Author’s response to reviews

Title: Association between Migration and Cognitive Status among Middle-Aged and Older Adults: A systematic review

Authors:

Hanzhang Xu (hx20@duke.edu)
Yinan Zhang (yinan.y.zhang@duke.edu)
Bei Wu (bei.wu@nyu.edu)

Version: 2 Date: 22 May 2017

Author’s response to reviews:

Reviews and Comments

We would like to thank the editor and the reviewers for their careful consideration of our manuscript. We have revised the manuscript according to their suggestions, and we believe these revisions have substantially improved the quality of our work. Below, we describe point-by-point how we addressed each comment. We highlighted the changes with red text in the revised manuscript.

Reviewer #1

1. In the Introduction (pp. 3-4), the authors lay out potential rationales for why migration might be either beneficial or detrimental for cognitive function in aging, but they do not lay out a hypothesis for what they expected to find with their analysis. Their data suggest that migration either has no effect or a negative effect. Was this the outcome they expected?

RESPONSE: Based on the rationales we presented in the introduction, we expected that there was an association between migration and cognitive function. However, we were not sure how this association would be. Therefore, this is the reason that we wanted to conduct a systemic review and see what were the results from previous studies. Given this is a systematic review study, we did not specifically provide study hypotheses. Instead, in the discussion section, we tied our findings back to these rationales that we lay out in the introduction (p.12, 13, and 16).
2. At the end of the Introduction (p. 4), the authors indicate that their results may have "implications for clinical practices as well as health policies." These potential implications should probably be mentioned in the Discussion.

RESPONSE: The Reviewer raises a good point about the potential implications of the findings. As we noted in the conclusion, the evidence from current studies regarding the association between migration and cognitive function is weak and inconclusive. We think additional research with more rigorous methods is needed to be able to provide implications for clinical practices and health policies. Therefore, we stated in the introduction that if there is an association, this finding may have implications for clinical practices and health policies (p. 4). In the discussion, we stated that no clinical implications and health policies were provided because of insufficient findings from the current study (p.12).

3. In the Results (p. 9), the authors indicate that returning migrants from the US performed better than local residents in Mexico, but in the Discussion (p. 13) imply that returning migrants did not have better cognitive function. Table 1 suggests that the former is the actual result, but perhaps the authors could clarify?

RESPONSE: Thank you for pointing this out. We revised this sentence in the discussion that returning migrants from the U.S. performed better cognitive function than local residents in Mexico (p.13).

4. In the Results (p. 10), the authors might clarify that it is immigration to the US from the Dominican Republic and Puerto Rico that they are referring to.

RESPONSE: Thank you for pointing this out. We made a clarification in the results section (p.10) that we were referring to immigrants in the U.S. from the Dominican Republic and Puerto Rico.

5. Further down in the Results (p. 10), the authors indicate that longitudinal studies indicated a migration effect on cognitive decline, but do not state what that effect was? The Graves et al., 1999 study appears to suggest that immigration was protective for longitudinal cognitive decline. The Zahodne et al. 2014 study that is cited in this section only included immigrants (so no non-immigrant comparison group), but compared monolinguals and bilinguals. The Haan et al., 2011 and Wilson et al., 2005 studies suggest that immigrants did worse than subsequent generations at baseline. This section should be clarified, and given that it focuses on longitudinal studies, perhaps only longitudinal differences (i.e. not cross-sectional baseline) should be mentioned?
RESPONSE: Thank you for this suggestion. We excluded the comparisons of baseline cognitive function and only compared the differences using longitudinal studies. In addition, we modified the sentence that stated that the comparison was between migrants and non-migrants, or immigrants from different countries of origin (p.10).

6. In the Discussion (p. 15), the authors detail differences in study quality across reports. Were there any differences in outcomes between higher and lower quality studies?

RESPONSE: This is a great point. We now provide discussion on whether the results differ by study quality. We noted in the discussion that studies with higher quality tend to find differences in cognitive function (either baseline or slope differences) between migrants and non-migrants. Therefore, more longitudinal studies using validated measures and appropriate controls are essential to establish a strong association between migration and cognitive function (p. 15)

Associate Editor:

1. Abstract – Suggest adding conclusions about quality of reviewed studies.

RESPONSE: As suggested, we added a quality of the studies in the abstract.

2. Introduction – Respond to previous reviewers’ requests to add a hypothesis and specific aims.

RESPONSE: Please see our response to the reviewer in point #1 above

3. Methods:

a. Results from inclusion/exclusion criteria are still inconsistent. Pg. 4, line 36: 163-138 = 25 articles, not 22.

b. Pg. 4, line 41-43: separate into two sentences; it is unclear what the third reviewer did

c. Include discussion of how information about study quality was extracted and evaluated

RESPONSE: As suggested, we corrected the numbers in the inclusion/exclusion criteria, clarified the role of the third reviewer, and added information about the evaluation of study quality (p.5).
4. Results:
   a. Pg. 6, line 21: simplify to “Only 9 of the 25 articles applied longitudinal design.”
   b. Pg. 9, line 48: what does “several national and regional data” mean? Several different data sources?
   c. Pg. 10, line 29: what does “but not the rate of change” mean? Similar rate of change between DR/PR immigrants and immigrants from other countries?
   d. Pg. 10, line 51: clarify the effect found in these four studies – did migrants have higher or lower prevalence of cognitive decline and low function?

RESPONSE: As suggested, we modified sentences in the results section based on the editor’s suggestion.

5. Discussion:
   a. Pg. 12, line 4-9: replace with a more specific conclusion relevant to this study. It doesn’t seem like causal relationship between migration and cognition was a main goal of this study. Instead, you could discuss how the evidence was low quality and therefore systematic conclusions cannot be made.
   b. Pg. 12, line 21-26: The sentence “The results from the review included studies showed inconsistent findings” must be revised for clarity. The next sentence is also vague. Try to make state more specific conclusions while also acknowledging the quality of evidence you were working with.

RESPONSE: As suggested, we added a more specific conclusion in the beginning of the discussion session (p.12).

   c. Pg. 13, line 17-22: Clarify the second new sentence.
   d. Pg. 13, line 41-48: Clarify the third new sentence.
   e. Pg. 15, line 21: Are you saying that only 8 articles used a validated measure of cognitive function? If so, this contradicts the statement “All the measures used in the 25 studies were shown to be valid and reliable” (Pg. 7, lines 29-31).

RESPONSE: As suggested, we revised the sentences on page 12 (p.12). We also clarified on page 15 that only 8 articles used a validated clinical instrument to measure cognitive function, while on page 7 we were referring to both clinical and epidemiological screening tools.
f. There is no discussion of clinical implications. Either add this or delete mention of clinical implications (Pg. 4, line 43-46).

RESPONSE: As we responded to reviewer #1, the evidence from current studies regarding the association between migration and cognitive function is weak and inconclusive. We think additional research with more rigorous methods is needed to be able to provide implications for clinical practices and health policies. Therefore, we stated in the introduction that if there is an association, this finding may have implications for clinical practices and health policies (p. 4). In the discussion, we stated that no clinical implications and health policies were provided because of insufficient findings from the current study (p.12).

6. Editing – article needs another round of proofreading and editing.

RESPONSE: Thank you for pointing these out. We have made language edits throughout the manuscript.