Reviewer's report

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

Version: 2 Date: 15 April 2015

Reviewer: Siyu Qian

Reviewer's report:

Thank you for giving me the opportunity to review this manuscript. The topic of this study is important. However I have some major and minor comments that need to be addressed.

1. Is the question posed by the authors well defined?
   Inconsistency in the study aims stated in the abstract and in the main text.

2. Are the methods appropriate and well described?
   Yes.

3. Are the data sound?
   Look sound.

4. Do the figures appear to be genuine, i.e. without evidence of manipulation?
   Yes.

5. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Yes.

6. Are the discussion and conclusions well balanced and adequately supported by the data?
   The authors will need to revise the discussion and conclusion. Some content in conclusion should be put into discussion section.

7. Are limitations of the work clearly stated?
   No.

8. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
Yes.

9. Do the title and abstract accurately convey what has been found?
Not very accurate. The title is a bit larger than the scope of the study presented in this paper. The abstract does not match with the main text.

10. Is the writing acceptable?
Yes. But the authors need to check for typos.

Detailed comments are below.

Major Compulsory Revisions

The abstract does not match with the main text. For example the aim stated in the abstract is different from the aim stated in the introduction. The aim in the abstract is “to develop and validate the usability and accuracy” of the assessment tools (page 1 line 27), but the aim in the introduction is “to study acceptance and usability of two interfaces” (page 3 line 86). Since you did not measure the accuracy in this paper, you will need to revise the aim in the abstract. Methods, results and conclusion in the abstract also need to be revised to truly reflect the main text.

Page 3 line 94 to 104 reviewed previous studies. The systems developed by Emery et al. and Acheson et al., are they following a diagram approach or a questionnaire approach or neither? From line 105 “questionnaires versus other forms”, there seems to be other forms other than the two forms you studied. Because you have mentioned earlier that you will compare only two forms, I will expect these previous studies are all about these two forms. If these studies used other forms, it might be better to re-organise the logic by presenting the second aim after reviewing these previous studies.

The study aim presented on page 3 line 86 is to study acceptance and usability of the assessment tool. The method of evaluating usability is described on page 4, but where is the method of evaluating acceptance? It seems that user acceptance is measured by satisfaction which is a variable of usability (page 4 line 150). On page 4 line 137, the aim is changed to “evaluate the efficiency and user satisfaction.” With many seemingly overlapping concepts (acceptance, usability, efficiency and user satisfaction) here, the reader might be confused. You could either explain the relationship between them or just use two concepts: efficiency and user satisfaction which you evaluated in this paper.

Conclusion section looks more like discussion to me, so I suggest moving them to the discussion section. Consequently, this section needs to be revised to clearly the main conclusions of the research and give a clear explanation of their importance and relevance.

In discussing the results, you may need to compare your results with previous study findings in your discussion. What does this study add to the existing
knowledge?

Minor Essential Revisions

The title seems to be larger than what are presented in this manuscript. The comparison between the two interfaces may include many aspects such as accuracy, efficiency and user satisfaction. In this paper, only the efficiency and user satisfaction are evaluated, maybe it is better to explicitly mention these two in the title.

The multilevel list style (A, B, C…, 1, 2, 3) used in the Method section and the style (1, 2, 3…) used in Results\Discussion section are not consistent. I would suggest the numbering style which is easier to follow.

Page 3 line 82 to 88, I could see that you have two aims in this study. The first is to develop a web-based tool and the second is to study the acceptance and usability of the two interfaces of the tool. If you could make it clear by indicating first aim is… and second aim is…, it will be easier to follow the logic.

Page 3 line 86, maybe it is better to give the information about what the two interfaces are immediately like this “two interfaces (diagram-based and questionnaire-based see figures 1 and 2)”, so that readers do not need to look at the two figures to know what they are. And this will make the logic flow better when you talk about the diagram-based and questionnaire-based in line 88.

Page 3 line 113, I think it might be better to give what the four categories are immediately instead of giving them on page 4 line 117.

Page 4 “D. USABILITY EVALUATION” only needs to capitalise the first letter in order to be consistent with the other sub-headings.

Page 5 line 154, “all subjects were randomly but evenly divided into two groups”. What are the two groups? Male and female? Or diagram-based and questionnaire-based? Better specify this immediately after “two groups”.

Page 5 line 181 “was be”, line 183 “to be be”, need to delete a “be”.

Page 6 line 199, the reference “[4]” is not about the IBM Computer System Usability Questionnaire.

Page 6 line 217, this bullet point does not look like an assumption, but what you have done.

Mann-Whitney Test and the Little’s MCAR test on Page 7 are not mentioned in the Statistical Analysis section.

Page 8 line 273 “The results for the two interface results are considerably skewed”. Need to delete “results”.

Page 8 line 292 “CONCLUSION” only needs to capitalise the first letter in order to be consistent with other headings.
What are the strengths and limitations of this study?

Mention of future research is lacking.

Discretionary Revisions

Page 4 line 121 and line 124, is it necessary to mention “paper-based”?

Page 5 line 153, when reading here, I was wondering what were the potential confounding variables found in this study and what steps were taken to minimise their effects.

Page 5 line 154 to 156, I feel this information should be moved to the Subjects section.

Page 5 line 161, you could leave out the information in the brackets.

Page 7 line 236 to 238, this is describing the study procedure. I think it might be better to put it in the Subjects section.

Page 8 line 254, this information has been given on page 5 line 170. I think you do not need to repeat it in the result.

Page 8 line 282 to 290 present explanations of the outliers in Figure 4. To me, they are discussion, not findings.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

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.