Author’s response to reviews

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

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Author’s response to reviews:

Dear Dr. Fitzpatrick,

Thank you for reviewing our reviewer response and revisions to our manuscript.

We are pleased that you believe that our manuscript is acceptable for publication with the addition of several paragraphs that we suggested in our revision letter. Below, we delineate where we have added these paragraphs to the manuscript.

To the Methods section (lines 200-206), we have added:

Cronbach’s alpha was used to evaluate the internal consistency of ReproKnow; a coefficient of 0.7 or higher is generally considered to be acceptable for established scales, although coefficients of at least 0.6 may be considered for newly-created or preliminary scales [30-32]. We also completed a principal components analysis (PCA) for nominal level variables in order to assess the dimensionality of the scale, with a confirmatory factor analysis for dichotomous variables using the Hull method to determine the number of factors in the scale [33].

To the Results section (lines 284-295):

Internal Consistency

The Cronbach’s alpha statistic for ReproKnow was based on patient responses, and was estimated at 0.62, which demonstrates moderate internal consistency. To assess if the moderate internal consistency was secondary to multidimensionality in the scale, we subsequently conducted a principal components analysis (PCA) for nominal level variables. The PCA identified four items on two dimensions that had no clinically meaningful relationships. We next removed these four items from the analysis, and subsequently removed all possible combinations of the items from the analysis. This sub-analysis did
not change the alpha level. Our factor analysis results were similar to the PCA analysis in that a one-factor solution was also recommended using Hull criteria, but that factor explained a minority of the overall variance (37.6%) and several items had either moderately low (<.40, item 4; <.45 items 7 and 9), or very low (< .20, item 3; <.25, item 5) loadings.

To the Discussion section (lines 350-359):
ReproKnow’s relatively low internal consistency might be considered a potential weakness. While Cronbach’s alpha is ideal for scales that have multiple response options (e.g., Likert), coefficients may be artificially low for scales with fewer responses [30]. Our interpretation of our findings from PCA and factor analysis were that a single factor solution did not sufficiently explain the variance in the model, and a multiple-factor solution lacked clinical or conceptual meaning. It is possible that future research with ReproKnow involving larger samples of women will reveal a meaningful latent structure. However, the internal consistency, PCA, and factor analysis results may also reflect that ReproKnow is meant to test a broad range of topics across reproductive health, including pregnancy, pregnancy prevention, lactation, heritability.

Thank you again, Dr. Fitzpatrick, for your review. We are glad that the manuscript has found a home at BMC Rheumatology.

Sincerely,

the Coauthors

Thank you for your recommendations. We have fixed the Declarations section, added author contributions, and have uploaded clean files. We hope that it now meets editorial standards for publication.

The Authors