

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

#### Title (Provisional)

Exploring intersectional determinants of, and interventions for, low uptake of human papillomavirus vaccine in Sub-Saharan Africa: A scoping review protocol

#### Authors

Kailemia, Peter Ntoiti; Mukami, Victoria

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### VERSION 1 - REVIEW

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| <b>Reviewer</b>    | <b>1</b>                              |
| <b>Name</b>        | <b>Marfo, Emmanuel</b>                |
| <b>Affiliation</b> | <b>University of Alberta, Nursing</b> |
| <b>Date</b>        | <b>24-Jan-2024</b>                    |
| <b>COI</b>         | <b>No competing interests</b>         |

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The protocol is well written with sound objective of exploring the intersectional determinants of, and interventions for, low HPV vaccination. My comments are meant to strengthen the quality of the paper.

#### Methods:

It is not clear as to how the intersectional determinants in HPV vaccination will be explored and analyzed in this protocol. Intersectionality as a theory, lens, method, or framework aims to explore the interplay of multiple co-existing and interlocking identities and social locations that create inequities of privilege and oppression. There was no data extraction form attached to the protocol and the listed items to be extracted included almost no intersectional element/variable at the individual level (e.g., biological sex, gender, educational level, geographical location [urban/rural], parental education, religion, sexual orientation), which all factors that intersect to shape HPV vaccine uptake.

2. HPV infection and related cancers are public health concerns. To maximize comprehensiveness of the literature, authors should consider adding Global Health Database for retrieving articles.

#### Formatting and organization

- Move strengths and limitations section after data analysis and presentation

- Sub-Saharan Africa should be abbreviated the first time it is used as SSA and not after the second time (See introduction, paragraph 1).
- North America is a region and not a country. Consider saying "United States and Canada" or replacing "countries" with region. (See introduction, paragraph 1).
- Move the section under eligibility criteria under the methods section
- The last sentence in in the second paragraph needs to be rewritten for clarity. Replace "incidence" with "prevalence" and add "of HPV-related cancers" to mortality rates and replace 'sub-Saharan Africa' with SSA.

## References

Authors need to recheck the entire reference list to ensure accuracy.

-For example, reference 1 ( Changes in Disparities in Stage of Breast Cancer Diagnosis in Pennsylvania After the Affordable Care Act. Journal of Women's Health.0(0):null.) is not correctly cited. There is no mention of cervical cancer by the authors in that paper.

-Similarly, de Oliveira et al.'s work was on breast cancer and not HPV vaccination or cervical cancer prevention. Authors should cite Marfo et al. (2022), whose work found that no HPV vaccination program/intervention utilized intersectionality theory.

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| <b>Reviewer</b>    | <b>2</b>   |
| <b>Name</b>        | <b>Kahn, Benjamin</b>  |
| <b>Affiliation</b> | <b>University of North Carolina Research Opportunities Initiative, Health Behavior</b> |
| <b>Date</b>        | <b>12-Apr-2024</b>   |
| <b>COI</b>         | <b>I have served as a paid research consultant to WHO.</b>                             |

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Overall comment: Why is the focus on determinants only qualitative? I don't understand the distinction between determinants = qualitative, interventions = qualitative. There are also quantitative studies that explore determinants and qualitative studies that assess interventions, so the rationale behind this decision is not clear to me. It seems important to be very clear about the reasoning behind this decision since it is the basis for the proposed approach, or clarify how this approach actually works when conducting a scoping review (I've never seen the sequential explanatory design for data collection/analysis applied in a scoping review). I'm also confused because on page 4 it mentions that "studies employing designs in qualitative, quantitative, and mixed methods approaches will be considered." This comment also has implications for the data analysis/presentation section.

Page 1, lines 19-20: "Biggs" should be "Briggs", check for spelling of that name throughout

Page 1, lines 26-27: It would help to clarify again the "two streams" mentioned here

Page 1, line 45: Parentheses missing from “determinants’)

Page 2, lines 11-13: Consider cutting mention of other risk factors to focus on HPV

Page 2, lines 33-35: Reword last sentence for easier readability

Page 2, line 37: Words missing, I think you mean to mention the “HPV vaccine” but it only says “HPV”

Page 3, line 13: Why is Health Psychology capitalized?

Page 3, lines 18-19: I think you mean to say “Arabic-speaking immigrant population,” I’m not familiar with the terminology “Arabic immigrant”

Page 4, lines 3-12: For the Review aims and questions section, did you consider adding a guiding question that connects the determinants and interventions?

Page 4, lines 23-29: Did you consider including studies that combine adolescent girls with other populations? Why not look at those studies and only look at the results relevant to the population of interest?

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| <b>Reviewer</b>    | <b>3</b>   |
| <b>Name</b>        | <b>Rohani, Camelia</b>                                 |
| <b>Affiliation</b> | <b>Shaheed Beheshti University of Medical Sciences</b> |
| <b>Date</b>        | <b>07-Jul-2024</b>                                     |
| <b>COI</b>         | <b>There is no competing interest.</b>                 |

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This is a review of the study protocol “Exploring intersectional determinants of, and interventions for, low uptake of human papillomavirus vaccine in Sub-Saharan Africa: A scoping review protocol.” Thank you for giving this opportunity. There are several issues that authors need to answer them.

1. This is a protocol for conducting a scoping review and the authors have mentioned that they will use an explanatory sequential design to integrate quantitative (interventions) and qualitative (determinants) results in the abstract and text of the article. In the text in page 6, they mentioned two references numbers 31 and 32. First, explanatory design is related to mixed-method studies and I didn’t find information about it in these two references (31, 32). Also, in the JBI guide, “explanatory design” is introduced as an approach for mixed method systematic reviews, not scoping reviews.
2. “Outcome determinants” can also be found in quantitative studies. Why do the authors mention it only in the qualitative part?
3. The authors’ aim is to find determinants (barriers and facilitators) and interventions (different types of interventions and their effectiveness?? ) for low uptake of human papillomavirus vaccine in adolescents in Sub-Saharan Africa. Why don’t they use mixed-method systematic review?
4. Page 5-lines 15-16: “*PCC (population, concept, and concept) Framework.*” It should be changed to population, concept and context.

5. What does “intersectional determinant” mean? The title should be concise and clear. If the authors have a specific definition of determinants, they can provide it later in the method section. Same goes for interventions....different types, effectiveness???
6. Abstract: “medium-income countries”? or middle-income countries?
7. Why do the authors search databases between 2011 and 2024? Is there a specific reason? It should be mentioned.

## VERSION 1 - AUTHOR RESPONSE

| Reviewer 1 Comments  |  |
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| Methods  |  |
| It is not clear as to how the intersectional determinants in HPV vaccination will be explored and analyzed in this protocol. Intersectionality as a theory, lens, method, or framework aims to explore the interplay of multiple co-existing and interlocking identities and social locations that create inequities of privilege and oppression                                   | <b>This comment was considered, and the manuscript was revised by adding the following explanation of how the intersectional lens will be used in this review.</b><br>While the adoption of intersectionality approach in research has taken several dimensions including as a field of study, critical praxis, and as an analysis strategy, this review will apply the approach as an analytical framework <sup>1</sup> to explore the interplay of multiple co-existing and interlocking social determinants that create inequities and inequalities of opportunity for the uptake of HPV vaccine.   |
| There was no data extraction form attached to the protocol and the listed items to be extracted included almost no intersectional element/variable at the individual level (e.g., biological sex, gender, educational level, geographical location [urban/rural], parental education, religion, sexual orientation), which all factors that intersect to shape HPV vaccine uptake. | <b>Authors considered this comment. While the items to be extracted from determinants studies have not been mentioned, the use of WHO, 2024 framework that operationalizes the WHO, 2008 Report on Social Determinants Of Health (SDOH) will include these suggested items and others. Manuscript revised as follows:</b><br>Data extraction items specific to determinants will be informed by the recently published WHO Operational Framework for Monitoring Social Determinants of Health Equity <sup>2</sup> . However, this framework will be used flexibly in consideration of the contextual embeddedness of social determinants of HPV vaccine uptake |
| HPV infection and related cancers are public health concerns. To maximize comprehensiveness of the literature, authors should consider adding Global Health Database for retrieving articles   | <b>We appreciate the suggestion to include more global databases. The explanation on the choice of suggested information sources is as follows:</b><br>Resource availability is an important consideration in evidence synthesis decisions <sup>3,4</sup> . The authors' choice of search sources was limited to the resources including databases, available to them. The search strategy includes grey literature databases such as BASE, Preprints databases (e.g. OSF and MedRxiv), and African Journals Online (AJOL) dedicated to articles published in Africa   |

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|   | which is expected to broaden the number of papers retrieved.  |
| Formatting and organization   |   |
| Move strengths and limitations section after data analysis and presentation   | <b>Authors considered this comment.</b><br>According to BMJ Open author guidelines, in addition to the BMJ Open editor comment at the beginning of this response table, strengths and limitations have been maintained immediately after the abstract   |
| Sub-Saharan Africa should be abbreviated the first time it is used as SSA and not after the second time (See introduction, paragraph 1).  | <b>Authors considered comments and revised the manuscript to ensure consistency in the use of the phrase Sub-Saharan Africa ( SSA)</b>  |
| North America is a region and not a country. Consider saying "United States and Canada" or replacing "countries" with region. (See introduction, paragraph 1).  | <b>Authors considered comments and revised the manuscript as follows:</b><br>Adopted 'Unites States'  |
| Move the section under eligibility criteria under the methods section   | <b>Authors considered this comment.</b><br>Considering this review follows the PCC framework by JBI Scoping Review Methodology Group, the authors felt clarity on eligibility criteria immediately after review aims and questions will enable better appreciation of review methods which come immediately thereafter. Eligibility criteria section was maintained as in the original manuscript |
| The last sentence in in the second paragraph needs to be rewritten for clarity. Replace "incidence" with "prevalence" and add "of HPV-related cancers" to mortality rates and replace 'sub-Saharan Africa" with SSA.  | <b>These reviewer comments guided the revision of the manuscript accordingly.</b>   |
| References<br>Authors need to recheck the entire reference list to ensure accuracy.   |   |
| -For example, reference 1 (Changes in Disparities in Stage of Breast Cancer Diagnosis in Pennsylvania After the Affordable Care Act. Journal of Women's Health.0 (0): null.) is not correctly cited. There is no mention of cervical cancer by the authors in that paper. | <b>Authors considered the comment.</b><br>The reference was deleted as it wasn't adding any value to the manuscript.  |
| Similarly, de Oliveira et al.'s work was on breast cancer and not HPV vaccination or cervical cancer prevention. Authors should cite Marfo et al. (2022), whose work found that no HPV vaccination  | <b>Authors considered the comments.</b><br>This reference was replaced with a reference on a systematic review synthesising evidence on multilevel determinants of HPV vaccine uptake <sup>5</sup> . Marfo et al 2022 work has already been cited in the original manuscript.   |

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| program/intervention utilized intersectionality theory   |   |
| <b>Reviewer 2 Comments</b>   |   |
| <p>Overall comment: Why is the focus on determinants only qualitative? I don't understand the distinction between determinants = qualitative, interventions = qualitative. There are also quantitative studies that explore determinants and qualitative studies that assess interventions, so the rationale behind this decision is not clear to me. It seems important to be very clear about the reasoning behind this decision since it is the basis for the proposed approach, or clarify how this approach actually works when conducting a scoping review (I've never seen the sequential explanatory design for data collection/analysis applied in a scoping review. I'm also confused because on page 4 it mentions that "studies employing designs in qualitative, quantitative, and mixed methods approaches will be considered." This comment also has implications for the data analysis/presentation section.</p> | <p><b>Reviewer's comments were carefully considered, and the manuscript revised accordingly.</b> The clarity of the studies for inclusion in the review has been enhanced in the revised manuscript as follows:</p> <ul style="list-style-type: none"> <li>• <i>Determinants studies:</i> can be either quantitative, qualitative, or mixed method studies that have explored social determinants of HPV vaccine uptake</li> <li>• <i>Intervention studies:</i> quantitative studies that have been evaluated for effectiveness in promoting HPV vaccine uptake</li> </ul> <p><b>Why adopt sequential explanatory design in scoping reviews?</b></p> <p>Although previous scoping reviews have not adopted sequential explanatory design, the adoption of this approach in the current review is motivated by the seminal works by Thomas et al 2004, Oliver et al 2005 and Thomas and Harden, 2005 on synthesizing evidence from different study designs<sup>6-8</sup></p> |
| Page 1, lines 19-20: "Biggs" should be "Briggs", check for spelling of that name throughout  | Authors have made necessary spelling revisions throughout the manuscript.   |
| Page 1, lines 26-27: It would help to clarify again the "two streams" mentioned here   | <p><b>Authors have carefully considered these comments and provide the following clarification.</b></p> <p>Type of studies to be considered for inclusion in the review</p> <ul style="list-style-type: none"> <li>• <i>Determinants studies:</i> can be either quantitative, qualitative, or mixed method studies that have explored social determinants of HPV vaccine uptake</li> <li>• <i>Intervention studies:</i> quantitative studies that have been evaluated for effectiveness in promoting HPV vaccine uptake</li> </ul>  |
| Page 1, line 45: Parentheses missing from "determinants")  | Authors have made the necessary revisions.  |
| Page 2, lines 11-13: Consider cutting mention of other risk factors to focus on HPV  | Authors have made the necessary revisions.  |



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| Page 2, lines 33-35: Reword last sentence for easier readability   | Authors have made the necessary revisions.  |
| Page 2, line 37: Words missing, I think you mean to mention the “HPV vaccine” but it only says “HPV”   | Authors have made the necessary revisions.  |
| Page 3, line 13: Why is Health Psychology capitalized?   | Authors have made the necessary revisions.  |
| Page 3, lines 18-19: I think you mean to say “Arabic-speaking immigrant population,” I’m not familiar with the terminology “Arabic immigrant”  | Authors have made the necessary revisions.  |
| Page 4, lines 3-12: For the Review aims and questions section, did you consider adding a guiding question that connects the determinants and interventions?  | <p><b>This comment was considered and an additional question was added to guide the integration of determinants evidence with interventions evidence. Thus:</b></p> <ul style="list-style-type: none"> <li>What interventions address the reported barriers to HPV vaccine uptake or build upon facilitators to promote its uptake?</li> </ul>  |
| Page 4, lines 23-29: Did you consider including studies that combine adolescent girls with other populations? Why not look at those studies and only look at the results relevant to the population of interest?   | <p><b>Authors considered these comments and clarify as follows:</b></p> <p>On page 3, other have described inclusion of parents/caregivers due to their influence on girls health behaviour</p>   |
| <b>Reviewer 3 Comments</b>   |   |
| <p>1. This is a protocol for conducting a scoping review and the authors have mentioned that they will use an explanatory sequential design to integrate quantitative (interventions) and qualitative (determinants) results in the abstract and text of the article. In the text in page 6, they mentioned two references numbers 31 and 32. First, explanatory design is related to mixed-method studies and I didn’t find information about it in these two references (31, 32). Also, in the JBI guide, “explanatory design” is introduced as an approach for mixed method systematic reviews, not scoping reviews</p> | <p><b>Authors have carefully considered these comments and provide the following clarification.</b></p> <p>Type of studies to be considered for inclusion in the review</p> <ul style="list-style-type: none"> <li><i>Determinants studies:</i> can be either quantitative, qualitative, or mixed method studies that have explored social determinants of HPV vaccine uptake</li> <li><i>Intervention studies:</i> quantitative studies that have been evaluated for effectiveness in promoting HPV vaccine uptake</li> </ul> <p><b>References 31 and 32 do not mention mixed method review</b></p> <p>The use of this approach is motivated by the seminal works Thomas et al 2004, Oliver et al 2005 and Thomas and Harden, 2005 on synthesizing evidence from different study designs<sup>6-8</sup>. The terms used in relation to synthesizing evidence from different study designs have been evolving as demonstrated by this 2014 paper<sup>9</sup></p> |
| 2. “Outcome determinants” can also be found in quantitative studies. Why do the authors mention it only in the qualitative part?   | <p><b>Authors have carefully considered these comments and provided the following clarification.</b></p>  |

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|   | <p>Type of studies to be considered for inclusion in the review</p> <ul style="list-style-type: none"> <li>• <i>Determinants studies</i>: can be either quantitative, qualitative, or mixed method studies that have explored social determinants of HPV vaccine uptake</li> <li>• <i>Intervention studies</i>: quantitative studies that have been evaluated for effectiveness in promoting HPV vaccine uptake</li> </ul>  |
| <p>3. The authors' aim is to find determinants (barriers and facilitators) and interventions (different types of interventions and their effectiveness??) for low uptake of human papillomavirus vaccine in adolescents in Sub-Saharan Africa. Why don't they use mixed-method systematic review?</p> | <p><b>We appreciate the suggestion to use a mixed-method systematic review. The explanation on the choice of type of review is as follows</b></p> <p>Resource availability is an important consideration in evidence synthesis decisions as well as the aim of the review<sup>3,10</sup>, which informed the type of review we propose to conduct. The authors aim to explore social determinants of HPV vaccine uptake and the extent to which the existing interventions to promote uptake are aligned to them. While outcomes of effectiveness will be extracted from intervention studies papers, the main focus of the review is what the authors have described as <i>contextual determinants-sensitivity</i> of interventions (extent to which the interventions are aligned to contextual social determinants of HPV vaccine uptake). While the methodologies of conducting mixed method reviews have evolved over time, and are often associated with systematic reviews, we aim to apply the seminal review method(design) developed by the Evidence for Policy and Practice Information (EPPI) centre, UK<sup>6</sup>, while following the overall guidelines by the JBI Scoping Review Methodology Group<sup>11</sup></p> |
| <p>4. Page 5-lines 15-16: "PCC (population, concept, and concept) Framework." It should be changed to population, concept, and context.</p>   | <p><b>Authors have considered these comments.</b></p> <p>The word 'concept' has been revised to 'context' in line with PCC framework.</p>   |
| <p>5. What does "intersectional determinant" mean? The title should be concise and clear. If the authors have a specific definition of determinants, they can provide it later in the method section. Same goes for interventions....different types, effectiveness???</p>                            | <p><b>Authors have carefully considered these comments and provide the following clarification.</b></p> <ul style="list-style-type: none"> <li>• <i>Intersectional determinants</i>: The use of the term refers to Social determinants of health (SDOH) as defined by WHO in 2008 and operationalized in a framework published in 2024<sup>2,12</sup> can be either quantitative, qualitative, or mixed method studies that have explored social determinants of HPV vaccine uptake</li> </ul>  |



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|   | <ul style="list-style-type: none"><li>• <i>Intervention studies</i>: quantitative studies that have been evaluated for effectiveness in promoting HPV vaccine uptake</li></ul> <b>Comment on the clarity and conciseness of the title</b><br>Authors have considered this comment but opt to retain the title as it is as they feel it's clear considering the review questions |
| 6. Abstract: "medium-income countries"? Or middle-income countries?   | Authors have considered this comment and made necessary revisions to the manuscript.  |
| 7. Why do the authors search databases between 2011 and 2024? Is there a specific reason? It should be mentioned. | <b>Authors have considered the reason for limiting the search to 2011 and respond as follows:</b><br>The search dates have been revised to 2006 when the first HPV vaccine was licensed <sup>13</sup>   |

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## VERSION 2 - REVIEW

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| <b>Reviewer</b>    | <b>1</b>                              |
| <b>Name</b>        | <b>Marfo, Emmanuel</b>                |
| <b>Affiliation</b> | <b>University of Alberta, Nursing</b> |
| <b>Date</b>        | <b>12-Dec-2024</b>                    |
| <b>COI</b>         |                                       |

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Thank you for thoughtfully incorporating my feedback into the revised version of your protocol. I have no additional comments at this time. I look forward to reading the final report and the conclusions drawn from your project