Reviewer’s report

Title: Can sexual health interventions make community-based health systems more responsive to adolescents? A realist informed study in rural Zambia

Version: 0 Date: 31 Jul 2019

Reviewer: Susan Igras

Reviewer's report:

This is an interesting application of realist evaluation, but I have several concerns that make me hesitate about the article's contribution as currently written:

First, as currently framed there is no stated reason for program theory development except to do it. Unless this activity is more clearly framed, eg, how developing program change theory will be used for evaluation or program design/adjustment purposes, the reader wonders why this activity was undertaken. It is not clear, for example, how theory development contributes to or will be used to inform the larger RISE RCT study. Or, was it done to provide a concrete way for stakeholders to talk about adolescent SRH activities as a pathway to build CBHS?

Second, program change theory depends on good definition of activities being implemented as part of the intervention. It appears that important program components # 3 and 4, the material and financial support to families (page 8, lines 11-13), are not included in theory development. Yet these activities could have a considerable effect on intermediate effects and outcomes.

Finally, the concept of mechanisms, as I understand it, is more typically linked to program activities and their effects. It is hard to understand when activity effects are defined as people, as shown in Figures 1. (See Dalkin et al. Implementation Science (2015) 10:49 'What's in a mechanism? Development of a key concept of realist evaluation' for the issues and clarifications of defining mechanisms.) People implement activities, of course, but to visualize project stakeholders as effects as in done in Figure 1, and not the effects engendered by activity implementation, is not how I see this core concept of realist evaluation in practice. This distinction is clearer in Figure 2. Since Figure 1 was used as a visual aide in the FGDs, this needs to be explained better how the tool does not reflect a realist evaluation approach but was used to elicit responses on effects. Then Figure 2 is more reflective of actual mechanisms/effects.

All that said, perhaps pertinent information from the FGDs exists to revise the article framing. But the absence of several activities/inputs in theory development (second issue, above) is a significant gap in the application of realist evaluation approaches.

Level of interest
Please indicate how interesting you found the manuscript:

An article of limited interest

Quality of written English
Please indicate the quality of language in the manuscript:
Declaration of competing interests

Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal