PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Barriers to Cervical Cancer Screening among Rural Women in Eastern China: a Qualitative Study
AUTHORS	Yang, Huan; Li, Shun-Ping; Chen, Qing; Morgan, Christopher

VERSION 1 - REVIEW

REVIEWER	Dr. David Musoke Makerere University School of Public Health, Uganda
REVIEW RETURNED	18-Oct-2018

GENERAL COMMENTS	This is generally well written manuscript on an important public health subject. Below is some detailed feedback for consideration. - The structure of the abstract seems different from standard ones (unless this structure used is the acceptable by the journal). - Good introduction to the study including the local context in China. - Page 5, line 39: aimed could be used instead of aims. - The authors need to justify why the age group of 35 – 64 years was used in the study. - Authors need to justify why convenience sampling was used. - The authors mention that the sample size was intended to reach saturation, but they do not mention whether data saturation was actually reached. - The authors mention a questionnaire in the methods. Was this part of the planned data collection methods of the study? Did this questionnaire collect qualitative data? - Page 17, paragraph 2 of the discussion: the authors need to state the public health significance of that finding. - Page 18, lines 26 – 34. The authors should avoid short paragraphs in the discussion.

REVIEWER	Brianne Wood University of Ottawa, Canada
REVIEW RETURNED	08-Nov-2018

GENERAL COMMENTS	Abstract – Objective: qualitative interviews don't provide information on "effectiveness". Please reword objective. Abstract – Participants. Also includes information on design/methods/results. Strengths and limitations – generalizeability is not a goal of qualitative research. Therefore it is not a limitation of the study. Researchers should be clearer about the objective of the research and then consider strengths and limitations through that lens. How is there direct relevance to policy-makers?

	Rationale: Page 4 – there is more up to date data (cervical cancer is 4th most common cancer in women worldwide). https://gco.iarc.fr/today/home The first paragraph probably isn't necessary for this paper, since local, contextual information is provided in paragraph 3. Page 5: Please provide reference for "cervical screening uptake is low" (line21) Please provide reference for "most data is quantitative in nature" Final paragraph – the research aim should not include the methods ("qualitative inquiry"), and how will the results of this study contribute to policy and practice recommendations? I think this is a jump and would be more specific. Methods: Page 6 – provide references for descriptive phenomenology. Unclear how or why the study participants were selected (how were these stakeholders identified? How might their responses address the research aim? With what methods were participants recruited?) Were the husbands related to the screen-eligible women? Why only interviewing women who have never been screened? How was this information determined? Why were focus groups and interviews used? Specifically what questions were asked? How were these questions determined? On page 8, authors mention a "guide" for interviews and focus groups. Could this be included with the paper, or summarized in a table? How was the questionnaire developed and for what reason was this given to women? How did researchers "minimize this [power differential] effect during the interview"? Reference? Data analysis References for thematic analysis? Process still unclear. What were the predetermined themes (and how were they determined). Who did the translation of results into English? Is it possible that nuances were missed or not possible to translate? How was the questionnaire analyzed? How were themes across stakeholder groups considered? Results Page 9: "rural women" were included (should be "participated")? How many were invited? Why all rural women? Page 10: what types of health care providers participated? In what capacity do they provider cervical screening? What information was gathered from the "husbands" and why? What themes/codes were predetermined and which ones emerged? Where are the results of the questionnaire? How were the themes different by stakeholder role (i.e. women compared to health care providers compared to husbands)? How did you assess saturation? Discussion: Unclear how this information is useful for policy-makers and practitioners. Do policy-makers and practitioners care about qualitative data? How could they use this data, or what other gaps should researchers address? What information does this study add?

	Overall, the researchers should be clearer about WHY they conducted the research, and reflect on whether their research objective aligns with their methodology. The rationale should focus on local needs, facilitators, and barriers as context is particularly relevant for the acceptability or challenges around screening. There is little reference to the other relevant research, so hard to assess whether this study actually addresses a knowledge gap. The researchers identify limitations which aren't relevant for a qualitative study, as a qualitative study doesn't intend to address generalizeability. The methods are poorly described (more references needed at every point), and the justification for interviews vs focus groups and the different sets of stakeholders is missing. Researchers used a knowledge survey, but the results aren't clearly presented and the rationale was not articulated. I would not recommend this paper for publication because the authors do not communicate why their methods were appropriate for their research aim, do not provide a clear rationale for their research, and they do not indicate that their methods are robust. The authors also communicated that they translated their results to English, although no mention of how this was done or if anything was lost in this phase (certain nuances, etc). The language was a bit clunky and awkward, and could use some editing to be more readable. I think that the work is important though the reporting of the work is incomplete. I need more convincing that this study actually addressed the research objective using robust methods.

VERSION 1 – AUTHOR RESPONSE

Response to Reviewer #1:

General comments:

This is generally well written manuscript on an important public health subject. Below is some detailed feedback for consideration.

Abstract:

1. The structure of the abstract seems different from standard ones (unless this structure used is the acceptable by the journal).

Response: Thank you for your comment. The structure of the abstract used is based on the requirements of the journal.

Introduction:

2. Good introduction to the study including the local context in China.

Response: We are grateful for your positive comment.

3. Page 5, line 39: aimed could be used instead of aims.

Response: Thank you for this suggestion. We have corrected this typo.

4. The authors need to justify why the age group of 35–64 years was used in the study.

Response: This research aimed to understand the barriers to free cervical cancer screening uptake among rural women in Jining Prefecture. The following sentence has been added to the study setting and design section:

“The selection criteria included: women aged between 35 and 64 years (those eligible for free screening and at higher risk), resident in the study townships, not in formal employment, and those who had either never been screened or who had failed to attend a second or third follow-up screening. ”

Methods:

5. Authors need to justify why convenience sampling was used.

Response: Based on our selection criteria, twenty-one (10 from Xingcun, 11 from Tangma) women were recruited to participate in interviews in collaboration with township community partners. Among them, women who had never been screened, who had been screened once and twice accounted for one-third respectively. In fact, we used purposive sampling to identify women representative of those with lesser uptake of screening. We are sorry that we misrepresented our methods with this error. We have revised this in method section as follows:

“Two townships (Tangma and Xingcun) were randomly selected from within the mainly rural areas of Sishui and Yutai Counties in Jining Prefecture in eastern China. Purposive sampling was used to focus research on those were representative of women as less likely to take up screening, identified by local health managers. The selection criteria included: women aged between 35 and 64 years (those eligible for free screening and at higher risk), resident in the study townships, not in formal employment, and those who had either never been screened or who had failed to attend a second or third follow-up screening. Twenty-one women (10 from Xingcun, 11 from Tangma) were recruited in collaboration with township community partners. One third had never been screened, one third screened once, and one third screened twice.”

6. The authors mention that the sample size was intended to reach saturation, but they do not mention whether data saturation was actually reached.

Response: Thank you, we have amended to read:

“The numbers of interviews and focus group discussions were designed to enable a theoretical saturation of qualitative themes, and data collection ceased when no new information was being obtained.”

7. The authors mention a questionnaire in the methods. Was this part of the planned data collection methods of the study? Did this questionnaire collect qualitative data?

Response: The questionnaire was used to assess women participants’ knowledge, was quantitative and modeled on other recent experiences. We have expanded the data collection description to make this clearer:

“Before interviews, a short questionnaire[4] including 17 items was used to assess knowledge on cervical cancer, risk factors, symptoms, and the objectives and processes of cervical cancer screening. Consistent with earlier studies, responses were scored as correct (one point), incorrect or “do not know” (zero points), with numbers of correct scores used to categorize respondents into 2 groups: “ high level of knowledge” (score 9 to 17) or “low level of knowledge (score 0-8).[21 22] ”

References:

Liu T, Li S, Ratcliffe J, et al. Assessing Knowledge and Attitudes towards Cervical Cancer Screening among Rural Women in Eastern China. International Journal of Environmental Research and Public Health 2017;14(9):967.

Bansal AB, Pakhare AP, Kapoor N, et al. Knowledge, attitude, and practices related to cervical cancer among adult women: A hospital-based cross-sectional study. Journal of natural science, biology, and medicine 2015;6(2):324-28. doi: 10.4103/0976-9668.159993

Ahmed SA, Sabitu K, Idris SH, et al. Knowledge, attitude and practice of cervical cancer screening among market women in Zaria, Nigeria. Nigerian Medical Journal 2013;54(5):316-19. doi:

10.4103/0300-1652.122337

We have added sentences in result section, as follows:

“The mean knowledge scores were 4.4±2.3 (range from 0 to 10).”

“The results of this questionnaires showed that the majority of women participants had a low level of cervical cancer knowledge.”

Discussion:

8. Page 17, paragraph 2 of the discussion: the authors need to state the public health significance of that finding.

Response: The following sentence has been added to paragraph 2 of the discussion:

“Accessible and attractive educational products tailored to rural women are urgently needed to communicate accurate information about cervical cancer, those at risk, screening methods, treatments available, and the need for regular checks.”

9. Page 18, lines 26–34. The authors should avoid short paragraphs in the discussion.

Response: We have consolidated paragraphs that contained linked ceoncepts in the discussion.

Response to Reviewer #2:

Abstract:

1. Objective: qualitative interviews don’t provide information on “effectiveness”. Please reword objective.

Response: Thank you for this suggestion. We have reworded objective as follow:

“Therefore this research aimed to gain a deeper understanding of the nature of barriers to uptake of free cervical cancer screening by rural women in Jining Prefecture, using a design that can suggest new policy and practice approaches that may be able to increase future uptake and reduce the burden of cervical cancer.”

2. Participants. Also includes information on design/methods/results.

Response: Thank you for identifying this discrepancy.We have reworded the subheading to **Participants and data collection**. We have also separated sections on design and data collection tools. We note that Abstract subheadings are set by the journal.

3. Strengths and limitations – generalizeability is not a goal of qualitative research. Therefore it is not a limitation of the study. Researchers should be clearer about the objective of the research and then consider strengths and limitations through that lens. How is there direct relevance to policy-makers?

Response: Thank you for this suggestion. It is correct that we used qualitative methods, not in support of generalizability, but rather to provide explanatory information (in the framework of health implementation research) for local policy and practice (in Jining) within the setting of our study. We have the objective as above and reworded limitations as follows:

“Our purposive sampling may bias our findings to those representative of women with lower educational levels and low uptake of services. Some social acceptability bias may have influenced focus group discussion findings, which we attempted to counter-balance with individual interview data. As a qualitative study, there are limits to generalizability beyond our setting.”

In the decentralized Chinese setting of rural health services, both policy and practice gaps are often dealt with at local levels. We feel our work is relevant to the local policy-makers and health managers who raised many of the questions that provoked the research. Some of the imperatives for better

education and communication products are clear from our findings and we have added to the discussion to note our intentions in this area:

“In addition, a policy brief containing findings and implications will be provided to local policy makers and managers, and to community leaders, to inform future planning.”

Rationale:

4. Page 4 – there is more up to date data (cervical cancer is 4th most common cancer in women worldwide). https://gco.iarc.fr/today/home

Response: Thank you for this comment. We have deleted the first paragraph.

5. The first paragraph probably isn’t necessary for this paper, since local, contextual information is provided in paragraph 3.

Response: Thank you for this comment. We have deleted the first paragraph.

6. Page 5: Please provide reference for “cervical screening uptake is low” (line21)

Response: We have added a reference:

Liu T, Li S, Ratcliffe J, et al. Assessing Knowledge and Attitudes towards Cervical Cancer Screening among Rural Women in Eastern China. International Journal of Environmental Research and Public Health 2017;14(9):967.

7. Please provide reference for “most data is quantitative in nature”

Response: Thank you for this suggestion. We have added three references:

Tang T. Investigation on status quo of cognitive, attitude and behavior of women toward cervical cancer screening and analysis of its related factors. Chinese And Foreign Medical Research 2016(03):68-69.

Liu L, Xu J, Yang C, et al. Investigation on status quo of cognitive of 1208 outpatients toward cervical cancer screening and analysis of its related factors. Practical Clinical Journal of Integrated Traditional Chinese and Western Medicine 2016(08):51-52+65.

Zhou W, Shan H, Qi J, et al. Investigation on status quo of cognitive of 1200 women of childbearing age toward cervical cancer and analysis of its related factors. Maternal and Child Health Care of China 2017(18):4510-12.

8. Final paragraph – the research aim should not include the methods (“qualitative inquiry”), and how will the results of this study contribute to policy and practice recommendations? I think this is a jump and would be more specific.

Response: Thank you for this suggestion, we have amended the final paragraph (as presented under ‘Objective’ above) to make it clearer that local policy and managerial concerns at low uptake of free screening were a key part of the genesis of this research.

Methods:

9. Page 6–provide references for descriptive phenomenology.

Response: We have added new references as below. We also note the phenomenological approach is accepted as a basis for explanatory qualitative study designs within the field of health implementation research (Peters et al, page 55); this academic domain strongly influenced our selection of methods and construction of tools, so we have added references here as well. We thank the reviewer for pushing us to make the theoretical frameworks behind our design clearer.

Denzin NK, Lincoln YS. Handbook of qualitative research. Thousand Oaks, CA, US: Sage Publications, Inc 1994.

Peters DH, Tran NT, Adam T. Implementation research in health: a practical guide. Alliance for Health Policy and Systems Research. World Health Organization2013.

10. Unclear how or why the study participants were selected (how were these stakeholders identified? How might their responses address the research aim? With what methods were participants recruited?) Were the husbands related to the screen-eligible women? Why only interviewing women who have never been screened? How was this information determined?

Response: We have added more detailed information into methods section, as follows:

"Two townships (Tangma and Xingcun) were randomly selected from within the mainly rural areas of Sishui and Yutai Counties in Jining Prefecture in eastern China. Purposive sampling was used to focus research on those were representative of women as less likely to take up screening, identified by local health managers. The selection criteria included: women aged between 35 and 64 years (those eligible for free screening and at higher risk), resident in the study townships, not in formal employment, and those who had either never been screened or who had failed to attend a second or third follow-up screening. Twenty-one women (10 from Xingcun, 11 from Tangma) were recruited in collaboration with township community partners. One third had never been screened, one third screened once, and one third screened twice. Fourteen health care providers (7 from Xingcun, 7 from Tangma) including hospital managers, public health directors and medical practitioners whose responsibilities included contact, recording and managing data for screening and screening service provision, were purposefully selected by discipline mix. Five providers took part in semi-structured in-depth interviews and nine in two focus group discussions (four in the first and five in the second group). Four key informant interviews (2 from Xingcun, 2 from Tangma) were conducted with screening-eligible women's husbands who were purposefully selected and weren't related to the women participants. The numbers of interviews and focus group discussions were designed to enable a theoretical saturation of qualitative themes, and data collection ceased when no new information was being obtained."

11. Why were focus groups and interviews used?

Response: Interviews were to allow structured discussion with probes to develop more detailed responses in the privacy of a one-on-one setting suitable to exploration of sensitive topics. The discussions were used to mix healthcare providers from different disciplines to enable efficient collection of multiple disciplinary viewpoints and, through the discussion process, illuminate where those viewpoints contrasted. We are grateful for the chance to expand the methods section with these rationales.

12. Specifically what questions were asked? How were these questions determined? On page 8, authors mention a "guide" for interviews and focus groups. Could this be included with the paper, or summarized in a table? How was the questionnaire developed and for what reason was this given to women?

Response: Thank you for probing for further detail. We have added some description to the Methods and also proposed inclusion of tables with summaries of the questions and discussion topics explored:

Table 1 Overview of question categories in semi-structured in-depth interviews

Knowledge of cervical cancer screening
Have you heard about cervical cancer screening?
What do you understand cervical cancer screening?
Why cervical cancer screening is done?
Barriers to cervical cancer screening
Why don't you take free cervical cancer screening?
Why do you think other women don't take free cervical cancer screening?
Suggestions for overcoming barriers
How do you think these barriers could be overcome?

Table 2 Overview of discussion/question categories for focus groups and provider interviews

Experience in providing screening services
How long have you provided screening services?
What are your responsibilities for screening services?
Barriers to cervical cancer screening
Why do you think women don't take free cervical cancer screening?
Suggestions for overcoming barriers
How do you think these barriers could be overcome?

13. How did researchers "minimize this [power differential] effect during the interview"? Reference?

Response: Thank you for the chance to add detail on this. We have added more information in the data collection section, as follows:

"Researchers took care to identify and reflect on any bias relating to differential status between themselves and interviewees, using introductory explanations on themselves their neutrality and the study purpose, ensuring simple comprehensible language, and maintaining careful non-judgmental listening, in order to minimize bias during the interview process."

Data analysis:

14. References for thematic analysis? Process still unclear. What were the predetermined themes (and how were they determined). Who did the translation of results into English? Is it possible that nuances were missed or not possible to translate? How was the questionnaire analyzed? How were themes across stakeholder groups considered?

Response: Thank you for this suggestion. We have added a new reference:

Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology 2006;3(2):77-101. doi: 10.1191/1478088706qp063oa

We have revised the data analysis section as follows:

"All interviews and focus group discussions were transcribed verbatim and subjected to thematic analysis.[23] We analyzed the data across all stakeholder groups collectively. HY collated interview and questionnaire data across all sites, ensuring consistency supervised by SL for data integrity. HY and SL jointly read all transcripts and developed themes (both pre-determined by our design and emerging), a topic index and code structure. HY, SL and QC undertook coding and thematic consolidation, with any differences discussed and resolved through consensus. These analyses were performed in Chinese and then translated into English by HY for further review by SL, QC and CM. Care was taken to ensure data validity in the translation of dialect and colloquialisms."

Results

15. Page 9: "rural women" were included (should be "participated")? How many were invited? Why all rural women?

Response: Thank you for this suggestion. We have changed to wording to "participated" has been used. We have added a sentence in results section:

"There were no refusals of consent or drop-outs during participation, with a total of twenty-one rural women participating."

We selected rural women to match the purposive sampling driven by local policy and practice gaps and the implementation research approach that under-pinned the study design, to meet the questions raised specifically in our setting; in particular in relation to rural residents' eligibility to access National Cervical Cancer Screening Program in Rural Areas (NCCSPRA) and their higher burden of untreated cervical

cancer. We have made the purposive sampling criteria clearer (also in response to Reviewer 1's comments) and apologise for lack of clarity on this in the initial submission.

16. Page 10: what types of health care providers participated? In what capacity do they provider cervical screening?

Response: Health care providers included hospital managers, public health directors and medical practitioners. They are responsible for contact, recording and managing data for screening and screening service provision. A mix of views from different disciplines and responsibilities was sought.

17. What information was gathered from the "husbands" and why?

Response: As above, we have clarified types of questions utilized. We wanted to ascertain basic knowledge and attitudinal factors from partners' perspective that may complement or contrast with that of the women participating in the study. Overall we found that male partners knew little about cervical cancer screening but were overall supportive of screening based on a general sense that health care was important.

18. What themes/codes were predetermined and which ones emerged?

Response: Themes were predetermined from the concepts of acceptability and appropriateness of services, from within the implementation research discipline that informed our study, elaborated through possible policy and practice gaps to develop categories for the interview and discussion structure. We sought emerging themes beyond these; although we did not find new major themes, there were a number of emerging sub-themes, for example: the influence of neighbours and the implication of travel for work. Themes were used to structure results and discussion in the paper.

19. Where are the results of the questionnaire? How were the themes different by stakeholder role (i.e. women compared to health care providers compared to husbands)?

Response: The clarification of how the questionnaire was used, and the information it generated has been provided in the responses above. The focus of the study was on the women's perspective, who reported at least some aspect of all themes reported in our results. Within these, healthcare providers focused more on likely knowledge gaps, fear of cancer and screening diagnoses, and possible cultural barriers, while male partners emphasized the generic fear of cancer.

20. How did you assess saturation?

Response: There was rapid assessment of findings, as elaborated in the expanded Methods section discussed above, which included review for emerging themes and consistency of report. Saturation was assessed when interviews and discussions were not contributing new information.

Discussion:

21. Unclear how this information is useful for policy-makers and practitioners. Do policy-makers and practitioners care about qualitative data? How could they use this data, or what other gaps should researchers address? What information does this study add?

Response: As noted above, in the decentralized Chinese health system, both policy and practice are enacted locally. This is especially the case for selective policies addressing populations with specific designations such as the rural poor, who receive fee exemptions. This study emerged from local managers' concerns with low uptake of a free service that was not achieving expected coverage, designed in collaboration with a nationally respected health management school. While it is true that many Chinese policy-makers place confidence in quantitative effectiveness studies, this research was an exercise in demonstrating to local managers the power of qualitative research in providing locally-relevant explanations for health service uptake questions. We have noted earlier, the inclusion of new wording on engagement with policy-makers. We have also expanded discussion, as follows:

"The mix of data sources across women, their husbands, and healthcare providers enabled triangulation of themes and identification of varying viewpoints. The qualitative methods with data saturation provided detailed and rich responses on barriers to cervical cancer screening for this group of rural women; available to inform providers and other researchers. In addition, a policy brief containing findings and implications will be provided to local policy makers and managers, and to community leaders, to inform

future planning. Our study acknowledges the usual limitations of qualitative research, our purposeful sample may under-represent some women, and the peer effect in the focus group discussions may have influenced providers to give answers that they perceive to be more socially acceptable. As a qualitative study, our findings relate primarily to our study setting, and our recommendations should be tested with larger studies."

22. Overall, the researchers should be clearer about WHY they conducted the research, and reflect on whether their research objective aligns with their methodology. The rationale should focus on local needs, facilitators, and barriers as context is particularly relevant for the acceptability or challenges around screening. There is little reference to the other relevant research, so hard to assess whether this study actually addresses a knowledge gap. The researchers identify limitations which aren't relevant for a qualitative study, as a qualitative study doesn't intend to address generalizeability.

Response: We hope the revisions above made the study origins and objectives clearer, as well as the suitability of qualitative research to answer the questions raised. We are grateful to be pushed to increase the clarity of our submission in this way.

23. The methods are poorly described (more references needed at every point), and the justification for interviews vs focus groups and the different sets of stakeholders is missing. Researchers used a knowledge survey, but the results aren't clearly presented and the rationale was not articulated.

Response: Similarly, we hope the revisions above have demonstrated more clearly how we undertook the study and why certain methods were chosen. We have also tried to be clearer about the appropriateness of qualitative research, and avoid terminology that should be reserved for effectiveness studies.

24. I would not recommend this paper for publication because the authors do not communicate why their methods were appropriate for their research aim, do not provide a clear rationale for their research, and they do not indicate that their methods are robust. The authors also communicated that they translated their results to English, although no mention of how this was done or if anything was lost in this phase (certain nuances, etc). The language was a bit clunky and awkward, and could use some editing to be more readable. I think that the work is important though the reporting of the work is incomplete. I need more convincing that this study actually addressed the research objective using robust methods.

Response: We hope the elaboration of methods and objectives provided above have clarified these issues to allow publication. We have also tried to be clearer about the theoretical frameworks behind our work. This was a pragmatic piece of research in a relatively under-resourced setting that aimed to respond to a pressing local health service problem by using qualitative research to provide explanations that were richer than other approaches could generate. While we were not in a position to apply more extensive theoretical approaches such as the Ottawa Decision Support Framework, we did draw on well accepted concepts underpinning qualitative research as outlined within the discipline of implementation research as defined by the World Health Organization's Alliance for Health Policy and Systems Research. We feel such approaches are well suited to the struggle to provide acceptable and appropriate services in settings such as rural China. As noted, we appreciate being challenged on the origins, objectives, and robustness of our methods, and are grateful for the chance to clarify these.

VERSION 2 – REVIEW

REVIEWER	Dr. David Musoke Makererere University School of Public Health, Uganda
REVIEW RETURNED	21-Dec-2018

GENERAL COMMENTS	The authors have satisfactorily addressed my comments. The manuscript may therefore be accepted for publication if other reviewers are happy with the revisions.