Author's response to reviews

Title: HIV Behavioural Interventions Targeted Towards Older Adults: a Systematic Review

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Version: 3 Date: 3 June 2013

Author's response to reviews: see over
Dear Prof Luchters and Dr Dizon,

Response to reviewers re: manuscript “HIV Behavioural Interventions Targeted Towards Older Adults: a Systematic Review”

On behalf of the authorship team, I would like to thank the reviewers for reviewing our submitted manuscript. The reviewer comments are very helpful and insightful and we appreciate the time they have taken to provide this input. We have addressed each of the points made by the reviewers. We respond to each point below and note where changes have been made to the manuscript. Additionally, we provide a revised version of the manuscript.

Reviewer #1:

1. The heterogeneity of the studies reviewed does not lend itself to a meta-analysis of this type. The populations differ (HIV positive and HIV negative) as do the outcomes and interventions and it is not clear what conclusions can be made, barring the lack of data. It reads like a literature review as the preamble to a study rather than a stand alone study itself.

   We agree that conducting a systematic review of this broad topic carries with it certainly methodological challenges. The reviewer is correct to note that the populations differ as do the outcomes and methods. To be clear however, we are attempting nor claiming to attempt a meta-analysis. We acknowledge that such an analysis is not possible for such a study. As Mallett et al note in their recent commentary on conducting systematic reviews in such complex topics, meta-analyses are often not feasible nor necessarily desirable. Despite this, the authors state, systematic reviews can be useful for understanding the literature and galvanising action. Ultimately, the fact that there are so few studies and that the methods and quality vary so much is a rallying cry for more focus to this area of research.

2. South African data may have supported the analysis of higher risk in older adults. For example the South African National HIV Prevalence, Incidence, Behaviour and Communication Survey 2008 (Shisana O, Rehle T, Simbayi L, Zuma K, Jooste S, Pillay-van-Wyk V, et al. South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2008: A Turning Tide Among Teenagers? Available from: www.hsrepess.ac.za) mentions several issues unique to South African older adults with HIV such as the phenomenon of older males in relationships with younger females leading to higher risk of HIV transmission. To my knowledge this has not been described in other countries.

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There are also references in the survey to the poor reach of educational programs and lack of knowledge in this age group, with comparisons to previous years which may have reinforced their arguments.

The comment that "the 50 years cut off is used here because the majority of HIV surveillance and reporting over the first two decades of HIV response has only covered those aged 15-49" as far as I know, the age 50 years defining "older" adults with HIV has been adopted as a convention- other reasons for this cut off include the accelerated ageing of HIV infected adults compared to uninfected adults. (Work Group for the HIV and Aging Consensus Project. Summary Report from the Human Immunodeficiency Virus and Aging Consensus Project: Treatment Strategies for Clinicians Managing Older Individuals with the Human Immunodeficiency Virus. Journal of the American Geriatrics Society. 2012 May;60(5):974–9).

We thank the reviewer for these additional comments. The authors are very familiar with the (limited) African literature on HIV and ageing and agree that the Shisana et al national study is one of the best contributions to this area. We have now cited the paper in our manuscript to acknowledge the increasing information from developing countries. But we do note that Shisana et al are not providing information on an intervention. We have also added a sentence and citation to the Work Group for the HIV and Aging Consensus Project as suggested.

Reviewer #2:

Major Compulsory Revisions

1. The title suggests a systematic review of HIV behavioural interventions. However, it is not clear from the manuscript what is meant with the “HIV behavioural interventions” nor how this is measured. The method section states:”the inclusion criterion of the review was the search for non-farmacologic, non-biological, behavioural and cognitive interventions. We excluded studies that evaluated treatment efficacy among older adults and included those that focused on interventions in the areas of prevention, adherence, testing, care and support.” These interventions and outcomes need to be defined more clearly.

   Text has been added to the background and methods outlining the interventions and outcomes of most interest during the search. The text reads: “We were particularly interested in studies that demonstrated outcomes in treatment adherence, HIV testing uptake, increased HIV knowledge, reduced risk behaviour as well as social and physical support.”

2. What are the outcomes of interest? At times there is reference to "adherence, HIV testing, risk behaviour, HIV knowledge" but not clearly communicated.

   See above. We did not narrow the review to one or two specific outcomes of interest due to the paucity of interventions targeted to older adults. Doing so would have limited the search to one or two articles in total. We decided to
include a broad range of relevant interventions and outcomes to actively
demonstrate the patchy nature of the available evidence.

3. **The search strategy is not clearly stated and could not be replicated based on the description.**

   We have included more detail that includes the specific search terms used (though specific text differs according to the different databases searched).

4. **Some of the literature defines older people as “mature adults” which was not included as part of the definition. Also the term “ageing” could potentially have increased the sensitivity.**

   The term “mature adults” did not add any new articles to our search. The term “ageing” was included in our original search. We did not include it in the list of terms in the text but have edited the text now to include that term.

5. **Methods: The review needs a framework to clarify what HIV behavioural interventions are being included and what these interventions aim to establish (what outcomes are of interest). The manuscript should discuss the results based on that framework to guide the readers.**

   The outcomes of interest are now listed more explicitly in the methods (and background) and are now referred to directly in the results.[1]

6. **Results: The second paragraph provides an overview of the articles that were not included in the review. These could be described in the discussion section, but are not a result from the review.**

   This paragraph has been moved from the results to the discussion section.

7. **Results: It is not clear why there is no more mention of the earlier identified outcomes of risk behavior, testing uptake, adherence etc.**

   A paragraph has been added to the results section outlining the included papers according to the outcome measures of interest. The text now reads:

   “Of the included studies, none were focused on improving treatment adherence and none had increased HIV testing uptake as an outcome measure. The four articles conducted among HIV-negative participants aimed to improve general HIV knowledge to facilitate HIV prevention. Within the studies among HIV-positive participants, the main outcome measure of Lovejoy and colleagues and Illa and colleagues articles was reduced sexual risk behavior. The three Heckman et al. articles focused on mental health and coping assessments while the two Souza et al. papers emphasized physical status and strength. Improved referral for care was the outcome measure of the last relevant article.”

   The subsequent paragraphs go into more detail.

8. **Table 1: Include the references to all the included studies in the table. Importantly, some of these reviewed studies are not in the references e.g. Heckman et al 2006.**

   This has now been done.

9. **Table 1: Country should be consistently communicated**
This has been added for all studies in the table.

10. **Table 1: Orel et al:** sample size is not clear (89 people aged 60 and older; N=11); What is the country of the study?; What year was the study?; What is the duration between assessments?; Clarify the proportion increases in knowledge.

   11 of 89 participants completed before and after surveys. Duration between assessments has been clarified in the table.

11. **Table 1: Altschuler et al:** participants unclear with respect to the pilot testing. Should these be included? Also, the intervention, measures and results are unclear. Is one measure the uptake of services?

   Table has been altered to provide clarity on the Altschuler et al intervention. It is very qualitative and not very rigorous so amount of detail is limited.

12. **Table 1: Rose et al:** What is the duration between pre- and post surveys?

   The post-survey was immediately following the education session. This has been noted in the table.

13. **Table 1: Heading of the second section should read:**"AMONG HIV-POSITIVE OLDER ADULTS"

   Change has been made.

13. **Table 1: Lovejoy et al.** It is not clear how many participants in each arm. Results state:"Controls had on average 3.24 times as many...." But compared to who? What about those with 1 session?

   More information has been added to the table clarifying N in each group and the comparison with those who had 1 session.

14. **Table 1: Illa et al:** Outcomes not clearly reported (4% to 3% with control).

   This has been clarified now in the table.

15. **Table 1: Heckman et al 2011:** Some of the important findings are missing: Also IPSG reported fewer depressive symptoms compared to control; There was no difference between FFCI and IPSG.

   Some additional text is provided but not all findings due to limited space.

16. **Table 1: Souza et al 2008:** It is not clear why CD4 count would be an outcome of interest. Were there only 8 participants (11-3 excluded?)?

   There were 11 participants. CD4 count was reported as an outcome but has been removed from the table.

18. **Table 1: Souza et al 2011:** It is reported that N=11 but also N=21.

   This has been clarified as 11 in the intervention arm with 21 controls.

**Minor Essential Revisions**
1. It would be good to more explicitly state where information described relates to information from developed countries.

This is stated in the results section.

2. Abstract: the result section does not provide any results on the reviewed interventions.

3. Abstract: What can be concluded based on the review of the 12 studies?

4. Abstract: Results section describes twelve articles, but is not clear how many studies / interventions this refers to.

The results section of the abstract has been thoroughly edited and now reads:

**Results:** The majority of articles identify and describe behaviours of older adults rather than evaluate an intervention. Twelve articles were identified all of which originated from the Americas. Eight of the interventions were conducted among older adults living with HIV and four for HIV-negative older adults. Five studies included control groups. Of the included studies, four focused on general knowledge of HIV, three emphasised mental health and coping, two focused on reduced sexual risk behaviour, two on physical status and one on referral for care. Only four of the studies were randomised controlled trials and seven – including all of the studies among HIV-negative older adults – did not include controls at all. A few of the studies conducted statistical testing on small samples of 16 or 11 older adults making inference based on the results difficult. The most relevant study demonstrated that using telephone-based interventions can reduce risky sexual behaviour among older adults with control reporting 3.24 times (95% CI 1.79-5.85) as many occasions of unprotected sex at follow-up as participants. Overall however, few of the articles are sufficiently rigorous to suggest broad replication in HIV focus areas such as increasing testing rates or reducing transmission.

5. Abstract: The results section of the abstract should describe the HIV behavioural interventions and the outcomes measured (adherence, HIV testing uptake, increased HIV knowledge, etc). Also clarify what is meant by “adherence”: is this ART adherence?

The methods section of the abstract now includes additional text: “A search strategy was defined with high sensitivity but low specificity to identify behavioural interventions with outcomes in the areas of treatment adherence, HIV testing uptake, increased HIV knowledge and uptake of prevention measures.”

6. The background describes interesting characteristics of older people with respect to HIV testing uptake as well as their perceived risk of HIV. Both statements have references from the mid-nineties and I would expect more recent data being available, particularly as the authors state that much of the literature “...describes behaviours of older adults rather than evaluate an intervention.”

Thank you for this comment. More recent citations (including a 2013 BMC Public Health article) have been included to make these points. The author was trying to highlight that while these points have been known for 15 years, little action has occurred to remedy them. In that sense, showing old data is relevant to the background.
7. **Background:** The seventh paragraph aims to describe the available information on HIV prevention, testing, adherence and other social and behavioural areas. It would benefit the readers if this is more systematically described for each of the areas of interest.

A couple more citations have been offered here but we have not provided a full summary of available evidence on each of the areas as we believe that would make the background section quite long.

8. **Background:** The seventh paragraph: The last sentence of that paragraph describes a study by Orel et al but is not clear what the “publications” are and what their purpose was.

The “publications” were “educational materials”. The text has been changed to clarify this.

9. **Results:** First sentence does not describe the fact that 2 studies were added at a later stage.

Text has been added in the results section: “An addition two articles were identified through searching reference lists and were included in the review providing twelve articles in total.”

**Discretionary Revisions**

1. **Abstract:** It states: Twelve articles were identified of which all….Please rephrase.

2. **Throughout the manuscript the terms randomized controlled trials are sometimes described as randomized control trials. Please report consistently.**

   This change has been made.

3. **background:** the sentence:”Articles have highlighted the HIV and ageing phenomenon….” This sentence could move up one sentence in order for the flow of information to improve. Also, state here that this also recognized in sub Saharan Africa where the majority of HIV infections occur.

   These changes have been made.

4. **Background:** Fourth paragraph describes sexual risk behaviours as …one-sixth as likely to use condoms during sex and one-fifth as likely to have been tested…..”. Could this be rephrased as six times less likely and five times less likely?

   This change has been made.

5. **Background:** fifth paragraph, second line: “considers” should be “consider”

   This change has been made.

6. **When reference is made to a published manuscript please acknowledge the first and subsequent authors: e.g. Rose et al.**

   This change has been made.
Yours sincerely,

Joel Negin
On behalf of authorship team