Reviewer’s report

Title: Intervention Now to Eliminate Repeat Unintended Pregnancy in Teenagers (INTERUPT): a systematic review of intervention effectiveness and cost-effectiveness, and qualitative and realist synthesis of implementation factors and user engagement

Version: 2 Date: 19 May 2017

Reviewer: Kathryn Curtis

Reviewer's report:

While this version of the manuscript is much improved, I think the methods and results still need to be communicated more clearly to be useful to readers. While the authors have clearly gone to a tremendous amount of work, more attention needs to be given to the communication of the complex methods used and the results found.

Overall comments:

1. While the authors refer to the separately published protocol several times, the majority of readers will not turn to the protocol unless they want more information about the specific methods for the investigation. This manuscript should stand on its own and include (briefly!) the information needed to understand the methods and evaluate the results.

2. The objectives, outcomes, and results need to be in alignment. For example, the first objective listed is to identify which young women are at the greatest risk of repeat unintended pregnancies; however, there is no associated outcome listed in the Methods section for this objective and no information on results for this objective included in the Abstract. In the outcomes section, "acceptability of interventions" is listed as an outcome - which objective does this belong to? For the first primary outcome in the Methods section, instead of "unintended pregnancy in young women", I think you are looking at "differences in rates/proportions of repeat unintended pregnancy in young women between the intervention and control groups".

3. I'm afraid I still don't understand how the description of the literature searches in the Methods and Results sections match with Figure 3 (flow diagram). For example, the Methods section seems to describe the top half of the flow diagram (resulting in 118 included studies), but does not describe the bottom half. The Results section begins with the 77 studies in the bottom half of the flow diagram, but it's unclear where these studies came from and how they relate to the 118 above. The text also mentions 53 other articles - not sure where these fit, or why they are being mentioned here since they are described as making no useful contribution to the review.
4. In the responses to reviewers, the authors note that they believe the current organization is the best for clinicians, practitioners, policy makers, and service users. I would suggest at the beginning of the Results section to include some text about how the results will be presented, since they are not presented in a linear fashion.

5. The sensitivity analyses need to be more fully described, as they are not currently included in the Methods section. For example, a sensitivity analysis is described in the section on Home-based Interventions, but it is unclear why the sensitivity analysis was undertaken since these were 4 lower quality studies, how the 4 studies were chosen, and how to interpret these results, i.e., what does it mean that 4 lower quality studies reached a similar point estimate with a slightly tighter confidence interval? This particular result is further described in the Discussion section, but as "statistically significant effectiveness".

6. I very much like the new structure of the Discussion section and think this will help readers digest this large analysis. However, I think the linkage between these paragraphs in the Discussion with the text in the Results section could improve the paper further.

Again, I applaud the authors for their complex and thorough examination of the literature on this important topic. Given the amount of work that went into this, it will be important to maximize the impact of the results with a clear description of the methods and results, and resulting implications.

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

No

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

Unable to assess

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?
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