Reviewer’s report

Title: Using eHealth to engage and retain priority populations in the HIV treatment and care cascade in the Asia-Pacific region: a systematic review of literature

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Reviewer: John De Wit

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Interactive communication technology plays a prominent role in discourse and practice regarding health service access and delivery. In this context, research syntheses may contribute to a much-needed evidence of the potential impact of various approaches. I have several concerns that however limit my enthusiasm for the present evidence synthesis, which may assist with further revision.

Possibly reflecting the authors' ongoing reflection on their work, the conclusion as presented in the abstract is overly general and does not reflect or require any evidence synthesis. More specific conclusions would be appropriate.

Authors position their study against the background of previous evidence syntheses, suggesting theirs is different. However, exactly how the present evidence synthesis is different and what limitations of prior work are addressed remains elusive. The main added value that stands out seems to be the focus on the Asia-Pacific region which, while valuable, has limitations in its own right (see below) and is of limited significance.

As the Asia-Pacific region comprises a very disparate set of countries, the notion of Asia-Pacific Region may obscure important difference. However, synthesizing evidence from high-income countries would be informative for HIV responses in Australia and New Zealand, while synthesizing evidence from low- and middle income countries in other global regions may arguably be more useful to countries like Indonesia and Nepal than evidence from Australia.

It is also unclear why authors limit their review of the literature to the period 2011-2014. While some reasoning is provided for 2011 as a starting point, no argument is given to limit inclusion to 2014, which is a long time ago in a rapidly evolving field. The focus on quantitative research remains mostly implicit.

It is puzzling why authors decide to use the term mhealth rather than ehealth if, as they imply, they want to use a broader term. That would favor ehealth as authors also seem to recognize.

While the methods underpinning the evidence synthesis are described in much detail, the search terms used, which constitutes the most critical aspect of the methods, are only described in general terms.
Authors position their evidence synthesis as pertaining to the full HIV treatment and care cascade, with a particular focus on HIV-testing and linkage to care and ART initiation adherence, leaving retention in care unaddressed. This positioning seems problematic and the studies included are specifically concerned with HIV testing and ART adherence and any other behaviours need to be addressed in their own right.

The way in which interventions are depicted seems inconsistent across the manuscript and potentially reflects confounding of communication devices (e.g., phone, computer), message delivery technology (text messages, apps) and behaviour change approaches (e.g., reminders, opinion leaders). This is a critical issue as such confounding can adversely impact conclusions and add further confusion, compounding issues noted above. Also, some unclear distinctions may be made between could be similar types of intervention approaches, notably internet-based, web-based, and online interventions.

In their conclusion authors seem to imply that the evidence synthesis finds support for the use of mhealth. In my view such an implication would be an overstatement. Taking study quality into account, evidence of supportive effects is limited to biofeedback. This approach however needs to be discussed in terms of the influence of trial conditions and likelihood of effects in real-life conditions.

A critical appraisal and discussion of authors findings in the context of other evidence syntheses and original studies seems absent or limited. Furthermore, while some limitations are noted, their implications are not discussed in any detail.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript
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