Reviewer's report

Title: Frequency Format Diagram and Probability Chart for Breast Cancer Risk Communication: a Prospective, Randomized Trial

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Reviewer: Phyllis Butow

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Review

This was a nicely written paper with a careful design, adequate sample size and thoughtful hypotheses exploring optimal formats of risk presentation to those at high risk of breast cancer. I have only a few suggestions:

• Major Compulsory Revisions

I feel that understanding of the results would be very much enhanced if the two figures showing risk perception were altered. Since there were no baseline differences between the groups, Figure 1 could show the numbers within each risk category, and the numbers guessing that correctly and incorrectly pre and post consultation.

The 2nd figure, showing only post-consultation risk perception (correct and incorrect) could directly compare the bargraph and the bargraph plus 100 person diagram groups, allowing the reader to much more easily assess these differences. The number of people in each risk category could be reported in the legend, or below each pair of bars.

• The authors have neglected to cite a major study in this area:


Feldman et al compared the perception of quantitative information (as measured by accuracy and response speed) in choice and estimate tasks across six different presentation formats: pie charts, vertical bars, horizontal bars, numbers, systematic ovals (pictographs with icons highlighted in a systematic manner) and random ovals (pictographs with icons highlighted randomly). For making a choice (a simple, 'gross-level' comparative task), where the subjects were asked to identify which amount was bigger or smaller, systematic ovals, vertical bars, horizontal bars and numbers were equally well perceived; pie charts and random ovals caused slower and less accurate performances. For estimating differences between risks or the magnitude of a single risk (a more detailed task), numbers led to the most accurate estimates, followed by systematic ovals. The other four formats caused less accurate performances.
Similarly, other papers have explored relevant issues, which should be incorporated into the literature review and Discussion: e.g.


Given that randomized was stratified by age, I wondered if there were age effects?

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests