Author's response to reviews

Title: Improving Motivation and Retention of Health Professionals in Developing Countries: A Systematic Review

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Assistant Editor
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Dear Mark Todd

Re: Response to reviewer’s comments on version 1 (MS: 6372486212006089)

Thank you for your feedback on our paper “Improving Motivation and Retention of Health Professionals in Developing Countries: A Systematic Review”. We have revised the manuscript with respect to the comments from the three reviewers. Details of the changes made in response to the reviewer’s comments are provided below. We hope that this will be to their satisfaction.

Yours sincerely,

Dr. Steve Thomas
Response to reviewer’s comments

We found the comments from the reviewers extremely useful and we have tried to incorporate them in the process of revising the manuscript. Details of each reviewer’s comments, and how we endeavoured to address these, are provided below.

REVIEWER: Trisha Greenhalgh

Comment 1: The review methodology is poorly described and not, I think, robust. I fear the authors will have to return to their data set and use different selection criteria and synthesis methods…my advice is…pick one established synthesis method for mixed methods studies (I’d advise a simple narrative synthesis) and apply it to the data set, then resubmit.

Response: We read Mary Dixon-Woods overview on synthesis of qualitative and quantitative evidence and decided that a simple narrative synthesis, as advised above, of the literature would be the appropriate method of analysis. We have changed our selection criteria and methodology to reflect this. The table of findings has also been changed to reflect the main study findings as themes identified in each study are reported in Table 2 and Figure 1.

- Revised text: The methods section has been completely revised to now read:

‘Study selection

Two reviewers independently assessed titles and abstracts. After scanning titles and abstracts, studies were identified for possible inclusion in the review using Inclusion and Exclusion criteria. The inclusion criteria were 1) the article states clear reasons for implementing specific interventions to improve health worker motivation and/or reduce medical migration; 2) the intervention(s) recommended by the article are linked to motivation; 3) article was in a developing country context. All papers selected for full-text retrieval were assessed using a quality checklist to identify if there was a clear statement of study aims and whether the methodology was appropriate. If either of these questions were not satisfied, the study was excluded from the review on the basis that it would not be useful in terms of understanding the study itself or comparing and collating the study within the review as a whole. If the individual study met both of the initial screening questions, it was assessed in further detail with a succession of follow up questions. Initial searches included literature reviews, opinion pieces and review articles. However these were later excluded as the authors decided that only primary studies would provide a stronger evidence base for analysing determinants of health worker motivation. Nevertheless, the results of this systematic review are compared to those of other non-systematic reviews in the discussion section.
Data extraction and analysis
Due to the inclusion of mixed methodology papers, a narrative synthesis approach was adopted to summarise and synthesis findings. There is a lack of guidance on quality criteria applicable to mixed types of studies [19], so in order to appraise study quality each paper was evaluated by two reviewers. A data extraction form was adapted from Greenhalgh et al (2005) to summarise the research question, study design, robustness of methods, sample size, strength of findings and validity of conclusions [20]. The data were then reviewed and themes identified and analysed’.
Comment 1: In the methods section (both abstract and main text), the authors report that reviews were also included. I would like to have the authors clarify what measures they took in order not to count the same findings twice i.e. the findings in the initial paper and the findings repeated in the review.

Response: The selection criteria for studies to be included has been changed to exclude studies which have not used primary data as it was decided that primary studies would provide a stronger evidence base for us to draw conclusions. Opinion pieces, reviews and non-systematic reviews are now referred to in the introduction and discussion.

- Revised text: in ‘study selection’ addition of the text ‘Initial searches included literature reviews, opinion pieces and review articles. However these were later excluded as the authors decided that only primary studies would provide a stronger evidence base for analysing determinants of health worker motivation. Nevertheless, the results of this systematic review are compared to those of other non-systematic reviews in the discussion section’.

Comment 2: The premise of the paper is grounded in the fact that sub-Saharan Africa has suffered from ‘health worker’ migration. Should we use the term ‘health professional’ to distinguish them from other health facility workers that are also called health workers?

Response: The paper is indeed grounded by the fact migration of health workers is affecting the provision of health care provided in developing countries. Although doctors and nurses (‘health professionals’) are more likely to migrate than other health facility workers, some the studies included in the review had included all health workers at a facility and had not differentiated between the different levels of workers. The term health worker has therefore been used, to be consistent with the studies included in the review.

Comment 3: In the Result section, second paragraph, the authors list the countries from which the studies reviewed came from. There is no Malawi in the list, but reference Mangham and Hanson is about Malawi. Could the authors just verify that the list included in the methods encompasses all studies reviewed?

Response: This has been revised.

- Revised text: addition of ‘Malawi’ to the first paragraph of results to now read ‘The countries studied were from Africa (Benin, Cameroon, Ghana, Kenya, Malawi, Mali, Senegal, South Africa, Tanzania, Uganda, and Zimbabwe) and Asia (Bangladesh, Jordan, Georgia, Kazakhstan, Malaysia and Vietnam)’.
**Comment 4:** I am somewhat confused by the last but one sentence in the conclusions. The authors suggest that countries are different but at the same time they are suggesting that the same tool be used. While I can agree and not agree with the point, I would just ask for clarification and justification of the recommendation.

**Response:** This sentence has been amended to improve clarity regarding this issue.

- **Revision:** the original sentence ‘Motivational factors are undoubtedly country specific, therefore it would be productive for future research to use the same data collection tools across specific countries, allowing an exploration of how context affects motivation’ has been revised to

  ‘Motivational factors are influenced by context and, therefore, it would be productive for future cross country research to use the same, or even standard, data collection tools, allowing more exploration of how context affects motivation, as well as to allow for comparison between countries’

**Comment 5:** The references formatting needs to be revised to meet journal formatting guidelines.

**Response:** This has been done.

**Comment 6:** In the Acknowledgement section, the authors have identified various agencies. Had these agencies a role in determining content, decision to publish or any other ‘editorial’ role? If yes, please declare somewhere and if not, let us know as well.

**Response:** The sentence has been amended to declare that the agencies had no editorial role

- **Revised text:** In the Acknowledgement section addition of ‘These organisations had no editorial role regarding this paper’.
Comment 1: The background could be better developed, for instance using the World Health Report 2006. The authors should also mention the internal migration (rural/urban, public/private) that is at least as important as international migration.

Response: The background has been revised to include information from the World Health Report 2006. A reference to the importance of internal migration has also been included.

Revised text: In the background section the following text has been changed:

- **The original opening paragraph** ‘There are an estimated 100 million health workers worldwide [1]. African countries need at least 1 million additional workers in order to offer basic services consistent with the Millennium Development Goals. Instead, these countries are affected by health worker loss crippling already fragile health care systems [2]’ has been changed to:

  ‘There is a growing need to strengthen health systems in developing countries to help meet the Millennium Development Goals (MDGs). It is widely accepted that a key constraint to achieving the MDGs is the absence of a properly trained and motivated workforce and improving the retention of health workers is critical for health system performance [1]. African countries need at least 1 million additional workers in order to offer basic services consistent with the MDGs. Instead, these countries are affected by health worker loss crippling already fragile health care systems [2]. The HIV/AIDS epidemic is compounding the problem by creating a stressful environment for health workers through increased workloads, exposure to infection and reduced morale [3].’

- **The addition of the paragraph** ‘Health worker migration is not confined to external movement. In-country migration, from rural to urban and from public to private sector, is also creating problems with the rural areas worst affected leaving these both understaffed and the staff who are there are often under qualified’.

Comment 2: list of key words should include nursing, health professional and other MESH terms. Also the databases searched could include databases of social sciences and humanities, as human resource management may have more published articles out of health than in health journals.

Response: The key words have been revised to include nurses, health professionals and doctors as these were used during the searches. It was felt that the databases searched produced all of the available literature, therefore social science and humanities databases
Comment 3: …the conclusion is a bit simplistic and the authors should explain that the priority for research on Human Resources for Health is due to the importance of the problems faced by health systems at country level (e.g. not able to achieve MDG) and the lack of evidence for decision.

Response: The conclusion has been revised to reflect the above comment.

- Revised text: The conclusion has been revised from ‘High quality care cannot be provided unless issues of de-motivated staff are comprehensively addressed. Financial incentives, career development and management issues are core factors affecting motivation. It is clear that recognition is highly influential in health worker motivation; furthermore adequate supplies and appropriate infrastructure are factors that can significantly improve morale. Hence, financial incentives by themselves are not the appropriate response. Inconclusive evidence was found as to whether motivational factors are valued differently by different cadres and this needs to be explored further. Motivational factors are undoubtedly country specific, therefore it would be productive for future research to use the same data collection tools across specific countries, allowing an exploration of how context affects motivation. Motivation is transitional and where possible longitudinal research should be conducted to capture these changes. Consequently research around human resources must remain a priority.’

Strengthening health systems, especially at district level is critical to meeting the MDGs and human resources are essential to achieving this. High quality care cannot be provided unless issues of de-motivated staff are comprehensively addressed and more information is clearly needed to strengthen the evidence base for effective human resource strategies and policy decisions. Financial incentives, career development and management issues are core factors affecting motivation. It is clear that recognition is highly influential in health worker motivation; furthermore adequate supplies and appropriate infrastructure are factors that can significantly improve morale. Hence, financial incentives by themselves are not the appropriate response. Inconclusive evidence was found as to whether motivational factors are valued differently by different cadres and this needs to be explored further. Motivational factors are influenced by context and, therefore, it would be productive for future cross country research to use the same, or even standard, data collection tools, allowing more exploration of how context affects motivation, as well as to allow comparison of contextual factors. Additionally, motivational issues are transitional and where possible longitudinal research should be conducted to capture these changes. Consequently research around human resources must remain a priority.’
Comment 4: The title could be more precise, mentioning doctors rather than nurses, rather than ‘health professionals’ that could mislead the focus of the analysis.

Response: The title has been changed from ‘Improving Motivation and Retention of Health Professionals in Developing Countries: A Systematic Review’ to simply Motivation and Retention of Health Workers in Developing Countries: A Systematic Review’. It is not possible to be specific and mention doctors or nurses in the title as the review includes studies of all cadres.

Comment 5 – minor essential revisions suggested: move the table 2 footnotes to the paragraph on ‘themes identified within the included studies’

Response: This has been done.

- Revised text: the section ‘Themes Identified Within the Included Studies’ has been changed from ‘Seven major themes regarding motivational factors were identified: financial, career development, continuing education, hospital infrastructure, resource availability, hospital management and personal recognition or appreciation’ to

‘Seven major themes regarding motivational factors were identified:
  - Financial (in terms of salary or allowances),
  - Career development (in regards to the possibility to specialise or be promoted)
  - Continuing education (having the opportunity to take classes and attend seminars)
  - Hospital infrastructure (the physical condition of the health facility, in papers often described as ‘work environment’)
  - Resource availability (refers to equipment and medical supplies that are necessary for health workers to perform their job)
  - Hospital management (refers to having a positive working relationship with the management with whom the health workers work and with)
  - Personal recognition or appreciation (either from managers, colleagues of the community)’

Comment 6 – minor essential revisions suggested: the last sentence on the ‘methodological quality assessment’ may have missing words or are part of a previous sentence.

Response: The section ‘methodological quality assessment’ has been completely removed due to the revisions in methodology. Please see above changes to methods section as outlined in the response to TG’s comment 1.
Comment 7 – minor essential revisions suggested: it may be useful to explain the meaning of the letters used for appraisals.

Response: As above, the methodology has been changed, with the studies not being evaluated for quality by a checklist. Papers were reviewed using a data extraction form, to assess for quality and robustness, only those which were of a good quality were included.