Reviewer’s report

Title: A randomized controlled trial of an intervention delivered by mobile phone app instant messaging to increase the acceptability of effective contraception among young people in Tajikistan

Version: 0 Date: 30 Dec 2017

Reviewer: Kristine Lynch

Reviewer’s report:

General comments

This article is interesting and relevant to the burgeoning field of mobile medical and health apps. I appreciate the opportunity to review this article.

The text on page 4 lines 50-59 and page 5 lines 1-6 is key to understanding the differences between the study arms and understanding how the research question changed because of the misunderstanding between collaborators, but is not presented clearly. I did not fully comprehend these changes until the discussion section. The first paragraph of the discussion provides a clear and concise description of the revised study objectives. The authors should consider incorporating this paragraph into the methods section.

Although the authors reference the publication of the trial protocol (citation #44), the manuscript would benefit from more details of the protocol in the methods section of the present manuscript. It is unclear whether and how the intervention messages differed according to gender and/or marital status. I initially thought the intervention was consistent across all participants in the intervention arm of the study, but line 57 on page 4 suggests otherwise ('57% of the female-married intervention messages…'). The authors present results stratified by marital status and gender, so differences, if any, in the interventions for these groups should be touched upon. If there were no differences, however, I would remove 'female-married' from page 4.

The background section presents statistics specific to Tajik women, and the study includes a mix of men and women. Are there any statistics specific to men that can be included?

As the authors note, participation in the trial, not the intervention itself, could explain the observed increase in acceptability from baseline to 4 months as participants were aware that the trial involved changing attitudes towards contraception. Similarly, there is a possibility that those who enrolled in the study were systematically different than those who did not enroll. According to the consort diagram, approximately 40% of people assessed did not enroll in the study - 20% for reasons unknown/not recorded. Can the authors comment on selection bias of this nature affecting the results?

The authors discuss inclusion/exclusion criteria in the study design and participants section of the manuscript, but do not report on any of these in the Results section. The consort diagram
includes this information, but it was not discussed in the text itself. According to the diagram, 85 were not eligible but the reason for ineligibility was not known. It is unclear how the reason can be unknown.

Specific comments:

Page 4 line 28: Are instant messages the same thing as text messages? Or, did participants receive instant messages through the app itself?

Page 4 line 32: Can you specify what is meant by 'the normal care that a young person would receive if they attended a service in Tajikistan'? Does this refer to a medical service?

Page 5 line 37: Did men answer the question 'The [method] insertion would not be a problem for me'?

Page 6 line 2: The sentence states that the primary outcome was assessed at baseline, which is confusing as the actual primary outcome was collected 4 months after baseline. Rather, participants' baseline view of the acceptability of at least one method of effect contraception was collected after providing informed consent.

Page 13 line 25: The authors note that a potential explanation for why they did not observe a difference between groups for the secondary outcomes is that the BCMs may have been altered when adapted by mobile phone. Can the authors provide an example of this? How were they altered when adapted? Can the authors recommend how these might be better adapted in the future?

Consort diagram: The reporting of randomization frequency vs. participant frequency is a bit confusing. There were 580 randomizations across 575 participants. Two participants and 7 records were excluded leaving 573 participants and 573 records. It seems like the 908 at the top of the diagram describes 908 people, not 908 records, however 908-328 (people excluded) = 580, not 573. Can you clarify this in the diagram and the text (page 7 line 50)?

Table 1: 93% of the population was unmarried. The footnote to Table 1 states that not married was used as a proxy for not being sexually active. It seems that the validity of marital status as a proxy for sexual activity status would differ across cultures. For readers unfamiliar with Tajik culture, is this a reasonable assumption? Secondly, 537/573 (93%) are unmarried according to the marital status question, 495/573 (86%) of the participants are unmarried according to the current pregnancy intention question, and only 384/573 (67%) are unmarried according to the baseline method question. Can the authors please comment on the inconsistency of marital status reporting?

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An article of importance in its field
**Quality of written English**
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