as the authors comprehended in this language. There is no evidence of systematic and/or language bias from using language restriction in systematic reviews and meta-analyses. Further research may provide better results on language restriction [2].

We didn't include the sub-group analysis in the manuscript. However, we conducted a sub-group analysis for the 'knowledge' outcome based on a sampling strategy (random vs. non-random). We found a heterogeneity of more than 90% in both sub-groups, which was significant. This was also well mentioned in the limitation section of our paper. We submitted the MOOSE guidelines with relevant points regarding our study to the journal during the manuscript submission process [3]. The author's scientific contributions were in our manuscript n=1609 [4, 5].

There are always limitations in systematic review and meta-analyses of KAP studies. However, the evidence generated has always played a role in contributing to scientific literature and policymaking.

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