Reviewer’s report

Title: Development of ReproKnow, a Reproductive Knowledge Assessment for Women with Rheumatic Diseases

Version: 0 Date: 21 Feb 2019

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?
No - there are minor issues

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?
No - there are major issues

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?
No - there are major issues

Statistics - Is the use of statistics in the manuscript appropriate?
N/A - there are no statistics in this study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?
No - there are major issues

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?
Maybe - with major revisions

PEER REVIEWER COMMENTS:

GENERAL COMMENTS: The manuscript entitled "Development and Validation of ReproKnow, A
Reproductive Knowledge Assessment for Women with Rheumatic Diseases" describes a study developing and validating an assessment tool to evaluate the reproductive health knowledge of women with rheumatic diseases. The study addresses an important and interesting issue. However, I have some concerns about some different aspects of the paper. I detail these concerns below.

REQUESTED REVISIONS:

In terms of the rationale and justification for the study - not enough case is made in your paper. You should justify the choice of the instrument. I don't at all disagree with the study, but the paper doesn't convince me as to why the ReproKnow was used, and that case needs to be made much more. At least you should acknowledge if other instruments exist. In short, please explain why you have chosen to develop and validate the ReproKnow.

What the author(s) have done is different from the aims of the study. Objectives of the study sounded like or were phrased like activities (what was done, e.g., "describe the reproductive knowledge of a cohort of rheumatic disease patients").

The Cronbach's $\alpha$ values of the scale was low (below 0.70). I am aware that 0.7 is just a conventional cut-off, however, as it was stated "a coefficient of 0.7 or higher is generally considered to be acceptable for established scales." Indeed, according to Peterson (1994, p. 381) "a scale in the preliminary stages of development is generally not thought to require the reliability of one used' to discriminate between groups or of one being used to make decisions about individuals." As the author(s) claim that the instrument is valid and ready to be used for educational interventions, this work could not be considered a preliminary development of a measure to assess the reproductive health knowledge of women with rheumatic diseases. Therefore, it is important to understand why Cronbach's $\alpha$ was low. One possible reason is that the scale is not unidimensional but multidimensional. To this end, exploratory factor analysis (followed by confirmatory factor analysis) would be helpful. More important, Cronbach (1951) indicated that, in presence of more than one dimension, the formula should be applied separately to items relating to different dimensions. In other words, first of all, the dimensionality of the scale should be examined.

Cronbach's alpha can be used for interval level variables. ReproKnow is not. All questions have 1 best answer except #10, which may have more than 1 best answer in addition to "Not sure", it is not clear me if and how the answers were recoded. For instance, "not sure" was recoded as an incorrectly answered question?

More information is also need on the sample (e.g., response rate) and the potential selective non-response (e.g., do survey respondents differ in their socio-demographic profile from those who declined or from what we know about women in western Pennsylvania?).

If some women may have answered questions based on their own experiences, can the tool be revised to address this issue?

There is no evidence of criterion and content validity. This is not even mentioned in the Discussion section.

The generalizability, or external validity, of the findings is not discussed.

The findings of the study have been over-stated. More research is needed to further validate and refine the tool.
Note: This reviewer report can be downloaded - see attached pdf file.

**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.

No

**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?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

**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:

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I declare that I have no competing interests.

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