Author’s response to reviews

Title: Socio-demographic determinants of the severity of locomotor disability among adults in Bangladesh: a cross-sectional study, December 2010-February 2011

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Author’s response to reviews:

Reviewer #1:

Comment: The manuscript addresses an interesting topic. The small sample size for this study, was it statistically large enough to be able to establish associations and relationships? What was the statistical rational to this sample number? Was any standard error considered? Clarify.

Reply: We aimed to select all adults with locomotor disabilities accessed CRP’s out-patient, vocational and CBR services between December 2010 and February 2011. A total of 328 met our selection criteria of which 316 consented and participated in this study. Please see the revised sampling section. We have clarified our sampling further.

Comment: Why was the CRP centre only considered? Is it the only available centre in Bangladesh where such disability is present? Clarify

Reply: This is the only specialized rehabilitation centre which provide comprehensive rehabilitation services to disabled people. We have added clarification in methods section. Please see revised methods.

Comment: These actual sample size under study is not clear; the 117 patients were out of the 199 consented? Then what about the 211 patients? At the end it was stated that a total of 316 patients were considered, which I am guessing was the 119 + 117. Kindly clarify further, it is confusing.

Reply: We have clarified this in revised manuscript. Please see revised sampling section. A total of 328 patients met our selection criteria and 316 consented and participated in the study. 199
interviews were conducted at the rehabilitation centre and 117 interviews were conducted in the community.

Comment: How were the 42 non-disabled people selected? Any criteria? Were they related to the patients? Clarify

Reply: They were selected conveniently and they were the caregivers of disabled people did not met our selection criteria. However, please note that in the revised version we dropped non-disabled people from our analysis since we are investigating socio-demographic determinants of severity of locomotor disability among adults. Please see revised methods and analysis.

Comment: Also note that these is a mistake in Table 5, where n=357 when in fact it should read n=358.

Reply: Thanks, corrected.

Comment: The interviewers that asked the questionnaires, where they trained? where they medically oriented? Kindly give more information.

Reply: They were trained and had previous experience. Detail information is added. Please see revised data collection section.

Comment: The discussion section consists of recollection of results! Discussion should contain explanation of the results and not results statements. The discussion should also contain comparisons to other studies. Why was the study only compared to Chile? Is Chile socio-economically comparable to Bangladesh?

Reply: In revised version repetition of results are cut down. Results are compared with previous works in Bangladesh. In revised discussion citation of the Chile study is mostly dropped. Chile is not socio-economically comparable to Bangladesh.
Reviewer #2: Review: AOPH-D-17-00018

Comment: Thank you for giving me the opportunity to review this original article studying whether socioeconomic determinants are associated with the level of disability in Bangladesh. This is important to have local data to better address public health strategies in developing countries.

Reply: Thanks! Authors are grateful to you for your invaluable comments.

Comment: My main concern is the methodology of this work. The authors did not describe the centre where they recruited the individuals (and results suggest that it is not representative of the Bangladesh population);

Reply: The centre is described in revised manuscript. Please see revised methods section.

Comment: they used the "locomotor disability scale" but did not explain which items were included and how it was built and validated (I cannot find any published study using this scale); finally, the statistical analyses (particularly the adjusted analyses) are not detailed and doubtful, what prevent to interpret the results.

Reply: We added more discussion on the scale. We further clarified analyses. Please see our replies below.

Comment: Overall, the text could be shortened and needs to be clarified.

Reply: text is shortened. The original submission had 8426 words while the revised manuscript has 7200 words including everything.

Abstract

Comment: There are problems with the presentation of results: the confidence intervals don't include the beta.

Reply: Thanks! Corrected.
Methods

Comment: p6 l25: "Centre for the Rehabilitation of the Paralysed". What are the main diseases reported by the individuals managed in this center? Are they all "paralysed" as suggested by the name of the center? Is this a public or a private centre? Is this representative of the disabled persons in Bangladesh?

Reply: Description of CRP is added in method section. It is the only centre of its kind in Bangladesh, hence receive clients from all parts of Bangladesh, however this might not be representative of the disabled persons in Bangladesh. This limitation is discussed in discussion section.

Comment: p6 l44: "In addition, a total of 117 persons with locomotor disabilities were interviewed in their own community."

I don't understand how those 117 individuals were recruited?

Reply: During the study period a total of 328 adults with locomotor disabilities met our selection criteria and 316 consented and participated in the study. Out of the total 316 participants, 199 were recruited from CRP’s out-patient and vocational training departments and were interviewed at the centre while they came for services; the remaining 117 participants were recruited through CRP’s CBR programme and were interviewed in their own community. Please see revised methods section.

Comment: Why did you include 42 non-disabled adults?

Reply: Considering the objective of this study, we dropped non-disabled respondents from analysis.

Comment: You should add a flow chart

Reply: we did not add a flow chart, but clarified this further in revised manuscript. Please see methods section.

Comment: p 7. The title "instruments" is not appropriate and should be replaced by "Disability measurement"

Reply: The title “instruments” is replaced with the title ‘disability measurement’.
Comment: I don't know the scale you used as disability indicator (the Locomotor Disability Scale) and could not find any study which used it. The reference "18" does not refer to anything. Could you please provide a broader description of this scale and its development? The items should be included in the manuscript (as supplementary material).

Reply: Further description of the scale (LDS) is added in the manuscript. The scale items are included as supplementary material.

Comment: Why did you use 2 versions (short and long) of this scale? I think 1 version is sufficient and could ease the description of results.

Reply: Thanks! Comments incorporated. Shorter version of the scale is dropped from analysis.

Comment: p7 l30-37: "In addition, in order to describe the severity of locomotor disability, participants were grouped into relative locomotor disability groups by dividing the latent trait scores into quartiles, the first quartile being the least disabled and the fourth quartile the most severely disabled group."

Was no threshold validated for this scale? This part should be included in the section labelled "Disability Scale"

Reply: Comment accepted. This part is included in the section labelled “disability measurement”.

Comment: The rest of the section belongs to the "Statistical analyses" section.

Reply: Comment incorporated. The rest of the section is moved to “Statistical Analyses” section.

Comment: p7 l44: the title should be replaced by "Assessment of sociodemographic status"

Reply: Thanks! Title is replaced accordingly.

Comment: p7 l49: how did you assess the "area of residence"?

Reply: We categorized area of residence following the definition used in Bangladesh Demographic and Health Surveys. In revised version we clarified this. “Bangladesh is divided
into seven administrative divisions: Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur, and Sylhet. Each division is divided into zilas, and each zila into upazilas. Each urban area in an upazila is divided into wards, which are further subdivided into mohallas. A rural area in an upazila is divided into union parishads (UPs) and, within UPs, into mouzas. These divisions allow the country as a whole to be separated into rural and urban areas” (BDHS 2014 & BDHS 2007).

Comment: p7: did you use the "income" as a continuous variable? Did you use income groups? If yes, how did you define those groups?
Reply: monthly income data were used as continuous.

Comment: p8 11-8: you should use the International Standard Classification of Education (ISCED) to define the educational level groups.
Reply: Thanks! Comment incorporated. Education is classified following ISCED.

Comment: p8 110-44: you should use the International Standard Classification of Occupations (ISCO) to define the occupation groups.
Reply: It was not possible to completely follow ISCO. We classified as Unemployed, Elementary, Public/private service, business, student and housewives.

Comment: How did you manage missing value?
Reply: There was no missing value for disability score. In multivariate analysis individuals with missing value in any of the selected explanatory variables were excluded.

Comment: Which variables did you include in your multivariate analyses?
Reply: locomotor disability score (continuous) as the outcome variable and socio-demographic variables mentioned in methods section. Please see table 2.
Results

Comment: The descriptive results could be shortened.

Reply: it is shortened. Chi-squared analyses are dropped.

Comment: p9 l27-30: you should add the mean age (or the median age)

Reply: Mean age added.

Comment: The numbers of table are wrong. The table 1 is the table 5,...etc

Reply: Thanks! The numbering of the tables is corrected.

- Table 1:

Comment: What does the confidence interval represent for the mean age, education, income? You have non-weight results and a limited study population (316 adults), so I don't understand why you calculated CI and to what they correspond?

Reply: CI removed.

Comment: You don't need to report mean, median, min-max,...You can include the median (min-max) or the mean +/- SD

Reply: depending on data Mean and SD or Median, min-max reported.

Comment: - p11 l37: I am sorry, but I don't understand how you did your analyses:

* Are the "crude regression analyses" the bivariate anylses?

Reply: Yes, bivariate analyses

Comment: * Which variables did you include in your adjusted analyses? For example, you cannot include "married "and "divorced" in the same model.

Reply: Please see the table 2.
Comment: How did you take into account diseases and multimorbidity in your analyses?

Reply: Diagnosis is included in revised multivariable linear regression analysis.

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Comments from the Editor-in-Chief

1. Titles of tables and graph should refer to the place, time and study

Reply: revised accordingly

2. The numbering of the tables should be corrected

Reply: The numbering of the tables is corrected.

3. More information related to the disability score should be provided: references. If no reference, construct of scale.

Reply: More information added in methods section. Items are provided as supplementary material.

4. Was no transformation of the scale (e.g. a log-transformation) necessary for the linear regression

Reply: disability score was approximately normally distributed; hence we did not use log-transformation.

5. The text can be shortened, but especially, the text should have a language review.

Reply: Text is shortened (revised manuscript, including everything, has 7200 words while the original version had 8426 words. We have tried to improve English. If needed will be reviewed further by the second author (first language English).