Author’s response to reviews

Title: Improving the validity, relevance and feasibility of the continuum of care framework for maternal health in South Africa: a thematic analysis of experts’ perspectives

Authors:

Mamothena Mothupi (mamothena@gmail.com)
Lucia Knight (lknight@uwc.ac.za)
Hanani Tabana (htabana@uwc.ac.za)

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Author’s response to reviews:

Dear Editor,

Manuscript: HRPS-D-19-00263
"Improving the validity, relevance and feasibility of the continuum of care framework for maternal health in South Africa: a thematic analysis of experts’ perspectives"

Thank you for your communication about our manuscript "Improving the validity, relevance and feasibility of the continuum of care framework for maternal health in South Africa: a thematic analysis of experts’ perspectives" (HRPS-D-19-00263). We are pleased to submit a revised version of the manuscript, based on the reviewers’ comments, and hope that it will considered for publication in Health Research Policy and Systems. The revisions are done in track changes (Final: Show Markup), as a result please note original line numbers have shifted and we use the new lines in our response.

Our point-by-point response to comments, addressed to each reviewer, is detailed below.

All Reviewers note: We have reconfigured Table 1 to include information on stages of the continuum, in alignment with Figure 1 and according to request by Reviewer #2. Indicator names and definition remain the same.

Reviewer #1:

Thank you for your time and your comments, they have really helped to enhance the manuscript and provide clarity for our potential readers. Please find below a point by point response to each comment you provided.
In the background section starting line 67. Please review the whole section about maternal mortality as the authors are mixing data sources and quite confusing for the reader. Please also note that the target of MMR of 70 is a global target and not necessarily a national target.

• Please see Line 79, we have modified the statement to show a national target for MMR

• Please note that we have modified line 67-69 to make it clear that the source is an article that reviewed multiple sources of data, from which a range for the MMR was adopted.

On line 98 it reads; framework for maternal and child health suppose the focus is maternal health.

• Please see line 110, we have modified this statement accordingly

Line 116, please add reference to the preliminary study

• Please line 119, we have added the reference. The reference is a research note under review at BMC Research Notes.

Line 121, "…we ask expert to articulate their new collective meaning….". Please elaborate as not clear. Please indicate how the key informant were selected.

• Please see line 124 to 125 we modified statement to clarify. From “"…we ask expert to articulate their new collective meaning…." to “we ask experts to reflect on their potential use within the continuum of care framework”.

• Please see 229 to 231 in the Methods section, we indicate how key informants were selected, i.e. mapping exercises and snowballing techniques.

Attached the interview guide as an annex
• The interview guide is now attached as an annex.

Line 165 it reads: "we conducted an expert mapping…." Which expert and how was the mapping done?

• Please see line 229-231 we clarify that experts are potential participants, and the mapping was done by using multiple sources of information to populate a list of all potential participants.

Line 173 it reads; about 19 experts were contacted. How many were contacted?
• Please see line 239, we clarify that 19 experts were contacted.

Line 175 it reads; face to face and telephone interviews. Please discuss biases using different interview methods.

• Please see lines 241 to 246 where we discuss biases using different interview methods and how we tried to mitigate them.
Line 199 it reads; "we used a transparent and systematic approach…" please describe the approach.

• Please see line 279 to 283 where we describe the approach. More detailed discussion of the approach is beyond the scope of the study and contained in two other manuscripts as cited.

Line 207 and in the parts of the manuscript it reads; that the finding can be used in other LMIC settings. Please justify this statement.

• The continuum of care framework used in the study is based on evidence based interventions applicable to LMIC contexts. In addition, LMICs share some systemic challenges to improving maternal health including poor quality of care, lack of action on social determinants of health, and health system issues (including monitoring and evaluation of processes/interventions and health outcomes, which this study contributes towards). We justify the statement in Line 289 to 292 of the manuscript.

How was the coding done? How many authors took part in coding and analysis?
• In line 267-273 we elaborate on the coding and authors.

Line 492 it reads; "similar studies can be conducted in……" please justify this statement.
• Please see line 602-603 for the justification for the statement.

Line 501 it reads; "……... part of an on-going project……" which project?
• Please see line 610-613 we clarify that it is part of ongoing research and describe it.

Line 518 it reads, " we recommend similar studies in other LMIC……..." on which basis?
• Please see line 631-636, we add a justification for our recommendation.

Please discus strengths and limitations of the study.
• Please see line 616-621 where we discuss the strengths of the study, as well as the section on limitations in the Discussion (line 605-613).

Reviewer #2

Thank you for your review and commendation of our study. We have noted your suggestions and comments and provide specific responses below.

“I would have hoped though there could have been some thematic analysis of which indicators are the best to remain or remove. Please include this into the discussion.”
• Please see line 538 to 541 where we add in the discussion some thematic analysis of indicators to remove and retain, based on our findings. Please note that the study does not provide a final list of indicators to keep, but we assess what is available in order to make recommendations for the future. Data availability will also affect the final list of indicators that can be used, and this differs from area to area in the country. There are also quantitative methods to check redundancy of indicators and develop a smaller list which were beyond the scope of this particular study.
For example, given the feedback you received what indicators would likely fall into the acceptable category, which indicators should be combined to create the co coverage suggested for multi-sectorial?

• In addition to line 606-608 which highlights that the study does not establish the final list of indicators, please see line 541-542 where we add future work that would be needed to devise a to continually improve indicators to make them acceptable. In addition, lines 610-613 we add under the limitations section that combining indicators would require methods that are part of our research project but not this particular study.

Figure 1 does not actually specifically match the list of indicator in Table 1.
• We have reconfigured Table 1 to place indicators at relevant stages of the continuum of care in alignment with Figure 1.

Would be nice to know more about where these indicators come from as a few do not seem to make sense and there are many that are multi-sectorial that may in actuality be measuring the same thing.

• We have added a column for indicator source in Table 1. In addition, please refer to trustworthiness statement in line 275-285 where we elaborate on the indicator selection process. In terms of multi-sectorial indicators, each domain of the continuum of care can be measured by more than one indicator that give slightly different information. For instance, water quality in the health system is measured by bacteriological samples while in the survey, the perception of safety by respondents is measured. As stated in the limitations, our study does not eliminate these indicators but present what is available and expert opinion on it. The final list of indicators can be derived through other consultative processes, is dependent on data availability, and some dimension reduction quantitative methods such as PCA. Please see limitation section line 607-613.

Specific indicator questions I have are why ANC number of visits not an indicator?

• The latest National Indicator Data Set (NIDS) for South Africa, from which we assess available indicators for health services in this study, does not include an indicator for the ANC number of visits. The DHIS, from which the NIDS is measured, also does not collect data on number of visits.

Why is syphilis screening not an indicator?

• The NIDS does not contain an indicator for syphilis screening. The available indicators are for treatment and prevalence. Since continuum of care is a health service delivery framework, we focused on the inputs, process and output indicators and not outcomes. Thus, for syphilis we focused on provision of treatment among positive females. There are exceptions for outcomes, for example couple year protection rate (Indicator 4, Table 1), whose numerator is the provision of the different family planning services provided.

I do not understand indicator 18 outreach to those women who already had a post-natal visit???
Not all new mothers in South Africa go for postnatal visits within six days, and part of the job of community health workers and outreach teams is to expand these services by reaching them in their households. So the care will be for women who have not had a postnatal visit.

Reviewer #3

Thank you for your comments, which have really given us something to think about and have certainly strengthened the manuscript. Please see a point by point response to your comments below.

It is clear that this manuscript represents part of a larger body of work, and that could be clarified in the Background and Study Aims section, so it is clear how it fits into the larger project, and what it does and does not aim to contribute.

• In line 119-134 of the Background, we now make the distinction between previous studies and the current study, and explain how it fits into the larger project.
• Similarly, line 189-142 offers this clarification in the Study Aims section.

Overall, this manuscript could benefit from editing for clarity of the exposition of its arguments, and greater precision and definition of terms and articulation in the body of the text some of the information that is contained in the Figures and Table. The paper is long and would be stronger if the arguments could be organized a little more clearly, presented a little more concisely, and language tightened up for precision.

• Please see in track changes the edits that were made to the paper to make it concise and the language more precise. For example, the background was reorganized to make the argument clearer and to be more concise. Please also see edits in the discussion to make the section clearer and more concise. We have now defined terms such as continuum of care, and others such as feasibility and relevance have been revisited as suggested (please see other comments where we make specific examples). Please also note the figure legend on line 871-888).

Two main concerns follow. First, the paper seems to mix or conflate validation of specific indicators and validation of the conceptual framework for continuity of care in maternal health. This paper deals mostly (but not exclusively) with validating the framework, not specific indicators. The authors state this at line 501 in the Conclusion, but it would be important to state this up front in the Study Aims, to clarify that this paper focuses mainly on stakeholder consensus on the utility of the framework, not specific indicator validity.

• In line 190 in the Study Aims, we now clarify that the paper focus on only selected indicators and the framework.

Alternatively, the results section could be divided into two sections: feedback on the framework, and feedback on specific indicators.

• We have opted for clarification of the focus of the study, please see above.

Second, it seems that validation of the framework should start with its utility, relevance, and effectiveness as an organizing structure for program planning and implementation to achieve specified objectives, if it is to be useful for M&E. The participant quote at line 235 sums
this up: "Frameworks are useful for program design and to coalesce stakeholders around an idea; if there is buy in they can get everyone aligned around the same goals and strategies...It has to be the foundational basis if it is to be useful for monitoring and evaluation. "In the Discussion, starting on line 412, why does planning come after accountability? This reflects an intrinsic issue in the paper: monitoring and accountability should derive FROM the planning framework, to verify how desired outcomes are being met or not met. This does not come through clearly.

• In line 499-500 we fix the language to put planning before accountability. The continuum of care framework in Figure 1 was produced by national stakeholders/decision makers. The strategic goal to deliver and monitor services along the continuum has been expressed in the current strategic framework for maternal, child, newborn and women’s health and nutrition, as well as other primary health care strengthening plans such as the Ideal Clinic. The paper aims to take the conversation forward by demonstrating that we can start with what we already have, that is the existing indicators. The focus of the study being how the potential users of the framework and the indicators interpret potential utility. Part of the gap in operationalizing the continuum of care framework has been the lack of reflection by decision makers on strategic objectives that could be achieved by monitoring and evaluation and this study reveals some of them to be, for instance, supporting intersectoral collaboration.

• To make sure these issues come out more clearly, we have made the following changes:

  Background: line 95-96, we state the development of the continuum of care service framework by national stakeholders, lines 110-111 we express more clearly the envisioned monitoring and evaluation of maternal health (among other priority areas of health) from a continuum of care perspective; line 110-116 we make clear that the strategic goal exists, and our contribution is to explore the monitoring approach. Discussion: we now state the two fold potential use of our findings which are to refine the continuum of care framework itself, and to support strategic objectives such as intersectoral collaboration.

If a desired outcome of the approach to maternal health planning and programming laid out in the framework is multisectoral collaboration, what is the best way to evaluate this? If it is continuity of care for each individual woman across time or settings, how is this construct defined and what is the best way to measure it? If it is addressing social determinants of health, how are these defined and what is the evidence that 1) they are linked with health and survival;

2) that measures to track them are valid?

• Our findings show (line 449-454) that the framework has to be refined to include indicators of co-coverage, for instance. Indicator formulation and implementation in monitoring and evaluation would be part of a consultative normal process that is outside the scope of the study. Our study only makes the recommendation based on respondents. The concept of continuum of care used in this study is derived from the population level perspective as defined by Kerber et al (2007). [Kerber KJ, de Graft-Johnson JE, Bhutta ZA, Okong P, Starrs A, Lawn JE. Continuum of care for maternal, newborn, and child health: from slogan to service delivery. Lancet. 2007;370(9595):1358–69. ]. The indicators that are used also reflect services provided at the population level, and not the journey of one woman within the system. In another paper we delve into individual indicators and why they are relevant to maternal health outcomes. We also discuss why each indicator is valid. Our study is based on a framework established by national
stakeholders, which also guided which intersectoral factors/social determinants of health are important to consider. Like health services, these are evidence based.

- Overall, we now make it clearer that articulating the ways in which the framework can be applied to maternal health planning and programming was an important outcome of this study. The qualitative methodology gave us expert ideas from which it emerges that we can assess comprehensiveness and improve service provision and reporting requirements by all sectors. In addition, if the framework is refined, it can be used to support multisectoral collaboration. This point is now made clear in the conclusion (line 616-626).

A few specific comments:

1. It would be helpful to define the terms "maternal death" and "pregnancy-related death" and talk briefly about the difference between them, and why it matters from a policy and programmatic decision-making standpoint.
   - We have changed the maternal death terminology to maternal mortality. Please see line 73-76 where we elaborate on pregnancy related deaths/mortality.

2. It would be important to clearly define the continuum of care concept/framework. Continuity can be conceived across time, settings, disciplines, and/or the woman’s maternity episode or whole life course. This is better defined in the supplemental materials/text to accompany the figure, but it is so important to this study that I believe it needs to be in the body of the paper. A brief review of the literature on care continuity models in maternal health would strengthen the background section.
   - We have now included the definition of continuum of care as used in this study (line 88-96). In the background (line 83-89) we also state that continuum of care in this study is from pre-pregnancy and beyond postnatal period for the woman. Line 845-862 is the figure legend which describes the framework in detail. In the background we now include reference to a systematic review which synthesizes models used in maternal health (107-109).

3. Related to the last comment, the authors have adopted a specific policy framework relative to a construct of continuity of care across time and settings: the provenance of this framework should be described as well as its intended use. Is this a national policy framework, an academic framework? Was is developed to frame health policy and planning, or only monitoring? Who was involved in developing it? Some more detail here would be helpful.
   - In line 95-96 we now state that national health system stakeholders (department of health and partner organizations) were involved in the development of the framework. The original purpose of the framework was to promote health service delivery (guiding relevant policy and planning) (line 97-100). Our study uses available indicators to describe how the framework can be integrated and used to monitor comprehensive service delivery across the continuum, as is the strategic objective of the department.

4. Attention is needed to the definition of Validity. There is ongoing attention to this subject in the literature. I recommend that the authors read this relevant WHO MoNITOR paper (and look out for additional resources and guidance on indicator validity and validation from this group): https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0224746
   - In this study we have to use the definition of validity that we introduced to the participants. We have reviewed the recommended paper and find the result on the meaning of validity aligned with the definition used in this study. i.e. “Respondents widely shared the sentiment that
indicator validity means different things to different stakeholders, but that it essentially related to how well an indicator measures what it is intended to measure.” (p4, Results). In this study, validity means “The suitability of indicators for measurement of their specific domain(s) and have a relationship with maternal health outcomes” (Box 1, p13). We reflect in the discussion, based on the recommended source, there is a need to constantly re-evaluate indicators as part of an on-going process to improve their validity (line 541-542). In methods we also highlight that although our study separates the concepts others (such as the MONITOR paper) have found they may be intertwined (line 264-266).

5. Attention is needed to the definition of Relevance: It is possible for something to be understandable and not relevant, so further precision is warranted. The description in the text is better than the definition in the box.
   • The Box 1 definition of relevance has been updated to better align with the definition used in the text. We also noticed a mix up of the definitions of relevance and feasibility during manuscript drafting and have edited accordingly.

6. Attention is needed to the definition of Feasibility: It is possible for a measure to be useful in theory but not feasible to collect. Here, it would strengthen the paper to describe the main point from Blas et al's study with regard to feasibility, since utility and feasibility can be seen as discrete constructs.
   • In line 261-264 we elaborate on feasibility according to Blas’ definition. The Box definition of feasibility has also been edited accordingly.

7. The discussion starting at line 320 of "modification of indicators to reflect subgroups" seems to be addressing the need for disaggregation/stratification of data to be able to measure equity. This language is used elsewhere, toward the end of the discussion, but it more accurate.
   • Line 405-406 now points to disaggregation for equity analysis

8. Indicators to measures social determinants are included and labeled in the Table of Indicators, but it would strengthen the paper to include a brief definition or description of what is meant here by social determinants of maternal health.
   • A description of social determinants of maternal health is now included in line 100-104 based on WHO framework for policy to action on social determinants of health.

9. The discussion about validating whether there is a tight correlation between a proxy that is measured to indicate an outcome or construct of interest which cannot easily be measured directly is an important point. Here, unlike the bulk of the paper, the focus is on the validity of individual indicators, not the framework as a whole. Does this belong in this paper, or would it be better in the forthcoming paper referenced on line 501?
   • The focus on the specific domains of empowerment, nutrition and quality of care was used in this study as a case to delve into the thematic issues affecting the validity of the indicators in general. The individual indicators used present an opportunity to make concrete examples from the indicator framework. We will make sure this comes out clearer in the paper, please see additions in line 201-204 in the Methods section.
10. What is meant by "the multisectoral nature of the indicators", and "a co-accountability mechanism for maternal health outcomes"? The participant comment starting on line 341 points to the problem, which is about coordinated and concerted planning and implementation, not just monitoring: "…nothing much happens in multisectoral action…" See comment above: If a desired outcome of the framed approach the maternal health planning is multisectoral collaboration, what is the best way to evaluate this? Other global MNH measurement initiatives have found that there are no indicators to track and assess intersectoral collaboration. This is an important point.

• In the Discussion we raise the point that there are no indicators for intersectoral collaboration, and in our findings participants make suggestions such as co-coverage which can be introduced in the future to improve the framework (line 449-453, line 574-578). Multisectoral collaboration then becomes one of the potential outcomes of application of the framework in planning and implementation.

• “Multisectoral nature of indicators” – as opposed to intersectoral, the framework contains indicators for monitoring health and non-health sector services.

• “co-accountability mechanism for maternal health outcomes” – accountability broadly defined includes planning and implementation, not just monitoring of the actions on the framework. Co-accountability using the framework means the sectors ensure not just monitoring but planning for and implementation of services, all geared towards a common goal of addressing maternal health outcomes.

11. On line 369, the point about harmonization is important, but it is more accurately the harmonization of definitions and metadata, not indicators, i.e., the age range to define childhood is part of the indicator metadata. Here you can have the same indicator attempting to measure the same construct, but defining its terms for data collection differently.

• Please see line 455-456 for this modification.

Thank you again for the opportunity to revise this manuscript; and we hope that the changes made will be satisfactory and have improved it significantly.

Yours sincerely,
Mamothena C. Mothupi