Reviewer's report

Title: Acceptability and adoption of handheld computer data collection for public health research in China.

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Reviewer: Jodi Vanden Eng

Reviewer's report:

I would like to thank the authors for the opportunity to review the manuscript titled "Acceptability and Adoption of Handheld Computer Data Collection for Public Health Research in China."

This clearly written manuscript describes the application of handheld computers and related software to a tobacco health survey in China. The authors provided a nice description of the methodology used and successfully implemented the technology noting the improvements and modifications necessary to accommodate Kanji character sets on an operating system that is in English. In addition, there was a unique albeit small-scale evaluation of usability/acceptability on a sample of individuals. The authors clearly present a problem encountered with mobile data collection and adequately describe the methods used to resolve this problem, the data used to evaluate the new method, and the resulting discussion and conclusion of the acceptability and usability.

Although this specialized subject matter is possibly unique to the literature, there are some recommendations and modifications that need to be considered for this manuscript. Mainly, the question of whether this article has enough depth/breadth beyond existing literature to warrant additional publication. Some suggestions on how to include information to enhance the content and subject matter are described in more detail in the recommendations below. Moreover, the technology described is mostly outdated and slowly loosing relevance in the scientific community. It would be of utmost importance for the journal's readers to understand how this methodology and technology is still relevant and can be applied using modern platforms.

Recommendations:

Major Compulsory Revisions

1. Please consider modernizing the subject matter. This paper emphasizes a methodology that relies on technology that is outdated and off market. Please incorporate a section on how the methodology presented using a Windows Mobile platform and HP Ipaqs could be transferred to newer platforms.

2. Please explain the availability of other questionnaire software that incorporates the use of Kanji or special characters. Is QDS unique or are there other software available that accept special characters? Will it run on newer platforms?
3. Similarly, please explain the availability of other Operating Systems that allow for special characters (to avoid the message boxes that appear in English). Why did you use an English language OS when you are implementing the questionnaire in Chinese? Is there a Chinese version of Windows Mobile? If yes, would QDS run on it?

Minor Essential Revisions
1. Methods: Please check the spelling of HP IPaqs. Please list the model numbers.
2. Methods: Please list the version of the Windows Mobile OS
3. Evaluations: It seems one major weakness in this study is the absence of a pre-training questionnaire based evaluation to get a baseline measure of the trainees’ knowledge, attitudes and practices regarding the acceptability and use of HCDC. It is not clear whether or not the training had any impact on the comfort and acceptance of this technology.
4. Evaluations/Results: Although the authors mention a quality control evaluation component as well as a post training interview, very little of these results are presented in this paper. It might strengthen the paper to include more results from the other 2 acceptance/usability evaluations.
5. Results Interviewers attitudes: Consider displaying the contents of Paragraph 1 in a table. It is not clear why some of the questions are reported out of 29 trainees and others out of 20. The questions related to confidence seem relevant for both the interviewers and the supervisors. The post evaluation results for efficiency described 19 interviewers found HDHC better and 3 found paper better, but it did not specify the results for the other 7 individuals. Similarly for preferences. Also, in this paragraph, since it is a small sample size, you may want to present the median and IQR vs the mean. It would also be useful to describe the age, gender, and education of the interviewers and the supervisors.
6. Results HDC vs paper: Were there more questions evaluated? This section seems sparse and redundant to the post training section. Did any interviewers change their responses between the 2 evaluations (what was the concordance)? What are the interviewer characteristics of those who preferred paper? Were they older? more/less educated? More/less experienced? Gender differences? Are any of these differences significant (chi-square test)? It might be good to put this information in a cross tabulation. Figure 1 is a misleading way to display this data because the results are only based on 20 individuals. Therefore, the estimates are rounded to the nearest 5%. It would be better to present this data in a table and present confidence intervals around the estimates. If this figure is included in the manuscript, please make sure it is black/white printer friendly and make the sample size clear in the title. When this figure is not printed with color ink, it is very difficult to delineate the boundaries between values. Also, check spelling and case of the figure.
7. Results quality control: This section also seems very sparse. It would be good to add specific numbers and statistics to this section.
8. Interviewer Recommendations: recommendations #1 and #3 seem redundant. Recommendation #2 seems like a design flaw.

9. Discussion: The second half of the first paragraph in this section requires editing. Also, it would be useful to include in the discussion some of the implications of the results of the evaluations. What steps were taken to alleviate the concerns of interviewers who responded they did not feel confident after training? Were there differences in quality control between individuals who felt confident and those who did not?

10. Discussion: Please add a section about the limitations of this study and the evaluations? For example, was there potential bias (interviewer or observer bias) introduced by having the supervisors who took part in the training also perform the quality control evaluation? Was there a Hawthorne effect? Was there a bias due to repeated testing?

11. Discussion: The comment on education attainment and proficiency as selection criteria cannot be concluded here and needs to be removed or revised. This study did not scientifically compare the association between interviewers’ knowledge and education and their general ‘successes’ with HDHC. This would require a randomized controlled trial. It is possible that any differences seen between this survey and other surveys are related to differences in training or other factors that are unrelated to educational status.

12. Discussion: the section about QDS and Unicode might be better placed in the methods section.

13. Table 2: Please adjust the layout to separate the sections more clearly. Please check case.

14. General: Consider consulting a technical writer to proof for grammatical/spelling errors. Make sure headings are consistent in capitalization. Some sentences are incomplete.

Discretionary Revisions
None

**Level of interest:** An article of limited interest

**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'

An article I published is listed in the references.