Author’s response to reviews

Title: THE EFFECTIVENESS OF RESEARCH IMPLEMENTATION STRATEGIES FOR PROMOTING EVIDENCE-INFORMED POLICY AND MANAGEMENT DECISIONS IN HEALTHCARE: A SYSTEMATIC REVIEW

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Author’s response to reviews:

AUTHOR RESPONSE

Dear Paul M Wilson

Thank you for your comments and those of the reviewers. We have added text explaining how experimental and non-experimental studies were treated for inclusion/exclusion and analysis in response to concerns from Reviewer 2 regarding study inclusion and exclusion criteria (see Data Analysis section). In response to concerns from Reviewer 1 regarding quality appraisal methodology, we have acknowledged the relative novelty of the Meta Quality Appraisal Tool (MetaQAT), provided a justification for its use in our review context, and have provided the full quality appraisal data as an appendix.

We hope our response to reviewer comments and changes to our manuscript adequately address any concerns. If changes have not been to the editor or reviewers satisfaction, we are prepared to make further changes as necessary.

Kind regards

Mitchell Sarkies
Reviewer reports:

REVIEWER #1:

This systematic review of 'research implementation strategies' appears to be more broadly based than previous reviews of the field cited here. The overall findings and recommendations for further research add little to what is already known (very few randomised trials, need to evaluate effects on actual outcomes etc.). The main output of the review is the conceptual model of factors perceived to be associated with effective research implementation strategies.

AUTHOR RESPONSE

Authors wish to thank Reviewer 1 for their detailed peer review.

REVIEWER #1: SPECIFIC COMMENTS

1. The narrative synthesis uses Kirkpatrick's evaluation model hierarchy as a framework but the results presented are basically a brief description of each included study. This section of the results should have some summary text, even if it is just to say that the studies were too few and diverse for meaningful conclusions.

AUTHOR RESPONSE

Summative text describing the limited conclusions due to the small number of identified studies and heterogeneity between studies has been added to the Narrative synthesis results section (paragraph 1).

Changes have also been made throughout the Narrative synthesis results section to provide a more narratively synthesised description of results, as per comments from Reviewer 2.

REVIEWER #1: SPECIFIC COMMENTS

2. I would consider deleting the first two sentences of para 2 of the background section. This is because they hold the reader up by making such a sweeping statement and you then go on to acknowledge factors which may limit the use of evidence. The paragraph would flow better if you just started with 'Evidence-based decision-making...'

AUTHOR RESPONSE

The first two sentences in paragraph 2 of the Background section have now been removed.
REVIEWER #1: SPECIFIC COMMENTS

3. The distinction between the way experimental and non-experimental studies were treated in the synthesis should be explained in the methods section. Was this approach specified in advance in the protocol?

AUTHOR RESPONSE

A description of how experimental and non-experimental studies were defined and treated in the synthesis has now been added to the first paragraph of the Data analysis section. These changes have also been added to the Prospero registration.

The terms “experimental” and “non-experimental” have also been added throughout the Data extraction and Data analysis sections of the Methods.

REVIEWER #1: SPECIFIC COMMENTS

4. The thematic synthesis presents a paradox in that data about factors associated with effective implementation strategies are derived from study designs considered too weak to be included in the narrative synthesis of effectiveness. Perhaps it would be more accurate to say that these are factors perceived to be associated with effective strategies?

AUTHOR RESPONSE

Authors agree with Reviewer 1’s comment, changes have been made throughout the manuscript to describe the “factors perceived to be associated with effective strategies”.

REVIEWER #1: SPECIFIC COMMENTS

5. Following on from the previous comment, you have assessed study quality with a tool that I have not seen before but which appears to be designed primarily for quantitative research. Given that you then apply a qualitative synthesis method to most of this evidence, I was left uncertain as to the reliability of the statements being made in the thematic synthesis section. I would be interested to see the results of a qualitative study quality assessment or possibly an assessment of the overall body of evidence (CERQUAL).

AUTHOR RESPONSE

The detailed MetaQAT appraisal data has now been added as an Appendix (Appendix 5).

Authors acknowledge the relative novelty of the Meta Quality Appraisal Tool (MetaQAT). The MetaQAT is designed as a generic quality appraisal tool that can be applied to a variety of
quantitative and qualitative study designs. Due to the large variety of study designs included in our review (RCT, quasi-experimental, cross-sectional, case study, implementation, qualitative, and mixed methods) we felt it would be appropriate to use one tool across all designs to avoid using multiple different tools.

Our thematic synthesis based on methods by Thomas and Harden 2008 was applied to studies with a variety of designs, some quantitative, some qualitative. Therefore a qualitative specific appraisal tool would not be appropriate for a number of these studies.

REVIEWER #1: SPECIFIC COMMENTS

6. At various points in the Results, there are sentences that left me confused about which and how many studies are being referred to. For example (p13): 'Regular contact in the form of reminders encouraged actions, conversely the study by Dagenais et al...' Please check the thematic synthesis results section in particular as I found this hard to follow in places.

AUTHOR RESPONSE

Changes have been made throughout the thematic synthesis section to improve the flow of sentences and clarify referenced studies.

REVIEWER #1: SPECIFIC COMMENTS

7. First paragraph of the Discussion should include references. The middle section of this paragraph (lines 41-45) doesn't relate very clearly to what comes before and after.

AUTHOR RESPONSE

References have been added to paragraph one of the discussion section.

Please see changes to first paragraph of the discussion, which better incorporate the middle section with sentences before and after.

REVIEWER #2:

Reviewer #2: This review addresses an important topic and builds on the scope of previous reviews in the area most notably through its second aim for describing factors associated with effective strategies and the inter-relationship between these factors. The methods were comprehensively reported (and could perhaps be streamlined if content needs to be cut). I assessed the review using the AMSTAR tool and found it receives a 8/10 (with the question
about publication bias being not applicable given that the review didn't include a statistical analysis), which would be considered as a high-quality review. The limitations identified through this tool are that the search was limited to articles written in English and a list of include and excluded (i.e., at the full-text assessment stage of the review) articles was not provided. The latter can be addressed by making available a list of the studies excluded at the final stage of reviewing (i.e., where 94 articles were assessed).

In addition to these minor limitations, I note several areas below, which would benefit from clarification. I don't believe any of these are major limitations, but nonetheless I think they should be addressed in a revised version to strengthen the paper. I have summarized these according to sections in the manuscript.

AUTHOR RESPONSE
Authors wish to thank Reviewer 2 for their detailed peer review.

Please see full list of 96 full-text articles in Appendix 4.

REVIEWER #2: COMMENTS
1. Abstract

- Minor point: consider a term like digital materials instead of CD-ROM in the results to make it sound more contemporary (seems like few use CD-ROMs for storing digital materials, even if that was the finding from the original study)

AUTHOR RESPONSE
The term “CD-ROM” has now been replaced with “digital materials” throughout the manuscript.

REVIEWER #2: COMMENTS
2. Background

- It seems odd that the lead sentence is focused on policymaking in a particular domain (public health) when the paper seems to be framed more broadly. Consider revising terminology and paper(s) cited for this sentence.

AUTHOR RESPONSE
The term “public” has now been removed from the first sentence of the Background section.
2. Background

- This may be personal preference, but I suggest using the term evidence-informed decision-making. The 2nd paragraph rightly describes the many factors that decision-makers need to consider, which should be reflected in the term used (i.e., it is unrealistic to think that decisions can be exclusively based on research evidence given myriad other factors that influence decisions).

AUTHOR RESPONSE

The term “evidence-based decision-making” has now been replaced with “evidence-informed decision-making throughout the manuscript.

2. Background

- The scope and terminology outlined in the 3rd paragraph seems contradictory at times, and this carries over to the methods, which I describe separately for that section. The scope of the paper seems to be focused on policy and management decisions (as per the title and aims), but the third paragraph and parts of the methods use terms that point to different things. For example, in the 3rd paragraph of this section, the first sentence relates the issue to healthcare practice, which many will take to mean clinical decisions and not the types of decisions focused on in this paper. The 2nd sentence similarly uses this term. While seemingly minor, this and the terminology issues raised below for the methods section should be addressed and reconciled throughout the paper.

AUTHOR RESPONSE

Please see changes in 3rd paragraph of the Background section to replace the terms “practice” with “decision-making”, “healthcare decision-making”, and “health services”.

3. Methods

- The issue with scope of the paper emerge again under the sub-section labelled 'population' under the description of study selection. It's stated that the focus of studies had to be on
decisions at the managerial, executive or policy level of healthcare organizations. Focusing on healthcare organizations (which I take to mean hospitals and other such delivery agencies) seems to exclude those working in government institutions (e.g., ministries of health or those that manage systems of care in regions within a state/province). If so, I find this scope to be limiting and not reflective of the framing presented in the title and aims, that point to a focus on policy. Many (including me), would consider this to include policies at the organizational, regional and/or system level (depending on the country context in which you work). Moreover, the sentence that follows indicates that the focus was on improving population health outcomes (which seems appropriate), but would it not be more accurate to indicate that it's about strengthening health systems to improve population health outcomes if at least part of the focus of the review is on policymaking? Lastly, under the description of interventions, it's stated the strategies are defined as methods to promote the systematic uptake of province clinical treatments, practices, organisational and management interventions into routine practices. This again sounds very clinical, and I would have expected a paper about healthcare management and policy to frame this as being incorporation into decision-making processes to strengthen health systems (or something like that).

- The rest of the methods were great, in particular the last paragraph that describes the qualitative coding process.

AUTHOR RESPONSE

Authors acknowledge the description in this Methods section can be clarified; the aim was to include healthcare organisations and government institutions.

Please see changes to Population section to include mention of government institutions and discuss the strengthening of health systems in context of improving population health outcomes.

Reference to clinical treatments has been removed from Interventions section and evidence-informed decision-making is now discussed in context of strengthening health systems.

REVIEWER #2: COMMENTS

4. Results

- The list of articles excluded at the stage of full-text reviewing should be made available in order to be transparent.

AUTHOR RESPONSE

Appendix 4 with full list of the 96 articles at full-text review has now been added.
REVIEWER #2: COMMENTS

4. Results

- Under characteristics of included studies (1st paragraph). Should it be "Three studies evaluated the effectiveness of research implementation strategies for promoting evidence-based policy and management decisions about health systems” or healthcare systems?

AUTHOR RESPONSE

The term “healthcare” has been changed to “healthcare systems” in line with reviewer recommendation.

REVIEWER #2: COMMENTS

4. Results

- Under participants and settings: The list of countries in which the studies were conducted includes "one international study" but the list includes many countries. Does this mean a multi-country study? Please clarify.

AUTHOR RESPONSE

The term “international” has been changed to “multi-national” to describe one study that was performed in multiple different countries.

REVIEWER #2: COMMENTS

4. Results

- Typo - it should be policy briefs (without an apostrophe) under research implementation strategies.

AUTHOR RESPONSE

The typo “policy brief’s” has been changed to “policy briefs”.

REVIEWER #2: COMMENTS

4. Results
- Could the implementation strategies identified be summarized in a table with their key features? This would give readers more insight into what was done. Recognized that this could be a space limitation though.

AUTHOR RESPONSE

A summary table with a description of the key features for each implementation strategy has now been added (Table 2). This can be presented in an appendix if needed.

REVIEWER #2: COMMENTS

4. Results

- I like that the results are presented by level of outcomes. Makes for a clear synthesis of the findings. However, it seems like a lot of text for three studies and I think the key points could be better summarized in a table that lists the rows as the interventions and the columns as the four levels of outcomes. This could be accompanied by 1-2 paragraphs pointing out the most important take-aways from the table.

AUTHOR RESPONSE

Table 4 with strategies under rows and levels of outcomes under columns has been added. The narrative synthesis has also now been reduced to a 2-paragraph summary of the main take-away points from the table.

REVIEWER #2: COMMENTS

4. Results

- Line 26 - Authors doesn't need an apostrophe

AUTHOR RESPONSE

Please see changes to remove apostrophe from “authors” on line 26

REVIEWER #2: COMMENTS

4. Results

- How are small-scale fisheries and bio-fortification healthcare decisions? These findings don't seem to fit the scope of the review.
Please see changes to remove reference to small-scale fisheries and bio-fortification.

4. Results

Could it be clarified whether this review includes the studies in the previous reviews by Murthy (citation 36) and Perrier et al. (citation 38)? It seems like it should include all of the studies they had, plus the ones relevant to expanded scope in this review. Also, it seems like important studies have been missed. For example if policy briefs and dialogues were considered, why was this paper not included - http://www.who.int/bulletin/volumes/92/1/12-116806/en/. Also this study (which to be transparent, I wrote) is not included, which would seem to meet the criteria for the review (at least for the thematic analysis since it's not an assessment of effects) - https://health-policy-systems.biomedcentral.com/articles/10.1186/s12961-015-0066-z. There are also no studies or papers about conducting rapid reviews/syntheses for policymakers, despite there being several papers published on this (again to be transparent, one of these is authored by me). I gave my recommendation of major revisions primarily based on this issue as I think further clarification is required for why these seemingly relevant studies were either not caught by the searches, or included in the review.

The reference list of previous reviews by Murthy 2012 and Perrier 2011 was cross-checked to identify additional articles that potentially meet inclusion criteria. 8 potentially relevant titles were identified in the Murthy 2012 review and 1 was identified in the Perrier 2011 review. Unfortunately none of these studies met inclusion/exclusion criteria. Please see attached document with further information on how we supplemented our electronic search strategy.

4 studies were included that use reviews (rapid reviews / synthesis) as an implementation strategy for policy-makers. See Campbell 2011, Chambers 2012, Dobbins 2001, and Gagliardi 2008. Changes have been made to the results section to better identify these strategies, with summary descriptions provided in Table 2.

The two references provided by Reviewer 2 were not identified using our search strategy due to the challenges of information retrieval in the field of implementation science (see references (McKibbon 2010, McKibbon 2012, Lokker 2010). Despite this, we feel our search strategy is both thorough and reproducible. We have identified more studies than many previous reviews in
the topic area. Please also note that theoretical saturation (no new concepts) was achieved when finalising codes and code structure for our thematic synthesis. Therefore it is unlikely that new codes would be identified if more studies were added. However, for completeness we have now included the two references (Wilson 2015 and Moat 2014) as identified from hand-searching publication lists from prominent authors in the field of implementation science. Upon coding these studies, no new codes or coding structures were identified.


REVIEWER #2: COMMENTS

4. Results

- The write-up of the thematic analysis has lots of great information. This is very helpful. But the possible gaps in included studies needs to be addressed.

AUTHOR RESPONSE

We hope our explanation and changes has satisfied reviewer 2’s concerns

REVIEWER #2: COMMENTS

5. Discussion

- While the point about simple implementation strategies seem intuitive on the surface, I think a more nuanced argument could be that what's needed is a menu of options that could be drawn on and tailored according what the situation calls for. For example, there could be some relatively straight forward policy issues that only require a simple approach to support
implementation of research evidence, but others are much more complex and likely require a tailored strategy consisting of one or more strategies based on the specific context.

AUTHOR RESPONSE

Changes have been made to the second paragraph of the discussion section to discuss the importance of having a number of different strategy options that can be tailored for different health settings.