Author’s response to reviews

Title: Health promotion via SMS improves hypertension knowledge for Deaf South Africans. A mixed method study

Authors:

Hanne Haricharan (Hanne.Haricharan@uct.ac.za)
Marion Heap (Marion.Heap@uct.ac.za)
Damian Hacking (damianuct@gmail.com)
Yan Lau (llisalau@gmail.com)

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Author’s response to reviews:

Response to reviewer’s comments:

Reviewer’s comment:

1. I comment the authors on splitting the two health topics.

Response: Comment appreciated.

Reviewer’s comment 2a Abstract:

The last sentence and the second aim requires review.

Response: The last sentence – “the potential for using SMS campaigns to impact on behavior is promising and should be explored further” – has been removed.

The second aim – to assess the acceptability of the intervention – mentioned first on p 3 l. 44-45 has been used consistently throughout the paper (line 90-91 and 181-182).
Reviewer’s comment 2b: In the results you need to outline the number and demographics of participants as well as some data around the first part of your study.

Response: The following sections have been added to the results section of the abstract.

A: The campaign recruited 82 participants for the baseline survey, but due to significant loss-to-follow-up and exclusions, only 41 participants were included in the analysis of the survey. The majority (60%) were men. 80% were employed, while 98% had not finished high school. (l. 59-61)

B: The campaign showed a statistically significant improvement in overall knowledge about hypertension and healthy living amongst participants. Six individual questions out of 19 also showed a statistically significant improvement. Despite this, participants in focus groups found the medical terminology difficult to understand. Several ways of improving SMS campaigns for the Deaf were identified. These included using ‘sign language’ structure, using ‘signed’ SMSs, combining SMSs with signed drama and link SMS-campaigns to an interactive communication service that would enable the Deaf to pose questions for clarification. Focus groups suggested that participants who were hypertensive during the campaign adopted a healthier lifestyle. (l.61-166)

Reviewer’s comment 2c: The data collection and analysis dates could be deleted from the abstract.

Response: Data collection and analysis dates have been deleted as suggested by the reviewer.

Reviewer’s comment 3a: Line 112. Please review the sentence. Having a penetration above.

Response: The sentence has been changed in the following way: “The proliferation of cell phones has resulted in 90% of the population in developing countries having a cell phone. In South Africa, the number of cell phones are higher than that of the population.” (l.133-135)
Reviewer’s response 3b: Line 122. Rather than saying that you could not find any studies maybe say that studies on xxx are lacking.

Response: The sentence referred to has been replaced with the following sentence: “Studies on the usage of SMSs in health care amongst the Deaf are lacking.” (l. 144-145)

Reviewer’s response 3c: Line 134-139. Can you please reword the sentences on the prior study? It is clunky as it stands.

Response: The sentences have been reworded as follows: “We hypothesized that an SMS-based health information campaign could improve knowledge of hypertension and healthy living amongst the Deaf participants. We based the hypothesis on the low health literacy level and the widespread use of cell phones amongst the Deaf. The hypothesis was also based on an assumption that the prevalence of hypertension in the Deaf population would be similar to the general South African population. In addition, we took the results of a similar study with hypertensive hearing patients into consideration. This study did not result in a statistically significant improvement in knowledge. However, the study with hearing patients had a different starting point. For the hearing hypertensive patients’ knowledge scores at baseline were high, leaving little room for measuring improvement. We assumed – based on our long-term association with the Deaf and international literature on Deaf health literacy– that this was not the case for our target group.”
(l.156-166)

Reviewer’s comment 4a. Line L150. Please define SASL.

Response: SASL has been defined as South African Sign Language. (l.93-94)
Reviewer’s comment 4b: Line 154. Pre-test/post-test is fine. You do not need the before-after.
Response: Before-after has been deleted. (l. 191)

Reviewer’s response 4c: Line 167. Could you please add a justification of why you were aiming for 50 participants.
Response: The following section has been added to explain how we decided to aim at recruiting minimum 50 participants. “This was based on the number of people attending the information meetings and reactions to the research at this meeting. We had approximately 100 people attending the information. We were conservative in our estimation because this study was the first of its kind and we were unsure of the Deaf populations’ response. We ended up recruiting 82 participants, but unfortunately had a high loss-to-follow up (28), and had to exclude another 13 participants for various reasons. This resulted in only 41 participants being included in the analysis.” (l. 205-211)

Reviewer’s comment 4d: Line 185. Apologies but I don’t understand what you mean by ‘received the majority of SMSs”. Did everyone receive them.
Response: The following explanation has been added to the text. “The research team monitored the delivery of SMSs. People had the option of ‘opting out’ of the campaign, which was reflected on our database. Further, some SMSs delivery failed if people changed phone numbers or left them off for a period of time.
Other reasons for delivery failure was people sharing phones with friends or family, having more than one phone and frequent change of phone numbers. Some people lost their phones during the campaign. To the focus groups, we invited only those individuals that we knew had received more than 80 % of our SMSs. (l. 233-239)

Reviewer’s comment 4e: Can you please clarify why you took off a mark for an incorrect answer? This would indicate that the person did not know as well as the “don’t know” answer. This would change your overall mark in, potentially, a significant way pre and post. For example
if someone put a wrong answer in the pre-test and a ‘don’t’ know in post-test, it would elevate their mark by 2 when they still don’t know the answer. Forgive me if I have misunderstood this.

Response: This point refers to the four multiple choice questions. The reviewer raises an important point regarding scoring questions with multiple correct answers. When a participant answered don’t know, the answer was given a score of 0. If a participant selected an incorrect answer at baseline, but then at exit changed their answer to 'don't know' the authors would consider this an improvement in knowledge. The participant previously held an erroneous belief, but has now realised that belief is wrong even if they don't know what the correct answer is. In cases where participants answered correctly after having answered incorrectly, the interpretation is correct, the score would be elevated by two points. Furthermore, if the multiple answer questions did not contain negative marking, if the participant selected every answer (a clear sign of not knowing) they would receive the same score as if they had selected only the correct answers. We therefore concluded that deducting one point for wrong answers, adding a point for correct answers, and giving no point for ‘don’t know’ answers was the best way to score the multiple choice questions. This approach resulted in only one of the questions showing a statistically significant improvement in knowledge.

Reviewer’s comment 4f: Line 204. Can you please clarify who did the thematic analysis? Was it one or two people.

The thematic analysis was done by the lead author. A sentence clarifying this has been added. (l. 258-259)

Reviewer’s comment 5a: Line 219. In my mind the only demographic data that should be reported should be the 41 participants who completed the study. You could present demographics for both if you thought it was significant.

Response: We have followed the reviewer’s advice and only included demographic data for the participants who were part of the survey analysis. (l. 278-283)
Reviewer’s comment 5b: As you have noted there was no data available on how many people were and were not hypertensive in the first study. I think you need to make mention of this somewhere and also include it in your limitations.

Response: We have added the following sentence: “No data was available on how many participants were hypertensive.” (l. 281-282) In the strength and weaknesses section: We have added the following sentence. “Furthermore, lack of data on how many survey participants were hypertensive presents a limitation.” (l. 620-621)

Reviewer’s comment 5c: As previously mentioned in my last review, I don’t think the graph works for the knowledge scores. Without the data, we are unable to interpret the data or the statistics. This needs to be included in the paper.

Response: The graphs have been replaced with three tables: table 2 shows results for questions that had one correct answer. Table 3 shows results for questions that had multiple correct answers. Table 4 shows overall knowledge score as well as results for the six questions that recorded significant improvement in knowledge. (p. 12 and 13)

Reviewer’s response: Please recheck the additional file numbers for the files an in the text.

Response: Additional file numbers have been checked.

Reviewer’s comment 5e: It is good practice to include a short written summary of the demographics.

Response: The following summary has been included:
“The mean age of the participants that completed the survey was 45 years. More men (60%) participated in the survey. The majority, 50%, were married, and the majority were employed (80%). It is worth noting that the low educational level - 98% had not finished high school - is not unusual for Deaf South Africans. No data was available on how many participants were hypertensive.” (278-283)

Reviewer’s response 5f: Please review your participant diagram. It doesn’t make sense that people were excluded if they did not complete a baseline study if that was the inclusion criteria.

Response: The participant diagram has been revised to indicate that people who indicated that they had not received the SMSs or had not participated in the baseline. (p. 12)

Reviewer’s comment 5g: Line 253. You include information on information sources that was not part of the original aims.

Response: We include this information as part of our question about the acceptability of SMSs. (l. 303-318)

Reviewer’s comment 5h: It might just be me but the discussion, with the quotes as evidence, seems biased towards a couple of issues. Can you please include some negative quotes e.g. around the difficulty of medical terminology.

Response: We have expanded on the content of the focus group, including the following section on participants’ difficulties with understanding the SMSs:

“However, there were also participants who argued that they had difficulties with understanding the SMSs. In particular, they struggled with medical terminology. The difficulties resulted in
many questions for clarification. The quote below is an example of how participants struggled to understand the meaning of the SMS text:

The reason why I struggled to understand the words. If you could just make it shorter so that I can understand because I don’t know much about English. Uhm… there are words that I actually (…) I don’t actually understand what does it mean. Participant 2

Another participant who struggled with understanding the SMSes suggested that “the medical term should be changed with a synonym that’s easy to understand”. (l.345-356)

Reviewer’s response 5i: Were the demographics of those that took part in the focus groups different from those that did not

Response: The following sentences have been inserted to explain the demographics of focus group participants compared to exit survey participants:

“The demographics of the focus group participants was largely similar to those participating in the exit survey, though their mean age was two years higher. They also had a slightly higher educational level, with only 15 % having below grade 7 compared to 39 % of the participants included in the survey analysis.” (l.324-328)

Reviewer’s response 5j: It is good qualitative research practice to some sort of nomenclature after each quote (e.g. participant 1). If this data was not collected by a second person in the focus group then this needs to be discussed.

Response: Each person has been given a nomenclature (participant 1,2,3) and this has been inserted after the quotes as suggested by the reviewer.
Reviewer’s comment 5k: Line 308. Please define UCT.

Response: UCT has been defined as University of Cape Town. (l. 429)

Reviewer’s response 6a: This discussion is very light, tending to go over the results. While you bring up some really interesting points, you need more depth comparing them to other research in mHealth and/or Deaf communication research. The lack of references in the discussion section show that you have not involved many comparisons and learnings.

We have expanded the discussion. In particular, we have compared SMS based health promotion campaigns to video-based health promotion campaigns. We have also compared Deaf SMS to mHealth SMS campaigns with hearing and in particular to a campaign with hypertensive South Africans. (p. 18-25)

Reviewer’s comment 6b: The strength and weaknesses section requires more depth.

We have included a strength and weaknesses section:

“The paper is to the best of our knowledge the first that explores the use of SMSs to convey knowledge to improve health for Deaf people. It contributes to studies that explore ways of addressing Deaf people’s limited health knowledge and resulting health disparities. The relative small sample size as well as loss-to-follow should be noted as a limitation. Further, it should be noted that the study was done in a metropolitan area and used convenience sampling. This may limit the generalizability of the study. It is very likely that Deaf people residing in more rural areas have a lower literacy level than those residing in urban areas. Further, it is possible that those who decided to take part in the study had a particular interest in the topic or in health information in general. It is equally conceivable that loss-to-follow up could partly be a result of people who found the SMSs difficult to understand and chose not to complete the study. Thus selection-bias could be an issue. Furthermore, lack of data on how many participants were hypertensive presents a limitation. A further limitation is that there may be volunteer bias amongst those attending the focus groups Their educational level was slightly higher. Those limitations notwithstanding, the study presents promising results that should be explored further. (610-624)