## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

## ARTICLE DETAILS

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| **TITLE (PROVISIONAL)** | Prevalence of disability in Manikganj district of Bangladesh: results from a large-scale cross-sectional survey |
| **AUTHORS** | Moniruzzaman, Mohammad; Zaman, Mostafa; Mashreky, Saidur; Rahman, AKM |

## VERSION 1 - REVIEW

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| **REVIEWER** | Zaman K<br>Bangladesh |
| **REVIEW RETURNED** | 29-Dec-2015 |

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| **GENERAL COMMENTS** | Thanks for giving me the opportunity to review the manuscript.<br>Please find below my comments:<br>1. What is the basis of selecting Manikganj district ?<br>2. Little description about mahallas may be given.<br>3. How the sample size was calculated ?<br>4. How the households were selected ?<br>5. Will be useful to mention the variables for 0-1 and 2-10 years.<br>6. 'Illness' and 'injuries' may be defined.<br>7. Delay in 'sitting', 'standing' are of subjective variations. Please discuss how the data were collected.<br>8. How training was given for the study staff.<br>9. Need to mention how age standardized rate was calculated.<br>10. No need to describe everything of a table in the result.<br>11. Ethical considerations- Consent should be from parents of 0-10 years and assent be from 11-17 years.<br>12. Please discuss the possible explanations how education and urban rural affect the prevalence.<br>13. Please check the roundings for the tables.<br>Thanks. |

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| **REVIEWER** | Dr. Zakir Uddin<br>University of Sharjah, UAE |
| **REVIEW RETURNED** | 05-Jan-2016 |

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| **GENERAL COMMENTS** | Overall its a well written paper |

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| **REVIEWER** | Gudlavalleti Venkata Satyanarayana Murthy<br>Internal Centre for Evidence on Disability, LSHTM, London, UK and South Asia Centre for Disability Inclusive Development & Research, Hyderabad, Public Health Foundation of India, India |
| **REVIEW RETURNED** | 11-Jan-2016 |

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| **GENERAL COMMENTS** | The authors have chosen an area of immense importance for the study. However the definitions used and the age stratification is inadequate to generate appropriate and comparable results.<br><br>Stratified analysis by age – 11+ and 20+ should be different as adolescence has an impact on some activities and practices and schooling is also affected<br><br>CI to be reported in all results including abstract to see if there is a significant difference or if the difference occurred by chance<br><br>Educational deprivation was closely linked to higher prevalence of disability – Or the opposite?<br><br>Cause specific impairments instead of disability as disability is a social construct<br><br>ICF classification has been used in Bangladesh earlier – RAD and KIM studies<br><br>Introduction<br><br>Line 8, Page 3: They also tend to have lower<br><br>Line 22, Page 3: Use magnitude instead of the term 'burden'<br><br>Line 36 & Line 37, Page 3: As above<br><br>Line 39 &40: Grammar check<br><br>Line 46, Page 3: 9 times 'higher' than<br><br>Line 54, Page 3: discrepancy of findings of between studies – Drop the 2nd 'of'<br><br>Methods<br><br>Line 22-39, Page 4: Why 105 household were selected should be explained in greater detail<br><br>Line 49, Page 4: Use comma between references 14 and 15<br><br>Line 48, 49, Page 4: Therefore 2 different sets of questionnaires were used for the survey – How were the findings then collated? Would there be any bias in combining results from two different sets of questionnaires?<br><br>Line 50, Page 4: Since the entire extended set of WG criteria were not used and questions were selectively picked from the extended WG criteria was a psychometric analysis done to compare the modified with the original questionnaire?<br><br>Line 6, Page 5: The Ten Items questionnaire is only applicable to 2-10 years old and not 0-1 years. What was the rationale for using the same for 0-1 years and was this validated? It may be better to drop 0-1 from the analysis<br><br>Page 6, Table 1: Domain 1: The measurement of visual acuity is faulty – Blind is at a distance of 3 meters and arm length is not equal to 3 metres; Similarly arm length is not comparable to 'across the road'<br><br>Page 6, Table 1: The definition of hearing impairment in the study is |

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| | not an acceptable method of assessing hearing impairment<br><br>Page 6, Table 1: How much distance to walk or how many steps to be climbed are a more objective measure<br><br>Page 6, Table 1: Self care is a part of activities of daily living<br><br>Page 6, Table 1: Weakness of a body part is not necessarily an impairment<br><br>Page 6, Table 1: Was duration of pains taken into account – For example an isolated head ache on the day of examination – Was it considered a disability<br><br>Page 6, Table 1: Problems in standing – Vertigo can also cause problems in standing – Was this also considered as disability?<br><br>Page 6, Table 1: What is the difference in self care in Domain 1 and Domain 4? Why was it considered twice?<br><br>Page 6, Table 1: Domain 6 – Is it getting along or getting alone with people? This is confusing<br><br>Page 6, line 45: Just a little will overestimate disability prevalence significantly and is not a good indicator of true disability<br><br>Page 6, line 51: The age group stratification is inadequate – 11+ should have been broken down into 11-20; 21-40; 40 – 60 and 60 years and above at the least<br><br>Page 7 line 15: Children aged 11-16 years old cannot give consent without parental acceptance<br><br>Results<br><br>Page 8, line 18-19: How the Mean Disability Score was calculated should have been mentioned in the methods section especially as there is a lot of overlap between the different domains and it seems as the same items were scored twice or more<br><br>Page 8, line 22-31: No confidence intervals are reported<br><br>Page 8, line 33-35 & line 38-48: What is described is cause-specific impairment and not disability<br><br>Page 8, line 50 – 54: Literacy is not the cause of disability but the consequence of disability – This is wrongly interpreted in the study<br><br>Results should have been presented as visual, hearing, physical impairments etc. and separately as activity limitation and social participation for disability<br><br>Discussion<br><br>Page 9, line 27-29: This is a factual error as the prevalence in the present study is not comparable to what has been reported from good evidence in the past as the way disability has been defined is not consistent with other studies |

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| **REVIEWER** | Md. Ismail Tareque<br>Associate Professor |

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| | Department of Population Science and Human Resource Development, University of Rajshahi, Rajshahi-6205, Bangladesh |
| **REVIEW RETURNED** | 12-Jan-2016 |

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| **GENERAL COMMENTS** | It is a very good attempt to report the prevalence of disability in Manikganj district of Bangladesh. “Prevalence of disability in Manikganj district of Bangladesh” would be better than the existing title. “Prevalence of disability in Bangladesh” is also an alternative as the demographic profile of Manikganj is closely identical to Bangladesh demographic profile (based on lines 15-20 of page 4). I have the following comments that need to be addressed before the paper can be published:<br><br>Major comments:<br>p 6, lines 43-47: My main concern with the paper is about the classification of who is considered as disabled and who is not. I think that only severe (a lot of difficulties) and extreme (unable to bear) limitations should be considered as disabilities. The Washington Group prioritized equalization of opportunities, and developed the disability questions to identify the people with functional limitations that have the potential to limit independent participation in a society. It is also argued by several authors that moderate difficulty in functioning in daily life activities is usually not such a level of limitations that translate into the same amount of difficulty in functioning in society. People with moderate difficulty do not face the same amount of social exclusion as do people with severe difficulty or unable to carry out activity of daily living. Furthermore, society can accommodate easily moderate disability, for instance someone with visual problem even without glasses will be able to function in society, work, go out and meet people, when someone visually impaired will not because the environment will not be accessible particularly in low income countries.<br><br>p 6, line 52: The authors used age groups (0-14, 15-59, and 60+) for international comparability. But did they use international cut-off for measuring disability?<br><br>p 10, line 29: As the data contains detailed information on injury, the authors are suggested to explore it, and provide some findings in the current study.<br><br>Minor comments:<br>p 3, line 7: It could be supported by a recent study “Inequality in disability in Bangladesh. PLoS One, 9(7): e103681, 2014”.<br><br>p 3, lines 17-18: This should be supported with recent studies (not 1981’s report [ref 3] after 2011’s report [ref 2]).<br><br>p 3, lines 21-22: Provide some countries’ names as examples.<br><br>p 3, line 41: It is against the statement (line 18) that prevalence of disability has been increasing.<br><br>p 3, Lines 41-46 should be reorganized according to the year of the surveys of the references 7-11 as prevalence may vary by years.<br><br>p 4, line 2: It is hard for the readers to understand the meaning of the term “free living”. Clarify it. |

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| | p 4, line 26: Provide some explanation of the term “mahallas” for international readers.<br><br>p 4, line 31: Rewrite the sentence.<br><br>p 4, lines 54-55: The authors need to state about the back-translations of the questionnaire.<br><br>Method section: It should be described with sub-headings such as Data source, Sampling design, Questionnaire, etc.<br><br>p 5, line 13: TQ should be provided in a table/text box.<br><br>p 6, line 26: Data analysis should be replaced by “Disability measures”.<br><br>p 7, lines 37-42: As the main focus of this study is disability prevalence, the authors would like to drop these sentences.<br><br>p 7, line 44: It is already discussed in Method section.<br><br>p 8, lines 1-8: These should be accommodated in Method section.<br><br>p 8, lines 18-19: Clarify, what does a disability score mean?<br><br>p 8, line 33: It should be mentioned in Method section.<br><br>p 8, line 50: What kinds of test-statistic were used? Explain it in Method section.<br><br>p 9, lines 11-23: These could be considered as strengths, and discussed at the end of Discussion section.<br><br>Table 1: Education levels should be specified in years of schooling. Does any primary mean 1-5 years of schooling, any secondary mean 6-10, higher secondary and above mean 11+? This comment also applies to Figure 2.<br><br>Table 2, 0-1 year: The prevalence of abnormal condition behavior should be 1.6.<br><br>Table 3: Second column (Not at all) should be dropped as it would confuse the readers. Ranges for each response, a new row, should be included at the bottom of Table 3.<br><br>Table 4: Drop it if there is no significance of having Table 4.<br><br>Table 6: There is no meaning of having ‘no specific causes’ and ‘don’t know’. Moreover, as the prevalence of the ‘environment’, ‘other causes’, ‘no specific causes’ and ‘don’t know’ are extremely low, they could be combined into a single category ‘others’. Causes of Table 6 and Figure 1 also do not resemble. |

**VERSION 1 – AUTHOR RESPONSE**

Reviewer 1

1 What is the basis of selecting Manikganj district?

Response: Manikganj district was selected purposively because it was planned for developing a model district for injury prevention by WHO. Moreover, it is a typical district of Bangladesh, which is

closely identical to the demographic profile of the national population (Already described between lines 9—21 of current p 4).

2 Little description about mahallas may be given.
Response:Description given (p 4, lines 36-37)

3 How the sample size was calculated?
Response: We calculated sample size using the prevalence of disability of 1% in Bangladesh (estimated in Sample Vital Registration System in 2009 by Government of Bangladesh), and 0.5% margin of error, the minimum sample size was 1521. This study was proposing to estimate data in 10 groups according to gender, urban –rural area of residence and three age groups. Therefore a minimum of 15210 respondents were needed. To address the design effect (2.0) and potential response rate (76%) it was further inflated to a final sample size of 40000 (Current p4, lines 26—35).

4 How the households were selected?
Response:From each mahallas and village, 105 adjacent households starting from randomly selected first household in the middle of the selected cluster were visited to get the target number of households and individuals (current p4, lines 48—52).

5 Will be useful to mention the variables for 0–1 and 2–10 years.
Response:Mentioned the variables for 0 –1 year and 2 –10 years as suggested (current p 5, lines 36-58; p 6, lines 3 --31)

6 'Illness' and 'injuries' may be defined.
Response: Definitions are given as a foot note of Table 4.

7 Delays in 'sitting', 'standing' are of subjective variations. Please discuss how the data were collected.
Response: Data collectors were properly trained on major developmental growth/milestone activities of a normal child so that they can make the parents able to identify/differentiate whether their children has any delay in 'sitting' and 'standing'. Any subjective measure has some limitations that cannot be over ruled with certainty. Therefore, we have acknowledged these issues as our limitations (Current p 15, lines2-10).

8 How training was given for the study staff.
Response: Given a brief description (Current p 4, lines 57--56; p5, lines 2—8).

9 Need to mention how age standardization rate was calculated.
Response: It mentioned "Prevalences were adjusted to the WHO world population" already in current p 8, lines 20—22).

10 Need to describe everything of a table in the results.
Response: We only described major findings from tables/figures in brief to facilitate readers.

11 Ethical considerations-consent should be from parents of 0–10 years and assent be from 11–17 years.
Response: We have correctly used these terms (Current p 8, lines 38—40). "Assent" is a term used to express willingness to participate in research by persons who are by definition too young to give informed consent. Moreover, we did not use any age group from 11-17 years.

12 Please discuss the possible explanations how education and urban rural affect the prevalence.
Response: Correlates of prevalence of disability were not explored in detail in this study. We only

described data to show major variation by background characteristic variable that already mentioned in p14, lines 48—57).

13 Please check the roundings for the tables.
Response:Checked all Tables accordingly.

Reviewer 2: Overall it's a well written paper
Response: None to be addressed.

Reviewer 3
14 The authors have chosen an area of immense importance for the study. However, the definitions used and the age stratification is inadequate to generate appropriate and comparable results.
Response:Age stratification ( 0 –14 years, 15 –59 years and 60 years and above) was done exactly as similar as used in the World Report on Disability 2011 and mentioned in methods' section (Current p 8, lines 15-- 22). The definitions we used also described in methods' section (Current p 7, lines 46-57; p 8, lines 2-13).

Reviewer 4
15 "Prevalence of disability in Manikganj district of Bangladesh" would be better than the existing title. "Prevalence of disability in Bangladesh" is also an alternative as the demographic profile of Manikganj is closely identical to Bangladesh demographic profile (based on lines 15-20 of page 4)

Response: We have no problem with either title as suggested. But we prefer "Prevalence of disability in Manikganj district of Bangladesh"

16 p 6, lines 43-47: My main concern with the paper is about the classification of who is considered as disabled and who is not. I think that only severe (a lot of difficulties) and extreme (unable to bear) limitations should be considered as disabilities.

Response: We categorized responses (for 11 years and above respondents) into five grading 'not at all (recorded as 1), 'just a little (recorded as 2)', 'moderate level (recorded as 3)', 'a lot of difficulties (recorded as 4)' and 'unable to bear (recorded as 5)'. If we considered only severe, and extreme limitations we would fail to report many cases. Because the severity of problem and its impact on individual's performance depends on type, nature and domain of the activity. Therefore, we had a consensus to use a balanced scoring system described in current p 8, lines 3-13).

17 p 6, line 52: The authors used age groups (0-14, 15-59, and 60+) for international comparability. But did they use international cut-off for measuring disability?
Response: We used the age groups only, did not use international cut-off for measuring disability. The definitions we used described in methods' section (Current p 7, lines 46—57; p8, lines 2—13).

18 p 10, line 29: As the data contains detailed information on injury, the authors are suggested to explore it, and provide some findings in the current study.
Response: We focused mainly on prevalence of disability in this paper. Because we are in process for a separate manuscript exclusively focuses on injury related disability, we gave only major findings on cause specific disability.

19 p 3, line 7: It could be supported by a recent study "Inequality in disability in Bangladesh. PLoS One, 9(7): e103681, 2014
Response: This suggested reference is best suited to support a statement in discussion section and we added this reference (23), current p 14, lines 55-56.

20 p 3, lines 17-18: This should be supported with recent studies (not 1981's report [ref 3] after 2011's report [ref 2]).
Response: We have rephrased the sentence for clear understanding. Current p 3, lines 17-18.

21 p 3, lines 21-22: Provide some countries' names as exampl
Response: Added some countries name as an example (Current p 3, lines 22-23).

22 p 3, line 41: It is against the statement (line 18) that prevalence of disability has been increasing.
Response: We described the situation of disability estimates in Bangladesh which are either not comprehensive and/or suffer methodological limitations. Therefore, we did not make any statement whether prevalence of disability in Bangladesh is increasing or decreasing compared to the global increasing trend.

23 p 3, Lines 41-46 should be reorganized according to the year of the surveys of the references 7-11 as prevalence may vary by years.
Response: We appreciate your point and therefore we have mentioned (for 7,8 and 9 SVRS survey) as around 10 per 1000. The prevalences of these three surveys are very close. We separately and specifically mention for reference 10 and 11 because we found the variation of prevalence markedly .

24 p 4, line 2: It is hard for the readers to understand the meaning of the term "free living". Clarify it.
Response: We deleted the term " free living"

25 p 4, line 26: Provide some explanation of the term "mahallas" for international readers.
Response: Description given (p 4, lines 36-37).

26 p 4, line 31: Rewrite the sentence.
Response: Done. Current page 4, lines 41-45.

27 p 4, lines 54-55: The authors need to state about the back-translations of the questionnaire.
Response: Added "Both forward and backward methodologies were applied during translation", current p 5, lines20—23.

28 p 5, line 13: TQ should be provided in a table/text box.
Response: Mentioned the variables for 0 –1 year and 2 –10 years as suggested (current p 5, lines 36-58 p 6, lines 3 –31).

29 p 6, line 26: Data analysis should be replaced by "Disability measures".
Response:Replaced as suggested, Current p 7, line 46.

30 p 7, lines 37-42: As the main focus of this study is disability prevalence, the authors would like to drop these sentences.
Response: We think these lines are very important for readers to understand the context or definitions that we used to identity a case of disability. Therefore we would like to keep these lines.

31 p 7, line 44: It is already discussed in Method section.
Response: We kept this line here to facilitate the readers

32 p 8, lines 1-8: These should be accommodated in Method section.
Response:We kept these lines here deliberately to keep the readers on track and to avoid confusion.

33 p 8, lines 18-19: Clarify, what does a disability score mean?
Response: We deleted these lines because we deleted Table no 4 as suggested by reviewer(Please

see query SL no 40)

34 p 8, line 33: It should be mentioned in Method section.
Response: Mentioned in methods section (Current p8, lines 20—22).

35 p 8, line 50: What kinds of test-statistic were used? Explain it in Method section.
Response: We calculated confidence interval for prevalence of disability by level of education and we found significant difference in prevalence. Descriptions are already given in current p 13, lines 54—57.

36 p 9, lines 11-23: These could be considered as strengths, and discussed at the end of Discussion section.
Response:Done as suggested. Replaced at the end of discussion section (Current p15, lines 23—36).

37 Table 1: Education levels should be specified in years of schooling. Does any primary mean 1-5 years of schooling, any secondary mean 6-10, higher secondary and above mean 11+? This comment also applies to Figure 2.
Response: YYes, absolutely we meant it and now specified in the Table 1 for more clarity.

38 Table 2, 0-1 year: The prevalence of abnormal condition behavior should be 1.6.
Response: Yes. We have corrected it to 1.6.

39 Table 3: Second column (Not at all) should be dropped as it would confuse the readers. Ranges for each response, a new row, should be included at the bottom of Table 3.
Response: These are categories of responses that we used in the questionnaires and we described in the methods section. If we dropped it would rather create more confusion among readers.

40 Table 4: Drop it if there is no significance of having Table 4.
Response:Dropped Table 4 as suggested. Deleted text relevant to Table 4 in results section.

41 Table 6: There is no meaning of having ‘no specific causes’ and ‘don’t know’. Moreover, as the prevalence of the ‘environment’, ‘other causes’, ‘no specific causes’ and ‘don’t know’ are extremely low, they could be combined into a single category ‘others’. Causes of Table 6 and Figure 1 also do not resemble.
Response: Agreed and the category ‘no specific causes’, ‘don't know’, ‘ other causes’ and ‘environment’ combined to one category as ‘ others’.

**VERSION 2 – REVIEW**

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| **REVIEWER** | G V S Murthy<br>London School for Hygiene & Tropical Medicine, London, UK and South Asia Centre for Disability Inclusive Development and Research, Public Health Foundation of India, Hyderabad, India |
| **REVIEW RETURNED** | 29-Feb-2016 |

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| **GENERAL COMMENTS** | The authors have attempted to provide evidence on an important public health problem which does not receive adequate attention. The manuscript has potential to be improved significantly by addressing the concerns highlighted. A detailed description of the comments can be found below:<br><br>Three separate questionnaires were used – Were they comparable? |

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| | At age 0-1 a lot of milestones may be inaccurately assessed by parents<br><br>There should have been a separate schedule for adults aged 18+<br><br>Restriction of participation at ages < 10 years esp those aged 0-1 or activity limitation could be erroneous<br><br>Is educational deprivation the cause or the consequence of disability – The statement should be rephrased as were closely associated so that the direction is not intended as causal.<br><br>On what parameters do the authors call the district 'typical'<br><br>Introduction<br><br>Page 3, line 5-7: There seems to be a conceptual problem regarding disability as described. It appears that people with impairments are being confused with disabilities as social stigma, discrimination, inequality and disrespect are actually reflecting disability.<br><br>Page 3, line 22-24: References for the countries mentioned should be cited<br><br>Page 3, line 36: Suggest using the term 'magnitude' rather than 'burden' which has an insensitive connotation with respect to disability<br><br>Page 3, line 39-40: grammatical error should be corrected – 'in' should be dropped<br><br>Page 3, line 46: nine times 'higher' than<br><br>Page 3, line 55: discrepancy of findings of between – The second 'of' should be dropped<br><br>Methods<br><br>Page 4, line 12: Typical should be dropped as population density similarity is not adequate to compare districts. There should be additional data on socio economic parameters, gender distribution etc.<br><br>Page 4, line 38: Rationale for selecting 105 households is not clear and should be explained<br><br>Page 5, line 3-6: Was any agreement analysis conducted? What was the level of agreement between the different investigators?<br><br>Page 5, line 14-15: It is therefore evident that two different sets of instruments were used. Was a validation of responses or sensitivity |

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| | analyses been done with the different questionnaires? If not it may be better to report the results as two separate papers.<br><br>Page 5, line 31-33: When dropping questions from a validated questionnaire, a revalidation has to be undertaken once more.<br><br>Textbox 1a: Item 1 what age was the cut off applied for this question<br><br>Item 2: How was seeing difficulty assessed at different ages: 0-3 months; 3-6 months; 6-12 months?<br><br>Item 3: How was hearing assessed for 0-3 months old?<br><br>Item 5: What age was this assessed?<br><br>Page 7, line 46-55: This is the most critical component of the study; It seems as if apples and cucumbers are being clubbed together. This would define disability very loosely and erroneously.<br><br>Page 8, line 6-12: The conventional way of describing disability severity is by looking at those who have great difficulty in performing a task or are unable to perform a task as having a disability. This is because just a little or moderate level are not very sensitive in defining disability. Authors should present data on the severe forms also separately.<br><br>Page 8 line 17: Suggest that the authors present data in the following age strata: < 18 years; 18-35 years; 35-59 years; >= 60 years<br><br>Results:<br><br>Page 10, Table 2: These are not comparable ages as delay in sitting at 0-3 months etc. is not applicable so the denominator for each milestone would vary by age. Either the authors should do that or drop this table completely.<br><br>Page 10, line 41-52: Should be moved to methods section as it is not relevant here<br><br>Page 11, Table 3: Should be stratified by age as suggested before and report only lots of difficulty or inability to perform as disability to get better evidence<br><br>Page 13 Table 5: Should be renamed as underlying cause of disability and not cause specific disability<br><br>Page 13 line 54-57: Should be rephrased as Persons with disability had significantly lower formal education. Otherwise it appears that literacy is the underlying cause of disability which is an erroneous interpretation.<br><br>Discussion |

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| | Since the study used the Ten Item questionnaire there should have been a comparison with figures reported by Dr Naila Zaman Khan from her studies.<br><br>Also there has been a study using Key Informants to identify childhood disabilities. There is no mention of this study either. Similarly there has been a study using Rapid Assessment of Disability in Bangladesh and this has also not been referred to. The authors should review these studies and compare their findings with these studies as all these have been conducted in the past decade or so. |

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| **REVIEWER** | Md. Ismail Tareque<br>Department of Population Science and Human Resource Development, University of Rajshahi, Bangladesh |
| **REVIEW RETURNED** | 01-Mar-2016 |

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| **GENERAL COMMENTS** | Good job!!! Thanks!!! |

**VERSION 2 – AUTHOR RESPONSE**

Reviewer 3
Query 1: Three separate questionnaires were used – Were they comparable?
Response: Comparable with hearing, eyesight and locomotors disability, however, less comparable in speech and mental disability. There is no unique tool that can be used for assessing disability of all ages. Therefore we used three separate questionnaires to capture disability cases of all ages.

2: At age 0-1 a lot of milestones may be inaccurately assessed by parents
Response: We agree. Any subjective measure has some limitations that cannot be over ruled with certainty. Therefore, we have acknowledged these issues as our limitations (p 14, lines 7—22)

3: There should have been a separate schedule for adults aged 18+
Response: Following identification of all disability cases, we presented data under three age groups ( 0 –14 years, 15 –59 years and 60 years and above) as per the age stratification used in the World Report on Disability 2011.

4: Restriction of participation at ages < 10 years esp those aged 0-1 or activity limitation could be erroneous
Response: We did not include/ask any question on restriction of participation for children less than 10 years.

5: Is educational deprivation the cause or the consequence of disability – The statement should be rephrased as were closely associated so that the direction is not intended as causal.
Response: Educational deprivation is the consequence of disability. Statement rephrased.

6: On what parameters do the authors call the district ‘typical’
Response: Population density, sex ratio, average household size, and literacy rate of Manikganj district are closely identical to the demographic profile of national population. Other characteristics

such as composition and infrastructure of urban and rural areas also represent the usual features of a typical district of Bangladesh. Therefore the word ‘typical’ was used. These issues have been described between lines 9—21 of current p 4)

7: Page 3, line 5-7: There seems to be a conceptual problem regarding disability as described. It appears that people with impairments are being confused with disabilities as social stigma, discrimination,
inequality and disrespect are actually reflecting disability.
Response: Corrected. The statement has been rephrased to avoid any confusion. Current 3, lines 5—13.

8: Page 3, line 22-24: References for the countries mentioned should be cited.
Response: Reference added.

9: Page 3, line 36: Suggest using the term ‘magnitude’ rather than ‘burden’ which has an insensitive connotation with respect to disability
Response: Done as suggested.

10: Page 3, line 39-40: grammatical error should be corrected – ‘in’ should be dropped
Response: Corrected. Dropped ‘in’

11: Page 3, line 46: nine times ‘higher’ than
Response: Corrected. Added the word ‘higher’

12: Page 3, line 55: discrepancy of findings of between – The second ‘of’ should be dropped
Response: Corrected. Dropped second ‘of’

13: Page 4, line 12: Typical should be dropped as population density similarity is not adequate to compare districts. There should be additional data on socio economic parameters, gender distribution etc..
Response: Additional data added. The population density, sex ratio, average household size and literacy rate of Manikganj district are closely identical to the demographic profile of national population. Other characteristics such as composition and infrastructure of urban and rural areas also represent the usual features of a typical district of Bangladesh. Therefore the word ‘typical’ is suitable for the readers to their better understanding of the context of study area.

15: Page 4, line 38: Rationale for selecting 105 households is not clear and should be explained
Response: 150 households were calculated on the estimate of having average household person (4.2) to get targeted sample size in urban and rural areas. Description given (p4, lines 52—55)

16: Page 5, line 3-6: Was any agreement analysis conducted? What was the level of agreement between the different investigators?
Response: We did not conduct agreement analysis. However, random interviews for both case and non-case were conducted by supervisor (s) as part of quality check.

17: Page 5, line 14-15: It is therefore evident that two different sets of instruments were used. Was a validation of responses or sensitivity analyses been done with the different questionnaires? If not it may be better to report the results as two separate papers. Response: We have clearly stated in methods section that we have used different sets of instruments for a valid reason—to capture disability of all ages. Yes we are completely agreed that separate papers could be written. However our objective of this study was to report the prevalence of all ages. Therefore, following identification of all disability cases using different sets of instruments we presented data under three age groups ((

0 –14 years, 15 –59 years and 60 years and above).

18: Page 5, line 31-33: When dropping questions from a validated questionnaire, a revalidation has to be undertaken once more.be considered as disabilities.
Response: We have clearly described in methods section about the source of tool (s) where we had adopted questions from. We also gave the reasons why we dropped certain question. P5, lines13—40 .

19: Textbox 1a: Item 1 what age was the cut off applied for this question
Response: Data collectors were properly trained on major developmental growth/milestone activities of a normal child so that they can make the parents able to identify/differentiate whether their children has any delay in sitting, standing and standing as appropriate. These were assessed based on parents or household head's subjective judgment asking "Do you think your child [Mention the child's name] has following health conditions/problems/difficulties compared to other children of same age". We have described in Textbox 1a. Any subjective measure has some limitations that cannot be over ruled with certainty. Therefore, we have acknowledged these issues as our limitations (p 5, lines 43—60)

20: Item 2: How was seeing difficulty assessed at different ages: 0-3 months; 3-6 months; 6-12 months?
Response: Same as response given for Item 1

21: Item 3: How was hearing assessed for 0-3 months old?
Response: All items in Textbox 1a were assessed on the basis of subjective judgment of patents or household heads

22: Item 5: What age was this assessed?
Response: All items in Textbox 1a were assessed on the basis of subjective judgment of patents or household heads.

23: Page 7, line 46-55: This is the most critical component of the study; It seems as if apples and cucumbers are being clubbed together. This would define disability very loosely and erroneously.
Response: Our objective of this study was to report the prevalence of all ages and therefore we used different sets of instrument to capture all disability cases. Following identification of all disability cases we presented data under three age groups (0 –14 years, 15 –59 years and 60 years and above). We have stated in detail in methods section about different sets of instruments, process of defining a case of disability, and age stratification for presentation of data.

24: Page 8, line 6-12: The conventional way of describing disability severity is by looking at those who have great difficulty in performing a task or are unable to perform a task as having a disability. This is because just a little or moderate level are not very sensitive in defining disability. Authors should present data on the severe forms also separately.
Response: There were typos in recordings of responses. Now these have been corrected as: not at all=0, just a little=1, moderate level=2, a lot of difficulties=3 and unable to bear=4.Relevant changes have been done in Table 3. The responses of 'just a little (recorded as 1)'difficulties were not considered in defining a case of disability.
The responses of 'moderate level (recorded as 2)' difficulties were considered with a condition in defining a case of disability— if all responses of one domain received a score of '2'. Otherwise if any of the responses of any domain received 'a lot of difficulties (recorded as 3) or 'unable to bear (recorded as 4)' we considered it as "a case of disability". Therefore inclusions of moderate level difficulties in such cases are justifiable.

25: Page 8 line 17: Suggest that the authors present data in the following age strata: < 18 years; 18-35 years; 35-59 years; >= 60 years
Response: The best ever available document on disability “World Report on Disability 2011” used three age strata (0 –14 years, 15 –59 years and 60 years and above) for presenting disability data and we followed the same age strata in our study.

26: Page 10, Table 2: These are not comparable ages as delay in sitting at 0-3 months etc. is not applicable so the denominator for each milestone would vary by age. Either the authors should do that or drop this table completely.
Response: Dropped Table 2 as suggested. Relevant texts in manuscript also deleted.

27: Page 10, line 41-52: Should be moved to methods section as it is not relevant here.
Response: Done as suggested.

28: Page 11, Table 3: Should be stratified by age as suggested before and report only lots of difficulty or inability to perform as disability to get better evidence
Response: The Table 3 describes the pattern of responses into five categories against each variable to reflect the overall context. However, the responses of ‘moderate level (recorded as 2)’ difficulties were considered with a condition in defining a case of disability— if all responses of one domain received a score of ‘2’.
Otherwise, if any of the responses of any domain received as ‘a lot of difficulties (recorded as 3) or ‘unable to bear (recorded as 4)’ we considered it as “a case of disability”. Therefore inclusions of moderate level difficulties in such certain cases are justifiable.
Responses to the query regarding age stratification have already well covered Please see responses of Sl no. 24 and 25.

29: Page 13 Table 5: Should be renamed as underlying cause of disability and not cause specific disability
Response: Renamed as suggested.

30: Page 13 line 54-57: Should be rephrased as Persons with disability had significantly lower formal education. Otherwise it appears that literacy is the underlying cause of disability which is an erroneous interpretation.
Response: Rephrased as suggested. Current p 12 lines54—57.

31: Since the study used the Ten Item questionnaire there should have been a comparison with figures reported by Dr Naila Zaman Khan from her studies.
Response: We have acknowledged her article entitled “Validity of the Ten Questions for screening serious childhood disability: results from urban Bangladesh” in our manuscript (Reference number 15). The objectives of this study to report prevalence of disability in general capturing all ages. Therefore we did not go for any specific age group comparison. Currently we are drafting another manuscript focusing on childhood disability based on results out of Ten Item questionnaire where we will go for comparative discussion for sure.

32: Also there has been a study using Key Informants to identify childhood disabilities. There is no mention of this study either. Similarly there has been a study using Rapid Assessment of Disability in Bangladesh and this has also not been referred to. The authors should review these studies and compare their findings with these studies as all these have been conducted in the past decade or so.
Response: Reference (Reference number 23) of the study using rapid assessment of disability questionnaire has been acknowledged in discussion section. Current p13, lines 44—48.

## VERSION 3 - REVIEW

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| **REVIEWER** | GVS Murthy<br>Public Health Foundation of India, India |
| **REVIEW RETURNED** | 29-Apr-2016 |

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| **GENERAL COMMENTS** | Concerns raised have been adequately addressed |