Author's response to reviews

Title: Integrating national community-based health worker programmes into health systems: a systematic review identifying lessons learned from low- and middle-income countries

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Version: 4 Date: 27 August 2014

Author's response to reviews: see over
The Editor,
BMC Public Health

Dear Sir / Madam,

**RE: Responses to the comments by reviewers on the manuscript entitled: “Integrating national community-based health worker programmes into health systems: a systematic review identifying lessons learned from low and middle income countries.”**

Reference is made to the above subject matter.

We would like to acknowledge receipt of the comments/inputs from the Reviewers’ with thanks.

Kindly be informed that adjustments have been made in the manuscript to meet the inputs from the Reviewers. For clarity each comment is quoted separately with our response following below.

We have with these revisions tried to respond thoroughly to the important inputs made by the Reviewers. We hope that with these amendments the manuscript will be favourably considered for publication.

Find below the responses to the comments for your attention.

Yours faithfully,

Joseph M Zulu.
Reviewer: Johanna Hanefeld

**Minor Essential Revisions 1**

“This is a great and very meticulously done paper. Congratulations. You clearly have done a great deal of very meticulous work.”

Response

Thank you very much for compliment.

Comment 1

“A couple of small comments. I would reference a health systems framework in that section of the paper.”

Response

We apply the health systems framework described by van Olmen et al [24]. “We define integration as the process or extent and pattern of acceptability and adoption of the health intervention – in this case a CBHW programme – into critical functions of a health system [23, 24, 25, 26].” (Lines 172 – 174).

Comment 2

“Main comment though, based on your findings re integration of CHW, could you speak a bit to the bigger questions surrounding them? Not just on integration but their role whether they are the answer or not, what will happen with these programmes as they mature. You have digested the literature to answer your question but some further reflections in the conclusion would be nice. Also any reflection on research frameworks you would think helpful to understanding and exploring this, such as health systems as complex and adaptive systems would be really interesting to hear.”

Response

As suggested, we have done some further reflections in the conclusion on the bigger questions surrounding CBHWs such as their role whether they are the answer or not, what will happen with these programmes as they mature as well as research frameworks that would be helpful in exploring this subject as reflected below:

“As they mature, CBHW programmes have the potential for contributing towards reducing the huge human resources for health gap and extending primary health care services to ‘hard to reach’ groups and areas if appropriate attention is given to their integration processes in the health systems. Considering that health systems are interconnected, dynamic and complex in nature, and that they consist of independent agents whose behaviour is based on physical, psychological and social rules, the use of other research frameworks which acknowledge health systems as complex and adaptive systems would help provide additional insights on this subject.” (Lines 739 -746).
Reviewer: Anne Liu

Comment 1
“Lines 43:” What is meant by “factors that facilitated the integration process included the countries’ human resources for health problems…”? The magnitude of the problem? Please clarify and potentially reword.”

Response
Thank you very much for this and the other comments. Kindly be informed that we have clarified what we mean by factors that facilitated the integration process: “Factors that facilitated the integration process included the magnitude of countries’ human resources for health problems and the associated discourses about how to address these problems.” (Lines 43-45).

Comment 2
“Lines 44-45: “Perceived relative advantage of national CBHWs with regard to delivery health services over other programmes” – would suggest specifying what is meant by other programmes (i.e. – vertical disease based programmes? HR programs such as nursing/midwife programmes?)”

Response
We have revised the sentence to clearly show which programmes the CBHWs have relative advantage over: “the perceived relative advantage of national CBHWs with regard to delivering health services over training and retaining highly skilled health workers.” (Lines 45 - 47).

Comment 3
“Line 55: “Awareness” being a conclusion can probably be strengthened. Would suggest concluding that program should design their scale-up strategy differently based on the type of integration method and current contextual factors”

Response
The conclusion has been strengthened as follows:
“CBHW programmes should design their scale-up strategy differently based on current contextual factors. Further, adoption of a stepwise approach to the scale-up and integration process may positively shape the pattern and extent of national CBHW programme integration into health systems.”(Lines 56-59).

Comment 4
“Line 75: would suggest saying “community-based” treatment supporters or “home-based treatment supporters”

Response
One of the suggested terms has been adopted: “The term CBHW is broad in scope and includes home-based care providers, community health workers, community-based treatment supporters, and traditional birth attendants [6].” (Lines 75-76).

Comment 5
“Line 162-171: This paragraph is a bit unnecessarily theoretical. I would suggest stopping just at the definition of integration and what you mean by it in the context of
CHW programs – suggestion: “integration as the process or extent and pattern of acceptability and adoption of the health intervention – in this case a CBHW program – into critical functions of a health system. This includes integration CBHW programs into the existing governance and leadership of an existing national health system towards the shared outcomes and goals of the existing health activities.”

Response
The paragraph has been revised as follows:
“We define integration as the process or extent and pattern of acceptability and adoption of the health intervention – in this case a CBHW programme – into critical functions of a health system [23, 24, 25, 26]. These include the existing governance and leadership of an existing national health system as well as the shared goals and outcomes of existing health activities.”

Comment 6
“In general, perhaps having a chart to summarize for each category and each country whether they are integrated or not would be a helpful snapshot that clarifies how the different concepts are linked.”

Response
Integration status has been summarised in table form as shown in table 5 below:
Table 5 Integration status of national CBHW programmes (Lines 331-334 as well as 1096).

<table>
<thead>
<tr>
<th>Health systems elements [24]</th>
<th>Name of CBHW programme and integration status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CHA-Brazil [3, 16, 31, 35, 36].</td>
</tr>
<tr>
<td>Governance and leadership</td>
<td>Full integration</td>
</tr>
<tr>
<td>Financial resources</td>
<td>Full integration</td>
</tr>
<tr>
<td>Human resources</td>
<td>Partial integration</td>
</tr>
<tr>
<td>Service delivery</td>
<td>Partial integration</td>
</tr>
<tr>
<td>Population</td>
<td>Full integration</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Full integration</td>
</tr>
<tr>
<td>Goals</td>
<td>Full integration</td>
</tr>
</tbody>
</table>

Comment 7
“Line 626: this paragraph may fit better in the “community perspectives” section rather than” health systems characteristics” section. If you were talk about ANM or midwife resistance to salary it may fit better within health system characteristics.”

Response
The paragraph has been moved from “health systems characteristics” to “community perspectives” (Lines 565-570).
Comment 8
“Line 297 appears to be slightly redundant. Is this sentence necessary?”

Response
The line has been revised to make it clear as reflected below:
“The fifth component of the framework, broad context, has been discussed within the other four components of the framework (the characteristics of the problem, attributes of the intervention, the adoption system, and the health system characteristics).” (Lines 307-310).

Comment 9
“Line 464: would replace “good service delivery” with “high quality service delivery. In general would stay away from using “good” as a descriptor too often (which is subjective).”

Response
“good service delivery” has been replaced with “high quality service delivery” as shown below:
“High quality service delivery may be triggered in situations where national CBHWs see their incentives as consistent, predictable, appropriate and fair in relation to their tasks, as well as where they have a reasonable workload, good training, and regular supervision from professional health workers [2, 6, 19, 34, 35, 36, 44, 46, 47, 56].” (Line 425).

Comment 10
Line 736: typo; should be “Strengths”

Response
The suggestion has been adopted as follows: “Strengths” (Line 706).

Comment 11
Line 759: Human Resources for Health doesn’t need to be capitalized

Response
The capitalisation has been removed: “human resources for health” (Line 728).

Comment 12
“Line 55-57: Unclear how the article concludes that the adoption of a stepwise approach towards scale-up may positively influence CBHW integration into health systems. The article focuses on constraints and integration methods; did not see information on how scale-up approach should change based on these results.”

Response
Information on the rapid scale-up approach of CBHW programmes has been included in the results section as reflected below:
“In order to reach national scale, some countries have rapidly scaled up or deployed national CBHW programmes in a relatively short period of time. The Pakistani and Indian programmes, for example, deployed 90,000 and 462,000 CBHWs respectively over the last decade, while the Ethiopian HEW programme deployed 34,000 workers over a period of four years. This rapid scale-up of CBHW programmes generated several challenges in terms of
quality and management of the programme [16, 40, 41, 49, 50, 51, 52, 53, 54, 55].” (Lines 402-408).

Comment 13
“Lines 76 and 85: There is a lack of consistency here – i.e., following 1978 countries started engaging in delivering PHC, then on line 85 – decline in interesting the 1980s. An extra line either specifying late 1980s for when interest began to decline can help to clarify this. Also, a number of countries already began engaging CBHWs before 1978 – if you describe this it could also help with the continuity and getting a sense of the timeline.”

Response
The timeline has been revised as suggested: “Although some countries had already started engaging CBHWs in delivering primary health care before 1978, the number of countries increased further following the Declaration of Alma Ata in 1978 [2, 6, 7]. Article VII.7 of the Declaration recognised CBHWs as being vital to improving access to primary health care.” (Lines 77-79).

“However, there was a decline in interest in CBHW programmes in the late 1980s [9]. The reduced interest in the programmes resulted from the challenges that the first CBHW programmes experienced, and which reduced their programmatic effectiveness [2, 3, 6].” (Line 86).

Comment 14
Line 104: Please relook at this statement. The early CBHW programs that had challenges were also national programs (so it was not that moving towards implementing national programs would resolve challenges faced by early CBHW programs).

Response
The statement has been relooked as shown below:
“In an attempt to increase the potential for delivering positive health outcomes at a large scale, there was a move towards implementing national CBHW programmes [6, 10].” (Lines 107-108).

Comment 15
“Line 104-109: this is not quite the point that the Liu et al article was trying to make; the article was focused more on how there are gaps and challenges in the deployment of large scale programs and learning from innovations from NGOs can help to address these gaps (not that large scale programs are likely to deliver good health outcomes). The main conclusion from the article was that large-scale programs have the potential to deliver positive health outcomes with appropriate attention to integration of strong management systems. Please reword or revisit this paragraph.”

Response
The paragraph has been revised in line with the point that the Liu et al article was trying to make: “Liu et al. [6] suggest that large-scale programs have the potential to deliver positive health outcomes if appropriate attention is given to ensuring that they have strong management systems.” (Lines 110-112).
Comment 16
“In general, please define what is meant by integration earlier on in the background; I.e. –are you hoping to focus on integration into government program as a challenge via policy integration and national recognition? Or integration challenges through ability for existing health workers to work with CHWs? Or integration in the sense that there are challenges in implementation despite buy-in from government? Though this is captured well through the more specific country snapshots, bringing it out earlier in the background can help to set the tone of the article. Would suggest perhaps listing out categories of integration and give an example for each one what it means to be integrated.”

Response
“A definition of integration has been included earlier in the background: “We focus on the integration of existing CBHW programmes into official training, supervision and civil service systems, as well as the acceptability of the CBHWs to other health workers and the community.” (Lines 137-139).

Comment 17
“Line 202: According to this criteria, the Brazil program does not qualify. The Brazil program started technically in Ceara in 1986 though they did not scale until early 1992. Would suggest rewording to say “should have been scaled nationally in or after 1990.”

Response
The sentence has been revised as suggested in order to catch the Brazil programme “it should have been scaled nationally in or after the 1990s (the period when there was renewed enthusiasm for CBHW programmes in LMICs); and it should have been in operational for not less than five years.” (Lines 212-214).

Comment 18
“Line 330: it’s not quite clear what you mean by “fully integrated” versus partially or partially integrated (line 348) or sub-optimally integrated (line 338) or not integrated (354). Please expand upon the definition on line 162 to include this. Also, line 348 – What is meant exactly by partially integrating into population and health service delivery?”

Response
The terms “fully integrated”, “partially integrated” and or “not integrated” have been explained as indicated below:

“Meanwhile, the integration status of health interventions into health systems can take different forms which include being fully, partially or not integrated with different elements of the health system [22, 23, 24]. Table 1 below shows how we have defined the terms “fully integrated”, “partially integrated”, and “not integrated” in this paper.” (Lines 177 -182 as well as 1073).
Table 1: Definition of integration status

<table>
<thead>
<tr>
<th>Selected health systems elements [24]</th>
<th>Integration Status</th>
<th>Partial integration</th>
<th>Not integrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance and leadership</td>
<td>Full integration</td>
<td>Management and supervision of CBHWs is conducted by other health workers and institutions in the ministry of health</td>
<td>Management and supervision of CBHWs is not completely conducted by other health workers and institutions in the ministry of health. Private stakeholders such as NGOs are also involved</td>
</tr>
<tr>
<td>Financial resources</td>
<td>CBHWs are part of the civil service and are paid standardised monthly salaries by the government</td>
<td>CBHWs are not part of civil service, but receive standardised incentives from the government</td>
<td>CBHWs are not part of the civil and do not have standardised incentives from the government</td>
</tr>
<tr>
<td>Human resources</td>
<td>CBHWs receive standardised training from the ministry of health and are fully accepted as well as supported by other health workers</td>
<td>CBHWs receive standardised training from the ministry of health but are not fully accepted by some health workers</td>
<td>CBHWs do not receive any form of standardised training from the ministry of health and are not recognised by other health workers</td>
</tr>
<tr>
<td>Service delivery</td>
<td>CBHWs perform standardised tasks; stakeholders recognise, accept and utilise the services provided the CBHWs</td>
<td>CBHWs perform standardised tasks; but some stakeholders do not recognise, accept and utilise the services provided the CBHWs</td>
<td>CBHWs do not have standardised tasks and duties</td>
</tr>
<tr>
<td>Population</td>
<td>CBHWs are recruited from the community and are recognised and accepted by the community</td>
<td>CBHWs are recruited from the community but are discriminated or not accepted by part of the community</td>
<td>Not all CBHWs are recruited and work within their community and most community members do not recognise or accept CBHWs</td>
</tr>
<tr>
<td>Outcomes and Goals</td>
<td>CBHW services and duties are in line with the national primary health care system</td>
<td>CBHW services and duties are not in line with all of issues contained in the national primary health care system</td>
<td>CBHW duties and services are not developed based on the national primary health care system</td>
</tr>
</tbody>
</table>

Comment 19

“Line 404: Further details on what is meant by “limited capacity” can pull this paragraph together better. I.e. – do you mean capacity by #s of workers, capacity to
train, resources? How you define it can allow for a better connection to your sentence on why CHWs versus why health facilities/highly trained workers (connecting to your last sentence “On this basis, the discourse about addressing the HRH gap shifted toward developing national CBHW programmes.”

Response
More details have been provided on what is meant by “limited capacity”: “However, these approaches proved difficult due to limited capacity to train and retain highly skilled health workers in the countries [3].” (Lines 364-365).

Comment 20
“For the section “Factors influencing integration of national community-based health workers into health systems” – it would be good to connect this section better to the previous section’s snapshots on country program integration level by referencing how the different factors affected the specific functions and their level of integration. Otherwise, you focused on specific functions when you gave country snapshots, but then when in the factors section wrote more generally about impact on integration as a whole. For example, you mention human resources for health problem and discourse as one of the major barriers to the integration process. While this came out clearly in the paragraph starting at 441 for how it can be a barrier to “population integration,” in section 429 you talk about HRH problem/discourse as a positive influence to integration as well without referencing any specific function that you may have discussed earlier for different countries.”

Response
References on how the different factors affected the specific functions and their level of integration have included as follows:

“Such positive discussion and views about the possible roles of CBHWs in efforts towards achieving the Millennium Development Goals has positively influenced the integration process of national CBHWs into governance and health service delivery [2, 6, 19, 20, 48].” (Lines 387-390).

“Good services and improved health outcomes may generate increased interest among actors in the adopting systems towards CBHWs, which can subsequently enhance acceptability and adoption of national CBHWs by the population.” (Lines 430-433).

“Failure by training programmes to adequately cover all relevant skills can affect CBHWs’ ability to deliver services, and this can subsequently undermine their acceptability and adoption of the programme both by other health professionals and the population.” (Lines 453-455).

“In Ethiopia and Pakistan positive perspectives of national CBHW programme by politicians facilitated integrated governance and leadership resulting in common goals and standardised financial resources.” (Lines 490-492).

“Positive perspectives of national CBHWs by community members, which may be triggered through recruitment of local people, can facilitate the integration process into the population.” (Lines 511-512).
Comment 21
“Line 765: how factors influencing integration affects the approach to national program development (and more specifically why it should be stepwise) was not really covered before the conclusion. Please either include more on this earlier in the discussion or remove this from the conclusion.”

Response
“national program development” has been removed from the sentence and information on rapid scale process (in line with the conclusion on the need for adopting a stepwise approach) has been included (kindly refer to the response to comment number 12). The sentence now reads as reflected below:

“In addition, it is important to follow a stepwise approach to national CBHW programme integration process, in order to reduce some of the planning and managerial difficulties that can be associated with rapid scale-up and integration.” (Lines 734-737).