Author's response to reviews

Title: Rapid Sociometric Mapping of Community Health Workers to Identify Opinion Leaders using an SMS Platform: a short report

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Author’s response to reviews:

Dear Editorial Board of Implementation Science,

RE: RESPONSES TO REVIEWER COMMENTS

We would like to sincerely thank you for reviewing our manuscript, and for providing important comments. We have taken all of the referees’ comments into consideration, and have revised the manuscript accordingly. We are pleased to resubmit this Short Report for your review. Below, please find our point-by-point responses to the referees’ comments.

REVIEWER #1

Comment 1:

I found the report interesting and thought it offered some very useful detail about using an innovative and cost-effective research technique in a resource poor environment. However, I think the authors might be overstating what the report is offering. For example they seem to suggest that the work they report offers evidence about the usefulness of network based and mhealth interventions, which I don't think is the case. For example in the conclusion the authors state: 'Mobile technology can enable empirically guided, network-based interventions in near real time, thus opening the door to use of social forces to advance the science of implementation as well as promote the implementation of science in health delivery.' P.10 Such a conclusion I don't
think is evidenced by what is presented in the report and would suggest that it should be dropped or substantially revised.

Response:

We appreciate the reviewer’s viewpoint, and recognize that the last sentence in our conclusion may not be evidenced by what we present in this Short Report. In response to this comment, we have dropped the last sentence of the conclusion and replaced it with [page 10]:

"The rapid rise in access to mobile technology in resource-limited settings can be leveraged to efficiently conduct sociometric mapping among health workers at low cost."

Comment 2:

The described technique of identifying opinion leaders might be seen as a potentially useful addition to a broader implementation strategy for some interventions. However, the types of interventions that might benefit are in my opinion limited. For example, this research technique might be useful where the main implementation question is how to make sure that all health workers adopt an intervention or change behaviour. The actual concern is much more likely to be about the adoption and outcomes for the clients of the health workers and the described technique does not help in identifying potential influences for clients as they are not part of the studied networks. I think this should be clearly stated.

Response:

We appreciate this comment, and agree that our technique of using mobile phone based sociometric mapping to identify opinion leaders could be most useful for promoting behavior change or intervention adoption among health workers. We also agree that our technique as described does not help in identifying the effect of the intervention on clients since they are excluded from the network. In response, we would like to clarify that this Short Report was aimed only at describing a novel method for rapidly conducting sociometric surveys to identify opinion leaders when planning implementation of a new intervention. Specifically, we applied this method as part of formative work for a larger project that sought to promote personalized counseling practices among peer counselors for people living with HIV. The larger project will, among other outcomes, evaluate the effect of using this mobile phone based sociometric mapping to identify opinion leaders on adoption of the personalized counseling practices as well as on outcomes for the clients of the selected peer counselors (e.g. retention in care and HIV virologic suppression). In summary, we agree with the reviewer that this work was focused on healthcare workers, and we do not mean to imply that it can be applied in all populations with equal effectiveness. We believe that there are many gaps in healthcare worker behavior that could potentially be addressed through opinion leaders and, therefore, this approach still has important implications for implementation research. To clarify this point, we have revised the following statement to the introduction [page 4]:

"This sociometric survey was carried out as part of a project that sought to promote more personalized counseling practices among peer counselors. The larger project (not reported in this
Short Report) will evaluate the effect of using this mobile phone based sociometric survey on adoption of more personalized counseling practices among identified opinion leaders and on patient outcomes such as retention in care and HIV virologic suppression. This Short Report is focused on healthcare worker behavior that could potentially be addressed through opinion leaders."

REVIEW #2:

Comment 1:

The main aim of the paper is to test if mobile phones can be used to reach geographically dispersed respondents to identify opinion leaders. However, it appears that all respondents had to meet physically at one place and a paper list was used with names and codes. I wonder what the added value is of this method when respondents still had to come to a specific place where they as well could have completed the questionnaire directly. Or could this questionnaire also be delivered without a physical meeting? Clarification of this would help to understand the added value of this method better.

Response:

We appreciate this comment. Indeed, all respondents met physically at one place and a paper list was used with names and codes. To clarify, we leveraged meetings among respondents that had been planned for other purposes rather than arranging for a meeting specifically to conduct our sociometric surveys. Under real world routine care settings, peer health workers in this region of Kenya have periodic meetings (sometimes as frequent as weekly) to review work plans and share experiences. In this case, we felt that leveraging existing meeting structures would help in getting buy-in and in improving survey response and completion rates from respondents. However, we believe that the questionnaire can be delivered entirely using mobile phone technology without a physical meeting. In response to this comment, we have acknowledged this as an additional limitation as follows [page 9]:

"Fourth, while the survey questionnaire was delivered using SMS, survey respondents still met physically at one place and a paper list was used with names and codes to aid survey completion. We could potentially have delivered the entire survey using SMS without having respondents meet physically. Of note, peer health workers in this region hold periodic in-person meetings (sometimes as frequent as weekly) to review work plans and share experiences. We leveraged these already existing meetings to achieve high survey response and completion rates. However, we believe that the questionnaire can be delivered entirely using mobile phone technology without a physical meeting."

Comment 2:

The authors measured both degree centrality and eigenvector centrality which resulted in the identification of the same most connected/influential person. Does this mean that one can simply
say that the one with the most connections is the best opinion leader? And that the other measures do not really contribute to this selection process?

Response:

Thank you for this comment. As noted in our article, degree centrality was measured to identify the extent to which a particular peer health worker was a popular point of reference, and eigenvector centrality was measured to identify the actual influence of a peer health worker within the network. While our measures identified the same people as most connected and most influential, it is theoretically possible that individuals who are most connected might not be the most influential. Therefore, one cannot simply say that the one with the most connections is the best opinion leader. Indeed, we calculated both measures to try and tease apart this difference (although our network did not find discordance between number of connections and influence). Calculating both measures potentially helps to better understand the characteristics of the network, even though the most influential person would still be identified by the eigenvector measure.

Comment 3:

How were the degree centrality and eigenvector centrality calculated? Based on a combination of all the questions or separately per question?

Response:

Thank you for this question. Both degree centrality and eigenvector centrality were calculated based on a combination of all the questions. In response to this question, we have clarified by adding the following statement in the methods section [page 6]: Both measures of centrality were calculated based on a combination of all the survey questions.

Comment 4:

Relates to figure 3; how should the lines and directions be interpreted? One line resembles a positive answer on one question, multiple lines on multiple questions? And what means the direction of the line? And how should we interpret a line pointing to the person himself? To summarize; a bit more help by the interpretation of the figure is welcome.

Response:

Thank you for this comment. In response, we have renamed Figure 3 to Figure 4 [page 7], and added the following descriptive text to the Figure 4 legend [page 17]:

"Each node represents a survey respondent and each arrow points to the person whose opinion would be sought in response to a survey question. Each arrow represents one survey question. An arrows pointing back to the “node” of origin represents a survey respondent who, in response to a question asking whose opinion they would seek, indicated that they would rely on their own
opinion. Isolated nodes (no incoming or outgoing arrows) represent respondents who neither selected others as a reference for opinions nor selected themselves.

Comment 5:

Related to the questionnaire, how was the option that they would go to no one integrated in the questionnaire? Was it first introduced? Was there a specific code for that?

Response:

Thank you for this comment. As indicated in our article, we provided survey respondents a list containing names of all peer health workers and each name was assigned a corresponding code. This list also included a “no one” code to cater for situations where respondents felt they would not need to consult other peer health workers. This was explained to participants prior to survey administration. In response to this comment, we have added the following text to the methods section [page 5]:

"The first item on the list was a code assigned to the name “no one” to cater for situations where respondents felt they would not need the opinion or advise of their colleagues."

Comment 6:

The order of the tables/figures is not chronologically which is confusing.

Response:

Thank you for this comment and we apologize for this oversight. In response, we have re-ordered the tables and figures and numbered them in the order in which they are first mentioned in the article [page 7, 17].

Once again, thank you for your consideration of our manuscript for publication in Implementation Science.

Sincerely,

Thomas A. Odeny
On behalf of the authors.