Author’s response to reviews

Title: Implementation strategies to improve cervical cancer prevention in sub-Saharan Africa: a systematic review

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Author’s response to reviews:

Alison Hutchinson, PhD
Associate Editor, Implementation Science

Dear Dr. Hutchinson,

Thank you for the opportunity to revise the attached manuscript. We hope that the revisions are responsive to the helpful suggestions of both the editors and reviewers. We are very much looking forward to publishing our study in the Implementation Science Journal.

Kind regards,

Lauren Johnson, PhD, BSN
This paper describes a systematic review exploring implementation strategies used in sub-Saharan Africa (SSA) to implement and sustain cervical cancer prevention programs.

The systematic review has been conducted and reported according to the PRISMA methodology. 40 peer reviewed studies (describing the empirical testing or evaluation of implementation strategies to improve cervical cancer prevention in SSA) were eligible for inclusion.

Findings suggest that the use of multiple implementation strategies can help to improve the effectiveness of these interventions (e.g. pay attention to organizational support alongside educational interventions).

The paper outlines results of interest, which suggest the need to improve the way in which cervical cancer prevention interventions are implemented in SSA. This research shows directions to enhance the implementation and relative reporting of evidence-based practices into clinical and organizational local contexts. Hence, this work fits well with the Implementation Science's fields of interests.

The contribution of this work to research and practice is twofold:

(i) It is the first systematic review reporting on implementation strategies for cervical cancer prevention in SSA, (ii) it uncovers the breadth of different implementation strategies used (as described by the literature) thus providing researchers, practitioners, managers and policy makers with new ideas to improve practice and evaluate current and future interventions, (iii) it provides practical advice to improve the implementations of these interventions, such as the need to diversify the implementation strategies used for each intervention.

Rather than focus on the obvious strengths of the manuscript, which make this research a valuable work to be spread within the scientific community, I also have some comments that I describe below. I really hope that these comments will be helpful to revise the paper.

A. Abstract - I think that in the Methods section should be more comprehensive of the whole process (from the search strategy to the reporting of results). In doing this within the limited
space available, author could provide only few details about the selection process (which is well described in the text) and briefly describe the rest of the study process.

We have edited the ‘Methods’ section of the Abstract to more comprehensively describe the systematic review process from search strategy to reporting of results (Lines 31-40).

B. Methodology -

- Line 145-147: maybe it divide this paragraph in 2 sentences: 1) about the iterative development of inclusion/exclusion criteria and 2) about the type of study selected (in this respect could you please specify what do you mean for discrete implementation strategies?).

We have edited the referenced lines to make a clearer distinction between (1) development of inclusion/exclusion criteria, included in ‘Eligibility Criteria’ section and (2) process of applying the criteria to select eligible articles, included in ‘Study Selection’ section (228-254).

We have deleted ‘discrete’, because it is not an accurate descriptor.

- Maybe it could be better to move here the information provided in the "Limitations" section (372-376) about "who"(researcher 1, researcher 2, etc.) performed the single stages of the review and how consensus was reached for the different stages (definition of eligibility criteria, study selection, data extraction, data analysis, summary of findings). You can also mention this briefly in the limitation section.- According to general guidelines to report on literature review a description of how data extracted have been analyzed and summarized (e.g. descriptive, using ratios, etc.) should be provided.

We have added the requested information throughout the ‘Methods’ section (Lines 216-297) about (1) who performed each stage of the review, (2) how consensus was reached, and (3) analysis of data extraction with frequency tables.

C. Results -

Line 182-183: I don't think author need to state that that all articles are in English and peer reviewed, as it was an inclusion criteria.

This sentence, ‘all studies were written in English and peer-reviewed’, has been deleted.
C. Discussion

I think that the discussion on Implementation science (lines 300-309) could be shortened and narrowed to the focus of the present review.

In this respect maybe it would be helpful to mention some other study (literature review) about implementation strategies for prevention of cervical cancer in other settings (other countries/regions)- if they exist (?) - and compare their findings with the findings of the present study.

We think that the general discussion about Implementation Science is important context and have not shortened it. Unfortunately, there are no other reviews that we have found that address implementation strategies of cervical cancer prevention in other contexts, highlight the importance of our review. However, we have added references to other reviews in the literature that discuss implementation barriers in SSA for further context (Lines 531-537).

Reviewer #2: You have conducted an extensive piece of work in reviewing an important area. Unfortunately I have several problems with the manuscript as it currently stands:

1. The Methods are not as transparent as they should be and they assume a high degree of insider knowledge ie where did the educate/restructure/quality categories come from and similarly where did the 7 implementation outcomes derive from? If using external frameworks their derivation and definition should be clearly stated.

The articles that we referenced for the implementation outcomes and strategies had already been listed within the text. We had also included a table in the text to provide definitions for each category. However, to address this comment, we have added additional detail in the ‘Data Extraction’ section to provide readers with more context for understanding the derivation of each category (Lines 265-283).

2. The search strategy is found wanting firstly in the mismatch between how it is described in the narrative and how it appears in the Appendix, and secondly in the absence of country specific search terms which could have missed at least 25% of the eligible literature.

We have corrected the discrepancy between the description of the search strategy in the narrative and the Appendix (Lines 222-225).

We have repeated the database search to include country-specific search terms, see Additional File 1.
3. The relevance of included studies specifically to implementation is not clear (perhaps articulating your framework upfront would have made this clearer); and then in contrast you enter into a discussion on problems with implementation research generally but with little reference back to your own dataset.

We have added additional detail in the ‘Methods’ section to mention the frameworks that informed the implementation strategies and outcomes used (Lines 265-283).

We disagree with the reviewer about referencing our dataset in the discussion, which we think was accomplished under the subheadings of ‘study design’, ‘implementation strategies’, and ‘implementation outcomes’.

4. The exclusion of qualitative research in the context of implementation is surprising and requires a very strong justification.

Qualitative research was not purposefully excluded from our review. We included studies that empirically evaluated or tested implementation strategies. Unfortunately, there were no qualitative studies that met our criteria.

Specifically my comments are:

Abstract

"Following PRISMA guidelines" - PRISMA guidelines are not a standard for conducting a review; they are a reporting standard. This is like using a taste test to specify a recipe! The article should be written up according to PRISMA guidelines but that is quite different from conducting a review according to them. (Also Applies to Methods Section)

Thank you for the clarification. We have deleted ‘Following PRISMA guidelines’ and have corrected the wording in the Abstract and Methods section. We have replaced it with, ‘results were reported according to PRISMA guidelines’. (Lines 39-40, 218)

The Methods in the Abstract should specify the Study Type that you sought - you only include quantitative studies is that because qualitative were deliberately excluded or simply not found? I suspect the former but you should tell us in the Abstract.

Qualitative studies were not deliberately excluded. We have added additional detail in the ‘Methods’ section of the Abstract to more accurately reflect the study type. (Lines 34-36).
"with an overall publication date range from 1996 to 2016" Delete - earlier this was your date restriction so it is not a finding to report this as the range of the studies you actually found!

We have deleted ‘with an overall publication date range from 1996 to 2016’.

Background:

"Furthermore, young women bear a disproportionate burden compared to their male peers" You should make it more clear that you are still referring to HIV, not cervical cancer which is the focus of the paper.

We have edited the sentence to clarify a ‘disproportionate HIV burden’ (Line 167).

I have three problems with the following strategy:

(sub-Saharan Africa) AND (cervical cancer) AND (prevention OR program implementation OR HPV vaccine OR Pap smear OR see-and-treat OR VIA OR VILI OR colposcopy OR LEEP OR cryotherapy).

(1) Conceptually unrelated terms are grouped together ie the implementation terms and the cervical screening terms in the short version - this does not reflect the syntax in the strategies in the Appendix.

(2) Insufficient numbers of synonyms are used for each concept (e.g. you don't have other terms for implementation eg. Programme implementation (English spelling) or a "screening" term

(3) You do not specify the names of the SSA countries individually which would be essential for a search of this type (e.g. trying Kenya and Ghana I had variously 30 and 10 papers missed by your strategy which projected across all SSA countries could be in the region of 600 references missed)

The Appendix version is better and more complete but should be accurately conveyed in the text.

We have edited the search strategy to address the 3 mentioned suggestions and repeated the database search. We have (1) revised the syntax in the text to be more consistent with the Appendix, (2) included additional synonyms for implementation and screening, (3) used country-specific search terms for each SSA country. Since a year has elapsed since the original search in August 2016, we also updated the search by including articles through 2017. The updated search results for each database are included in the Appendix and shown for all articles in Figure 1.
If you are indeed following PRISMA guidelines for reporting then you should be reporting who was involved in each stage of the review - how many sifters, how many extractors, were any cross checking processes used to verify results. You only mention this in connection with the full text.

We have added details throughout the ‘Methods’ section to specify who was involved with each stage of the review process (Lines 216 – 297).

"publication dates range from 1996 to 2016". As mentioned above this was an inclusion criterion not a finding!

We agree with this comment. The mentioned phrase, ‘publication dates range from 1996 to 2016’, has been deleted.

Given the topic of implementation the exclusion of qualitative studies i.e. reporting implementation barriers is very surprising and needs to be justified. Using quantitative only studies for acceptability and feasibility seems unnecessarily constrained.

Qualitative studies were not deliberately excluded. The purpose of our paper was not to broadly report on implementation of cervical cancer programs in SSA. We were specifically interested in implementation strategies that aim to improve prevention programming. Studies that only reported on barriers and facilitators, which are often qualitative, did not meet our inclusion criteria. There are many studies and systematic reviews in the literature that address barriers and facilitators. We aimed to further advance the science by identifying solutions to the challenges that are already well documented. Studies that used implementation strategies to overcome identified barriers to implementation met the eligibility.

"Researchers used educate (n=29, 72.5%), restructure (n=20, 50%), and quality 222 (n=11, 27.5%) strategies most frequently in their studies." You should state where these categories come from and how they were defined.

The articles that we referenced for the implementation outcome and strategy categories were already listed within the text. We had also included a table in the text to provide definitions for each category. However, we have added additional detail in the ‘Data Extraction’ section to provide readers with more context for understanding the derivation of each category Lines (265-283).
"Through conducting this literature search, the authors have found no review to date that addresses the implementation of cervical cancer prevention programs in SSA."

What about?:


The sentence should have read, “the authors have found no review to date that addresses the implementation strategies of cervical cancer prevention programs in SSA”. We have made the necessary corrections to the referenced sentence (Lines 532-534). None of the articles cited above specifically address implementation strategies to improve cervical cancer prevention. Viviano et al. provides an overview of the best screening methods (i.e. Pap smear, VIA, HPV vaccination) for women living with HIV. Randall et al. and McFarland et al. similarly focus on challenges of cervical cancer prevention and care rather than strategies to overcome them.

"2 of the 7 outcomes (adoption and appropriateness) were not measured in the review and should be considered for inclusion in future studies." Needs explanation of where these 7 outcomes come from. Also recognition required that appropriateness may be covered by qualitative studies which do not seem to have been included.

We have added an explanation of the implementation outcomes and their derivation in the ‘Data Extraction’ section (Lines 265-272).

"To ensure accuracy, a sample of initial articles was screened and quality assessed by a second reviewer. Inconsistencies were resolved through consensus before the primary reviewer proceeded with the remaining articles." This detail should be mentioned in the Methods first,
before the Limitations. Also the actual Limitation is that you only did this for a sample, not the entire cohort of studies.

We have added these details throughout the ‘Methods’ section about who conducted the different stages of the review process and how consensus was reached. We also clarified that the actual limitation is that only a subset of articles was double-checked (Lines 637-639).