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: 1 Date: 14 Mar 2017
Reviewer: Kathryn Curtis
Reviewer's report:

This manuscript addresses a public health issue of great importance (repeat unintended pregnancy among teenagers). I congratulate the authors on their attempt to creatively summarize the existing evidence and identify the gaps in order to move forward in successfully addressing this issue. The manuscript and supporting appendices represent a tremendous amount of work and effort to synthesize 3 key pieces of information - identification of which young women are a greatest risk of unintended repeat pregnancies, which interventions are effective and cost-effective, and what are the barriers and facilitators related to uptake of the interventions. Unfortunately, the limitations of a space and content may be too restrictive to contain all of this information in a single journal article. In attempting to summarize both the methods and results for all 3 questions, too much information is lost in both the methods (to be able to understand and evaluate the results) and the results themselves. I would strongly encourage the authors to divide the manuscript into at least 2 and possibly 3 individual articles. In addition, I have the following comments for the authors' consideration.

1. It would be helpful to more clearly align the objectives, methods, outcomes, and results. The first stated objective is "to identify which young women are at the greatest risk of repeat unintended pregnancies". It's unclear which methods, inclusion/exclusion criteria, search strategy, etc are specific to this objective; the results for this objective are described last, and on my first read I was not sure that this objective had been addressed. This objective could easily stand on its own and I would encourage the authors to consider this for a separate manuscript.

2. For the next objective of identifying which interventions are effective and cost-effective (which are 2 separate objectives), the methods are the systematic review and meta-analyses. For the objective of identifying the barriers to and facilitators for implementing the effective interventions, results could be drawn from both the systematic review/meta-analysis, as well as the stakeholder input and service user feedback. I'm not sure where the framework synthesis and application of realist principles fit in. This is where a clear description of which methods were used for which objectives would help the reader follow this complex set of activities.
3. More detail is needed in the Methods section (although including enough detail to make the methods comprehensible to the reader may be too much for a single article, so again you may want to think about splitting this into two or three articles).

* More information about the external stakeholders is needed: is the advisory group of stakeholders the same or different from the health-care professionals and service user feedback? How were the individuals in this group chosen, how did you access them, and what types of feedback did you solicit? (eg, did you really solicit feedback on study selection from the group of young mothers, and if so, what types of feedback did they provide?)

* Appendix 1 needs to be referenced in the text.

* The text in the Methods section needs to more clearly align with Figures 1 and 2. For example, how do the 3 main objectives overlay onto Figure 1? In the PRISMA flow diagram (which is labeled Figure 1, but I think should be Figure 2), what is the Google search and how do those 4427 studies relate to the studies in the top part of the diagram?

* What are the specific inclusion/exclusion criteria for each objective?

* What does "absence of consensus" mean? This is an interesting part of your methods, as I have never seen an advisory group used in this way, and it would be helpful to know what issues were contentious and how you resolved them.

* The authors state that the primary outcome was the effectiveness of the interventions, but this must vary by intervention. Was the outcome of repeat pregnancy the only one considered? Were more proximal outcomes such as contraceptive use, changes in sexual behavior, other prevention activities (e.g., participating in a young mothers group, working with peer counselors, etc) included?

* The methods for the "realist" component for the results do not seem to be described, and therefore the information reported in the Results section for this component are difficult to interpret.

4. Results

Please report results by objective and outcome; how many studies met the inclusion criteria for each objective and outcome?

More details is needed in describing the results. Too much information is provided in the appendices and not enough in the text.
5. Discussion

Given the lack of high quality evidence on this topic, the "implications for research" section could be expanded on with concrete actions from the authors that can be taken for future research.

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.

Yes

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

Yes

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.

I am able to assess the statistics

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

Acceptable

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