

Peer Review Report

Review Report on Multimorbidity in Ghanaians resident in Ghana and Ghanaian migrants in Europe: the RODAM cross-sectional study

Original Article, Int J Public Health

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EVALUATION

Q 1 Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Major Comments

The present study aims to disclose the association of urbanization and migration on occurrence of multimorbidity for Ghanaian residents and migrants using the RODAM cross-sectional study. Although the study premise seems promising, there are several observations that need to be considered to improve the overall quality of the research.

1. Page 3, line 12–13: Are there any possible reasons for increasing NCD burden over time among the migrant population?
2. The study includes five sites rural Ghana, urban Ghana, and three cities of Europe, London, Amsterdam, and Berlin. People migrating for education or employment purposes mostly lie in a certain age range. However it was not mentioned specifically why 25–70 years age range was selected.
3. It is well understood that migrant population settles in urban centres at the destination. Wouldn't it be more appropriate to mention that data was collected from individuals living in urban areas of the three sites: London, Amsterdam, and Berlin.
4. How was the educational category divided in low, medium and high. Please elaborate
5. Only eight NCDs are included in the study, namely, hypertension, obesity, type 2 diabetes, hypercholesterolemia, CVD, chronic kidney disease, rheumatic disease, and depressive symptoms. Are these enough to operationally define multimorbidity? Would this not affect in underestimating the multimorbidity burden.
6. The authors mention to drop NCDs with prevalence lower than 2%. How was the cut-off of 2% selected. As it is well established that the prevalence of multimorbidity is still lower than their HIC counterparts, accepting a cut-off of 2% is bit ambitious. Similar study conducted by Sanghamitra Pati in 2015 (India) chose a cut-off of one percent.
7. In the data and methods section, I understand that all except depressive symptoms were measured using standard tests. However, the description of the same is not clear and therefore, difficult to understand. Please provide a concrete description of the same. You can further replace this information with a table.
8. The authors have defined guidelines to measure various NCDs and depressive symptoms. It would be beneficial if authors can mention some guidelines related information as a supplementary document.
9. What symptoms were used to define the depression. How many indicators were used? PHQ-9 is a well-accepted scale, however, it would be better to at least give a brief description on the indicators used.
10. The outcome of interest was defined as no morbidity, two or three conditions, four or more conditions. How were individuals with only one morbidity treated?
11. The authors have used a direct method of age-standardization for prevalence. In the present case, authors mention to use RODAM population as the standard population. The choice of standard population used here is not appropriate. Are there other sources to fetch similar information of age structure?

12. In the logistic regression findings, what is the different between prevalence ratios (PR) and Odds ratios? Authors have reported PR, what is the procedure of reporting the same?
13. The data and methods section can be benefit from restructuring. Please remove all repetitions and redundancies. Also, if possible a logical sequence in statistical analysis.
14. The available case analysis is appropriately used.
15. The discussion can be benefitted with restructuring.
16. In the discussion, the authors mention the possibility of reporting bias. They further report that "this is unlikely since the interviewers received specific training to avoid such issues". What is the meaning of reporting bias, is it equivalent to measurement bias. Generally, reporting bias is a greater issue at the end of the respondent due to recall bias or low awareness levels in the self-reported data.
17. In figure 2, the outcome of interest was defined as 0-1 morbidity, two or three conditions, four or more conditions. Is it appropriate to merge no and one morbidity together? Please define the outcome of interest clearly and use the same categorization throughout the manuscript.
18. Are there and policy implication of the study?
19. Can there be a discussion in what are the hindrances faced by the migrant population which reflects on their NCD related health outcomes.
20. A more concrete conclusion can be drawn on the basis of the analysis performed.
21. Table 1. Replace smoking with current smoking status
22. How was physical activity divided in low, medium, and high?

Minor Comments

1. The authors missed unit like years in most of the places in the text.
2. Please use full form of the abbreviation at first use in the text.
3. Please check the reference section for inconsistency.

Q 2 Please summarize the main findings of the study.

The prevalence of individual chronic conditions varied per site and sex, and the prevalence of multimorbidity was higher for Ghanaian residents in urban areas (in Europe and Ghana) and lower in rural Ghana. In all study sites, multimorbidity was more prevalent in women than in men. A cardiometabolic pattern of multimorbidity was observed in all sites; while clustering of circulatory, metabolic and rheumatic disorders was observed only in Ghana. For both men and women, the rate of multimorbidity was higher for Ghanaian migrants in Europe and residents in urban Ghana compared to rural Ghana.

Q 3 Please highlight the limitations and strengths.

The premise of the study is promising. The authors compare the Ghanaian residents with Ghanaian migrants in EU. However, the write-up is the major issue in the manuscript. Additionally, the operational definition of the main outcome of the study is unclear. Major limitation of the study is that it lacks structure.

PLEASE COMMENT

Q 4 Is the title appropriate, concise, attractive?

Yes

Q 5 Are the keywords appropriate?

Yes

Q 6 Is the English language of sufficient quality?

Yes, needs only minor restructuring.

Q 7 Is the quality of the figures and tables satisfactory?

Yes.

Q 8 Does the reference list cover the relevant literature adequately and in an unbiased manner?)

India is producing literature on multimorbidity from the past 5 years. References from India (LMIC) can be added in the introduction and discussion.

QUALITY ASSESSMENT

Q 9 Originality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q 10 Rigor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 11 Significance to the field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 12 Interest to a general audience	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 13 Quality of the writing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 14 Overall scientific quality of the study	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REVISION LEVEL

Q 15 Please take a decision based on your comments:

Minor revisions.