Reviewer’s report

Title: Factors associated with diarrheal morbidity among under-five children in Jigjiga town, Somali Regional State, eastern Ethiopia: A cross-sectional study

Version: 1 Date: 16 Mar 2017

Reviewer: Patricia Pavlinac

Reviewer's report:

Background:

The first three paragraphs of the background could be consolidated into a single paragraph describing the worldwide importance of diarrhea, and the particular relevance of Ethiopia.


Line 66, 90% of deaths occurs in SSA and SA needs a citation

Line 91: IMCI implementation led to a reduction in under 5 mortality needs a reference. While I agree with this in theory, I'm curious about the evidence proving this point.

Line 95/95: I would caution against using the word cause to describe risk factors for diarrhea as the cause is most often an enteric infection: Consider revising "Studies show that cause of occurrence of diarrhea…" to Sociodemographic, household, environmental, and host characteristics play an important role in determining risk and recovery from diarrheal episodes"

Methods:

Line 119: Consider revising "majority is Muslims by religion" to, and most residents are Muslim"
Line starting at 124. The sample size calculations were based on a single proportion formula, a method which is useful for a study with the goal of obtaining a precise estimate of prevalence. However, the goal of this study as I understand it was to determine correlates of diarrhea, and such an analysis requires sample size calculations which are based on the anticipated measure of association (in this case odds ratio), anticipated prevalence of diarrhea etc. Suggest either revising the sample size calculations, removing, or adapting the goal to primarily focus on estimating the prevalence of diarrhea in this setting.

Line 192: "Binary" is probably not the correct term to indicate univariate (single-predictor) models. Instead consider using the term univariate. Elsewhere in the paper the authors use bivariate.

Line 197: Please add what p-value cut-off was used to remove variables from the model when using backwards step-wise regression?

Results:

Describing the prevalence of various risk factors could be done more concisely, simply by stating only the most important ones and then referring to the tables.

Would suggest against using the word determinants of diarrhea, because this is a cross-sectional analysis and therefore it's not known whether these factors preceded the diarrhea or whether they are simply associated.

Line 258-263: Consider including some estimates to substantiate the statement about some variables being associated with diarrhea

Tables 1-3 consider making into a single Table 1 which describes the population included in the study.

Table 4. In the univariate (crude) analyses, there are numerous 95% confidence intervals that do not cross the null value of 1.0 yet there is no asterisks indicating statistical significance of 0.05, for example: the latrine being shared (OR: 0.548(95%CI: 0.305-0.987). Also table 4 does not include all the variables (ie age, feeding etc) all of which would be interesting to see the odds ratios for
Discussion:
The discussion is well written and puts many of the findings in context with other studies. The limitations section could be expanded upon, such as self-report of diarrhea over a two week period which may underestimate true diarrhea (or capture more severe diarrhea only). Also, given the study was cross-sectional, for some of the factors like hand-washing, it's impossible to know if the risk factor preceded the diarrhea or whether it was changed because of the diarrhea. Another limitation is the lack of data on the distribution of pathogens among the children with diarrhea. Given some pathogens have unique risk factors and unique presentations, the generalizability of the identified risk factors may apply only to other settings where the pathogen distribution is similar to the one in this study.

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

Yes

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

Yes

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

No

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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