Reviewer's report

Title: The use of mobile phones as a data collection tool: A report from a household survey in South Africa

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Reviewer: Robert A Logan

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I recommend the publication of this manuscript contingent on the authors providing the revisions outlined below.

The manuscript is well-written and the topic is relevant to the readers of BMC Medical Informatics and Decision Making.

The intent and implementation of the study are straightforward and the findings seem to be interpreted appropriately.

The study provides modest evidence that mobile phones might be used for consumer health informatics/public health-related survey research and data collection. The setting is imaginative and important as a diffusion model for other low and middle income nations -- and perhaps elsewhere. Similar to the authors, I am not aware of a comparable project in a parallel setting. So, the manuscript’s primary findings are innovative.

However, I suggest the manuscript’s literature review, explanation of methods, interpretation of findings, and conclusion sections could be improved significantly. I suggest the authors address the following issues, all of which I consider to be minor essential revisions:

1. The current literature review bypasses a thorough review of the application of mobile phones to consumer health informatics/public health research by introducing a few examples and then, explaining there is a dearth of literature describing mobile device applications in low and middle income nations. In short, the authors claim there is no comparative context for the current study.

Alternatively, I suggest the manuscript would be enhanced by the provision of a context. I suggest the authors introduce other studies that are similar to this one (regardless of geographical location) and especially introduce any studies that collect survey data, or collect information that is facilitated or consumer-generated rather than monitored automatically. I suggest the authors, then, characterize recent experiences in consumer data collection using mobile devices – and then use this as a foundation to explain if the experiences encountered in the current study are consistent or inconsistent with past findings.
A discussion of similarities and differences also provides an opportunity for the authors to suggest the reasons why the current findings are consistent or inconsistent with prior findings. The comparison additionally provides an opportunity for the authors to discuss how the current study (and its environs) represents specific contributions to the past literature.

2. In terms of methods, it is not clear (until p. 8 of the current manuscript) if community health workers encouraged potential interviewees to take part in the survey, or actually conducted telephone interviews with selected persons. I cannot find an explanation if community health workers entered the results as interviewees responded. Assuming the latter assumptions are accurate, other pertinent methodological issues should be mentioned. For example, while the study suggests there was an interviewer/interviewee protocol that was part of community health worker training, the protocol is not explained. In addition, how is the study’s protocol similar or different than the protocol given to a research assistant in standard, by paper, distribution in professionally normative, survey research data collection? How did community health workers contact and select households in the study’s sample? Were the selected households a random sample, or the universe of the selected areas? How did the data collectors ensure that only one adult per household served as a respondent?

3. The authors suggest the primary challenge in conducting consumer health informatics/public health survey research is the administrative oversight of problems often associated with data collectors, or employed interviewers. While this is a challenge to statistical reliability and validity, there are other parallel, important considerations (regardless of locale) to ensure the reliability and validity of survey-generated population research. Other challenges to reliability and validity (that are of parallel importance and more often cited) include: access to a domicile, selecting a population sample that is highly similar to overall population characteristics, random sampling of domiciles (dwellings, or a unit of analysis), clustered sampling to reflect population statistics, ensuring the respondent is an adult and only one person is a respondent, question design and bias, readability, and providing reliability and validity measures within an instrument. The authors do not directly address how these issues comparatively are overcome in the current study. Certainly, most public opinion, social science, and public health journals would be interested in how the distribution of surveys on mobile phones potentially overcomes a wider range of challenges in survey research than the authors address.

4. The findings suggest it is administratively viable for a trained community health worker to accurately collect and return survey research data by using his/her mobile phone. However, the authors conclusions imply that mobile phone based surveys reduce errors, and curtail high storage and data entry costs. Yet, the evidence seems to indirectly address these variables. Since the study is not comparative, it seems premature to imply that mobile phone based surveys reduce errors, high storage and data entry costs. Instead, the study seems to provide anecdotal findings that there may be comparative costs savings, but these need to be demonstrated via future comparative research.
5. Also, I suggest the authors explain how the training and use of community health workers is superior or equivalent to the use of normally inexpensive research assistants to gather data? What is the likelihood that this technology and approach could be developed so there may be less need for a personal interviewer for data collection?

6. I suggest the authors enhance their discussion of the study’s limitations. For example, the current study does not have controls -- the authors do not demonstrate the relative success of their data collection by phone by comparing it with traditional paper-based domicile data collection (or other techniques). While I am not suggesting the authors redo the study, I believe it is important to note that a basis of comparison is missing in the current research and acknowledge the study’s approach is among the study’s limitations. In terms of suggestions for future research, I hope the authors might address how future researchers should conceptually frame and implement comprehensive, comparative research to provide additional evidence that mobile phones are a viable (or superior) method of data collection for consumer health informatics/public health survey research within middle, or low income nations.

**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 I have no competing interests.