Reviewer’s report

Title: Trends and Inequalities in Stunting in Nepal: A Secondary Data Analysis of Four Nepal Demographic Health Surveys from 2001 to 2016

Version: 0 Date: 03 Sep 2018

Reviewer: Swetha Manohar

Reviewer’s report:

Overall comments: This paper covers an important topic and analyses for Nepal, especially as the country works towards the reduction of stunting which has experienced a slower rate of decline in the past 5 years compared to the past 20. This paper's topic however is not the first of its kind but because it does utilize the most recent DHS data in its analyses, this is an important contribution. Showing trends over time is also another strength of this paper. Given the context of the country, it seems that a key factor that drives inequity in Nepal, caste, is not mentioned. This seems to be an oversight given the focus of the paper, i.e. discussing sociodemographic inequities and its association with stunting. Additionally, a thorough revision of the discussion needs to be undertaken to clearly present the study's findings and how they tie specifically and contribute to persistent stunting. Describing a lack of access to services alone does not quite make a strong case. Additionally, it would be helpful to understand coverage of the multiple programs that the authors state are responsible for a decrease in stunting and if/whether they cover and if they even target disadvantaged groups (Suahaara for example does). There also appears to be room for a more nuanced discussion of how residence in specific agro ecological zones may have previously been associated with increased odds of stunting but that over time has been associated with lower odds. A minor comment is that the manuscript would benefit from a careful review to ensure completeness of subheadings, figure and table headings. Please find below specific comments related to difference sections of the paper.

Abstract: "For the first time" .. Authors claim that this paper is discussing inquities and its relationship with stunting for the first time but this topic has been discussed elsewhere. Please see:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5084730/


Line 1: Would be specific here when saying linear growth is "one of the finest indicators". The authors presumably mean 'stunting' measured by a height-for-age z-score of <-2. Additionally, there has been much discussion about how good of an indicators stunting is in the recent past so while recognizing that it is indeed a useful and easily measurable indicator of a country's overall development and child health, would recommend the authors temper this introductory line.

Line 44: Again, very definitive statement related to irreversibility of stunting. Evidence does point to a limited recovery from a depressed z-score after 2 years of age however, there has been
evidence presented on catch-up growth later in life under certain circumstances (Andrew Prentice's work in the Gambia and the Young Lives Studies are examples).

Line 47: Again, the causes of stunting are poorly understood and evidence points to there not being clear and "definite" causes. Would temper the language.

Line 58-60: Is food insecurity not seasonal in other parts of Nepal? There is a quite a bit of evidence pointing to this in the Terai as well.

Line 65: Development regions are introduced here without giving context to the reader of what these are. Because this specific descriptive features throughout the paper, it would be useful if more detail is provided about what 'development regions' so the reader is able to understand their significance when reviewing the results.

Line 75-77: This study is important and it is indeed important to discuss the inequities in stunting in Nepal and be efficient in doing so by using publicly available data such as DHS data, however it is important that publications on socio economic inequities and stunting in Nepal has been previously published. Please see articles previously shared:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5084730/

Line 100: Request that the author please include more details on how the wealth index was constructed.

Line 123: Request that the authors please clarify this statement with more details as it is not readily understandable as it reads now: Logistic regression analysis was performed undertaking a complex sample taking into account standard error as recommended by DHS

Line 134: The subheading says "distribution of children under-five years" but the text starts off with talking about the percentage of mothers, their education level and household wealth. May help to be more specific here about what the table is describing and revise the subheading to reflect that.

Line 139: For these results (Table 1 & 2), it would be helpful for the authors to perform statistical test to identify if there were differences in the prevalence of stunting between survey years.

Figure 1 & 2 are rather hard to review, would it be worthwhile perhaps to plot these graphs in STATA or reduce font size of the numeric values?

Table 1 header: Please specify frequency and percentage of ..?

Line 170: "fell non-significantly" may need to be rephrased with "decreased but was not statistically significant"
Line 176: It seems that while children living in the hills and mountains experienced decreased odds of being stunted in 2006, this increased odds goes away with children living in those regions experiencing decreased odds of stunting compared to the Terai in 2011 and 2016. This would be important to note in the results too.

Line 185: The reference quoted for the statement that one of the main reasons for a decrease in stunting over the years (which was passed in 2013 but only really implemented and partially at that in 2014) is not quite accurate as the reference is not a true evaluation of the MSNP and its "effects". Further, other analyses have been done to try and understand what has contributed to the decline in the stunting over the years (Headey et al).

Discussion:

It would be worthwhile to discuss other limitations of this study, for example the limitations of cross-sectional analyses to understand temporality of relationships

Line 240: Why are provincial level data important? Would be important for the authors to expand on this.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

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