Author’s response to reviews

Title: Addressing preconception behaviour change through mobile phone apps: a protocol for a systematic review and meta-analysis

Authors:

Loretta Musgrave (lmus9038@sydney.edu.au; lottiemuz@hotmail.com)

Caroline Homer (caroline.homer@burnet.edu.au)

Nathalie Kizirian (nathalie.kizirian@sydney.edu.au)

Adrienne Gordon (adrienne.gordon@sydney.edu.au)

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REVIEWER 1

Background
1. Reviewer: In the first paragraph of the Background section no literature is given. Please add the respective literature (page 4, lines 4-16).

2. Reviewer: Beforehand social and environmental risks are differentiated (page 4, lines 29-31). From line 8, page 5 onwards these risks are combined. Please clarify at this point which examples belong to which category.
   Response: Text amended to clarify social and environmental risks

3. Reviewer: It is not clear why unintended pregnancies are in the focus here (page 5, lines 15-27) - is it because of the high number of unexpected pregnancies in the US? Please clarify this point. Moreover, why are only data from the US mentioned here?
   Response: Deleted this section (page 5, lines 15-27)

4. Reviewer: Page 6, lines1-12: is this information also given in reference 2? Otherwise, please give the respective literature here.

5. Reviewer: I believe it would be more concise to only give the aim of the systematic review in the respective section (i.e. page 9, lines 11-19) or at the end of the Background section but not in the middle of the background (page 6, lines 29-41). Please consider restructuring this section.
   Response: Deleted text (page 6, lines 29-41). ‘Aim’ left (page 9, lines 11-19)

7. Reviewer: For me it is not clear whether the authors plan to focus on woman of reproductive age or on woman who plan a pregnancy, which is an important difference in this context. If the authors want to focus on the reproductive age, since these woman are the ones who likely plan a pregnancy, this line of argumentation should be clear and mentioned at some point.

8. Reviewer: At some point in the background it should be mentioned that this manuscript only presents the protocol of the systematic review to be conducted (up to the end of the Methods section, when recognizing that there is no result section, this is only clear from the title of the manuscript).
   Response: Text amended at the end of the background (page 9, from line 7)

Methods
9. Reviewer: In the Participants part of the Methods section, it again appears as if all woman of reproductive age are included no matter whether they ever plan to have a baby. If this is the case, it should be clarified before.
   Response: Text amended in the Methods section - participants (page 9, from line 60)

10. Reviewer: Page 12, lines 6, 11-13: please include the literature for these scales.
    Response: Added reference (page 12, line 6)
    Rosenberg self-esteem scale (2) Rosenberg (1989)
    Added reference (page 12, line 11-13)
    Edinburgh Depression Scale  (5) Cox et al (1987) published online 2018

11. Reviewer: With regard to the management of missing data, it is not clear what is meant with the first sentence of this paragraph: should all participants who did not receive any intervention (i.e. control groups) be included in all analyses for each outcome (if data are available)? Please be more precise here or think about rewording this sentence.
    Response: Text amended in management of missing data (page 17-18, from line 56-59)

Discussion
12. Reviewer: If the systematic review includes all woman of reproductive age (without knowing whether a pregnancy is planned), this limitation should already be mentioned in the Discussion section of the manuscript.
    Response: Text amended in discussion section (page 19, lines 38-41)

Addendum 2
Reviewer: Please think about the search terms "personal digital assistant (PDA)" and "Palm". Maybe you could include these terms to identify some older evidence.
    Response: Search terms amended, thank you for this suggestion

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PROTOCOL TITLE
Reviewer: The title of this protocol can be improved through inclusion of the type of systematic review (SR) being proposed
Response: The title clearly says systematic review protocol

BACKGROUND
Reviewer: This section sounds well, and the importance of the results of this SR is justified. But the inexistence of a SR with the same theme in progress or concluded was not mentioned. The mention of this aspect is essential at the end of a SR background.
Response: Text amended (page 9, from line 9-)

SR’S REVIEW QUESTION & AIM
Reviewer: The review question should be presented clearly and the PICO elements clarified in details. The meanings involved in the "promotion of a healthier behaviour" are varied and complex. In this sense, the aim of this SR should be clarified and better defined in terms of what elements of women’s daily life are directly related to behaviour change through smart phone apps.
Response: Text amended to meet PICO elements (page 9, lines 19)

INCLUSION CRITERIA
Reviewer: In terms of SR, the "methods" should be changed by "inclusion criteria".
Response: Text amended as suggested (page 9, line 38)

Reviewer: About the sub-section "participants", more details about the women to be considered in this SR should be reported. The world-wide scenery and audience should also be considered. In terms of biological conditions: blind, deaf Social conditions: illiterate, women who live in countries where the women’s rights are not respected (access to smart phones forbidden by husbands, religion, etc).
Response: Text amended as above to clear define participants (page 9, line 60)

Reviewer: Considering the maternal and neonatal outcomes, some women’s pre-conceptional conditions should be considered, in terms of biological conditions and social conditions. In the biological sphere, conditions such as the chronic diseases (hypertension, diabetes, etc), cancer, repetitive urinary tract infections, malformations, and other directly associated with maternal and neonatal outcomes. In the social sphere, some conditions are directly associated with maternal and neonatal outcomes - access to prenatal care, health care institutions, housing conditions, environmental conditions, etc. Some of these conditions are out of control of health care providers, and the apps advertisements are not enough to avoid negative maternal and neonatal outcomes in several cases involving very hard social and biological conditions.
Response: Text not amended as these will be picked up in secondary outcomes (page 13, line 3-)

SETTING
Reviewer: In the same way to think this SR, the consideration of some aspects of study settings is too important. The maternal and neonatal outcomes of a woman living in a structured family, within the
own country, being employed, with a stable housing can be diverse if compared with another woman, for example, living in a prison, out of her own country, fugitive, etc. The women’s age and marital conditions should also be considered. The ways an adult and married women experience a pregnancy can be diverse if compared with a single adolescent and a very young adolescent (there are many adolescents with 10, 11 years of age around the world who become pregnant). Consequently, the maternal and neonatal outcomes can also be diverse.
Response: Text amended to clarify setting with examples (page 13, line 3-)