Reviewer's report

Title: Web-based Family History Assessment Tools for Colorectal Cancer (CRC) Risk Analysis - Development and Comparison

Version: 2 Date: 29 March 2015

Reviewer: Constance Johnson

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Major Compulsory Revisions

Background

1. The authors state that risk prediction is based on accuracy of the entered data, yet did not address this issue when testing their intervention. There was no information on the feedback given to the participants after they entered their particular family data. For example, were the participants given a synopsis of their entered data in written form or visual form at the end – basically a way for them to double-check their entries?

2. The references used to explain the problem of poorly designed interfaces and the use of usability tests are very old and outdated. There are more up-to-date references (within the last 10 years) that could be used in this section.

3. Construction of algorithm was not well-defined. More detail is needed here. Have these results been previously published? If yes, provide a reference. If not, then provide more detail on how you developed the algorithm for colorectal cancer risk based on family history.

4. The authors evaluated the efficiency through time to complete and user-satisfaction through the use of two different usability questionnaires. However, they did not measure or report that they measured several items that may have provided depth to the evaluation. First, they should have provided information on how many successfully completed the tasks by group. The error rates for each group should have also been reported and specifically what errors were made. This would have added information on the aspects of each interface that needed redesign. Secondly, generally usability tests use a talk-aloud method to determine what the users are thinking as they work through the interface. This provides rich information on the problems the users are encountering and helps to determine better redesign information. Thirdly, there was no mention of the ease of learning of either interface. Fourthly, they should have provided more details on the family history scenario provided to the participants. It was unclear how detailed this was and if it was the same for both groups.

4. In the methods, the authors refer to confounding variables that were identified, but did not offer details on the confounders or how they dealt with these confounders.

5. The authors should have provided an example of the risk information given to the users. Did they test this information regarding health literacy, i.e. easy to
understand. This should have been part of the usability test.

6. The authors state that they used the IBM Computer System Usability Questionnaire and Assessment of Attitude. First, they should have provided the reliability and validity of these questionnaires and referenced the questionnaires. CSUQ measures overall usability, system usefulness, information quality and interface quality. Since there was no detailed information provided on the assessment of attitude questionnaire, it is unknown what this measures. These details need to be added. A better choice might have been System Usability Scale or SUS. There was one reference provided for the CSUQ, but that was wrong and no references provided for the Assessment of Attitude Questionnaire.

7. It was unclear on how the authors determined 90 participants. They should have provided the sample size calculation. They also did not provide details on their randomization scheme.

Results

8. When describing the participants, the authors should have provided both numbers and percentages in the first paragraph.

9. Although the authors state in the methods that they used the IBM Computer System Usability Questionnaire, they did not provide any results on this questionnaire. The results should have shown the scale and subscale scores. It appears that all results relate to Assessment of Attitude Questionnaire, but this was not clear. I could not evaluate these results since I do not know which questionnaire you are reporting on.

10. They should have reported on errors users made as well as comments that users made during usability testing.

11. There should have been a limitation section.

Minor Essential Revisions

1. The title adequately covers the objective of the study. The abstract and paper need significant edits with regard to grammar and punctuation. Should consider using a professional editor. Figures at the end need titles.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.