Author’s response to reviews

Title: Social Network Characteristics and Cervical Cancer Screening among Quechua Women in Andean Peru

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Social Network Characteristics and Cervical Cancer Screening History among Quechua Women in Andean Peru

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BMC Public Health

Dear Dr. Yu,

I have submitted a revised manuscript "Social Network Characteristics and Cervical Cancer Screening History among Quechua Women in Andean Peru" (PUBH-D-15-00990R1) for consideration to be published in BMC Public Health. All changes have been done using track changes, so it is easy to see where the changes have been done.
Below, please find a point-by-point response to the comments.

Reviewer #1.
Overall the study is interesting, and relevant to rural areas of Peru. I have 3 comments about their manuscript (below) and of importance is comment (1) which is describes my main concern with this manuscript.

(1) I have a strong concern about their main conclusion- that there is a significant difference between participants who ever received a pap test compared to those who never had one based on the percentage of alters that were identified as neighbors. According to Table 3, ten different tests were performed to determine whether any of the ego network characteristics were significant, and one of these was found to be significant at p=0.03. There is a standard rule in statistics, that if you are performing multiple comparisons, that the simple cut-off of p<0.05 for each test is not appropriate, as by random chance, one of these may fall below 0.05 ('multiple comparison problem'). There are common corrections for the multiple comparison problem - for example, the Bonferroni correction for multiple tests. I believe that some form of correction for multiple comparisons should be used to determine significance, unless the authors provide some strong justification for not using this correction.

Author’s Response:

The Bonferroni correction would require a p-value of .005 for 10 statistical tests. Therefore for one of the tests to be significant, it would need to be a p-value of approximately p< 0.001. None of the statistical tests would be significant with this cut-off. The Bonferroni correction is considered to be a very conservative correction. To address the statistical problem, we reran the bivariate analysis with a different outcome variable (confirmed Pap test receipt at the CerviCusco Clinics). Then we ran a logistic regression for the 6 social network variables of interest to the study and based on a p<0.10 cutoff for the logistic regression. See new Tables 3 and 4 and the revised text in the methods, results and discussion to address this new analysis. Please refer to Page 7, lines 20-35 for new text in the Methods. Please refer to Page 9, lines 35-50 for new bivariate results and Page 10, lines 24-37 for new paragraph on logistic regression results. The discussion was changed on Page 10, lines 48-52, on Page 11, lines 11-17, on Page 12, lines 30-41.
(2) Overall, there is not enough information about the methods for the reader. Below are 3 examples where the authors should be clearer:

i) The methods section in the abstract and main body have the same text. however, more description is required. For readers unfamiliar with network models (as I am), words such as 'ego' and 'alters' and 'ties' need to be defined. I think assuming that all your interested readers know these words is not an appropriate assumption. For instance, in the methods, the authors say 'each participant was asked to name for each one of the six alters identified the nature of their relationship...' but I think it would be better for the authors to make it clearer - 'each participant was asked to name 6 other people they knew (alters). For each alter, they were asked to identify the nature of their relationship...' or something along those lines.

Author’s Response:
Word count limit extended descriptions of egocentric network methods. However, the language of the methods was changed to make it clearer and a sentence was added to define what was meant by ego, alters, and ties (see Page 5, lines 17-19).

ii) Also in the methods, the description of the recruitment of women is not adequate. The interviewer was given a list of 17 women, but then she interviewed 10 people (?) did the other 7 choose not to participate after being approached, or could they not be contacted by the interviewer, or do you not know what happened to them?

Author’s Response:
Further description of the respondent driven sampling technique was provided (see Page 5, lines 37-52).

iii) In the results section, there is a statement 'the majority of women were either married or living together.' Living together with whom - their male partner?

Author’s Response:
Clarification on “living together” was added to the result section (Page 8, line 13).
Background information - there is not enough about previous literature regarding the influence of social networks on cervical screening participation. There is a good amount on screening participation across other cancer sites, but it is not clear whether there have been almost no studies on the impact of social networks on cervical screening participation, or whether the authors have omitted these studies. If there have been very little studies then they could strengthen their paper more by describing the lack of similar studies across the world. If other studies exist, more information should be provided about the general conclusions from these studies, and whether similar findings have been found.

Author’s Response:

Unfortunately, there is very little research on this topic. We added one additional study from 1994 in JNCI, but this study was also a US study (Page 4, lines 11-13). We changed the language in one sentence about a 2015 systematic review on social networks and health in LMICs and no studies on cancer screening were identified (Page 3, line 33-38).

Reviewer #2

(1) John S. Luque et al. explored social network characteristics related to cervical cancer screening adherence in a rural indigenous community following CerviCusco cervical cancer screening outreach campaigns in 2012-2013. They showed that female neighbors provided an important source of social support for healthcare related decisions. Their results can provide some information for health workers to improve coverage of cervical cancer screening in Andean Peru.

Major Compulsory Revisions. The main conclusion of this paper was based on a small sample size. A power calculation was needed to show the statistical ability of testing the difference between those attended Pap screening and those who didn't. Moreover, the author should describe more detail of the inclusion criteria for the 17 people. Were they different from the other 383? As the response rate was low (10/17), the author should also clarify the differences between those agree to attend the study (n=10) and those didn't (n=7). It's very important for the assessment of the results.
Author’s Response:

The 17 women identified from CerviCusco data who had completed screening in the 2012 and 2013 outreach campaigns were not all located. Actually, only 7 women were recruited for the survey. Additional explanation of why we chose this initial strategy rather than just starting with 10 random women in the community was provided. This is not the response rate. All women contacted agreed to participate in the survey (see Page 5, lines 37-52). We addressed this concern about the statistical issues and lack of power in our response to Reviewer #1 under Point #1 above by running a different analysis with a different outcome variable. Please refer to Page 7, lines 20-35 for new text in the Methods. Please refer to Page 9, lines 35-50 for new bivariate results and Page 10, lines 24-37 for new paragraph on logistic regression results. The discussion was changed on Page 10, lines 48-52, on Page 11, lines 11-17, on Page 12, lines 30-41.

(2) Background. The background should be shortened and more focus. Adding information of the national and other type of cervical cancer screening projects in Peru would be useful for the readers to understand the screening situation in Peru. i.e. the type of screening projects, the coverage, who pay for the test… It's better to clearly describe the objective and importance of this study in the paragraph line 43, page 3.

Author’s Response:

Unfortunately, there have been very few studies published about screening in the Peruvian highlands and the data reported on screening prevalence in Peru is unreliable. We thought it was more important to highlight studies about social networks and cancer screening in the introduction because that is the focus of the paper. We added a sentence about estimated cervical cancer screening coverage in Peru (Page 2, lines 43-46).

(3) Methods. Please check the language through the paper. Some words were repeated, i.e. line 43-48 on page 5,

Author’s Response:

We reviewed the entire paper and made appropriate corrections for language and clarity. We have made major revisions to the paper and corrected the specific typo about repeating “family size and weekly income” (Page 6, line 39).
The hypothesis of this study was women who listed more family and friends as their closest network members and discussed health topics more frequently with their network connections would be more likely to have a history of cervical cancer screening. Therefore, the author should report the hypothesis-related data in the result section and explain more in the discussion. In my view, the screening participant rate was higher in the family-alter than that of in the neighbor-alter. Although no statistical significance was found in the family-alter, there was rate difference existed between two groups (37.4% vs. 52.5%). Please discuss this in the discussion. Moreover, as the sample size of the neighbor group was only 26 compared to 42 of the family group, the author should provide power calculation and related statistical content to prove the reliability of their results.

Author’s Response:

The percentages in Table 3 represent percentages of alters among the 6 alters listed in the screened vs. unscreened group. These percentages to not represent percentages of individuals completing screening. We made the language clearer on Page 9, lines 44-50.

Discussion should be more focused, better organized and in detail based on the aims and the outcome of this study. The author should discuss more regarding the results of their original hypothesis and provide explanations for their results. As the study population was from a rural indigenous community and the questionnaire was very simple, the limitation of the study should be specified, such as the small sample size, the population selection bias, the confounding factors that may affect their results... The discussion might discuss in more detail the importance of the study. For example, what the potential consequence might be from the results. Can their results help provide any information or methods to improve the screening participant rate in Peru?

Author’s Response:

This is a general comment. We hope that with the revised methods, analysis, and results, the paper has become more focused (Page 10, lines 47-52 and Page 11, lines 11-16). Appropriate study limitations have been highlighted and explained Page 12, lines 50-52 and Page 13, lines 11-13.