**Reviewer’s report**

**Title:** Prevalence of active trachoma and associated risk factors among children of the pastoralist population in Madda Walabu rural district, Southeast Ethiopia: A community-based cross-sectional study

**Version:** 0  **Date:** 09 Nov 2018

**Reviewer:** Martin Holland

**Reviewer's report:**

**Summary**

This paper reports a standard trachoma prevalence survey in the Madda Walabu sub-district of Bale in the Oromia region of Ethiopia. The selected population is a pastoralist (cattle livestock farmers? or are you implying mobility/nomadic). The paper covers some noted risk factors for the risk of active trachoma such as water sources and presence of latrines. The authors conclude these communities require further intervention for trachoma control as prevalence rates remain well above the agreed thresholds for elimination.

**General overall comments**

The screen shot attached describes something not really covered or made clear in your paper. Firstly, in the map, where you are in Ethiopia and second that region and district level data from your study area was made in 2013 and treatment in the form of Zithromax given in 2016. Use of the GTMP figures and the trachoma atlas (www.trachomaatlas.org) shows the freely available data and sets your study in context. The paper really would improve from a radical rewrite taking into account these data and making it easy for the reader to understand your context. There is no mention if the communities in your subdistrict have been treated, what the coverage was and if your surveys form part of recommended impact surveys following implementation of SAFE (MDA) in 2013. Your data is presented as if there are no prior data or information. There needs to be some improvement in the structure of the English and sentences. There are often words missing or in the wrong order. In general, you need to describe why you chose to focus on these risk factors and why you chose questionnaire rather than direct observation to record the water or latrine use (even in a smaller sample to confirm accuracy of questionnaire derived data.)
Specific comments

Abstract

line 2 - still not stills

line 6 - in a pastoralist OR in pastoralist populations

line 14 Results: A total of 406 children aged 1-9 years were participated in the study. Of these, 21.9% (95% CI: 18.0-25.6%) were positive for active trachoma; trachomatous inflammation-follicular constituted 18.5%, while 3.44% were trachomatous inflammation-intense cases. Source of water (AOR=6.1, 95 % CI: 1.0, 36.5), time to fetch water (AOR= 8.7, 95 % CI: 2.20, 34.2), presence of latrine (AOR = 2.5, 95 % CI: 1.8, 5.3), and use of soap during face washing (AOR = 4.3, 95 % CI: 1.8, 10.6) were determinant factors associated with active trachoma.

Shouldn't the last 2 aORs be protective i.e. below zero or needs to say lack of latrine use and lack of soap are increased risk?

Line 20 Conclusions: "The prevalence of active trachoma exceeds the WHO thresholds and a concern for pastoralist population. Source of water, time to collect water, presence of latrine, and soap use for face washing were factors associated with increased prevalence of active trachoma"

This does not make sense as presented - exceeds the WHO thresholds for what? This TF prevalence suggests SAFE implementation with 3 years of annual MDA is required or if this is already implemented then continued MDA and impact survey required. The risk factor analysis presented is limited and has several limitations such as lack of observed use of latrines, or monitoring what families do with water and relies on self-declared use collected by questionnaire. There needs to be some justification or background explanation why these particular factors were chosen for this population. The conclusions or results need to highlight what is novel here for this study and population i.e. are these population specific to pastoralists? What about comparisons to other pastoralist populations in other regions or countries and if this is not possible specific comparisons to other regions of Ethiopia where water access is more readily available. A focus on the differing risk factors between contrasting populations rather than simply listing seemingly random TF prevalence data from around Ethiopia or some selected countries would really improve the value this data.
English needs some checking for minor errors, missing words poor grammar throughout the manuscript

Line 17 "and Environmental improvement, particularly improved access to water and sanitation [4,5]. is highest in Oromia region (41.3%) next to Amhara region (62.6%)"

- this does not make sense Amhara indicated as higher than Oromia?

"north Gondar [10], 11.0% Leku town, southern Ethiopia [11], 12.5% in Mojo and Lum district [12], and 22.5% Trachomatous Inflammation- Intense (TI) in Gonji Kolella district, Northwest Ethiopia [13], 24.1% in Baso Liben district of East Gojjam [14]. Another study done Amhara region, Dessie city showed the prevalence of active trachoma in children 1-9 years was 26.8% [15], a study from north and south Wollo zones of Amhara region reported 21.6% prevalence [16], a high prevalence of active trachoma (52.4 %) also reported from Gazegibela district, Amhara region [17]."

- interesting facts and variability across Ethiopia and regions but this is not interesting reading it is just a list of prevalence by region of different stages of trachoma. The reader could look at the trachoma atlas and visually see all these percentages through time. There needs to be something more given here to make this of interest.

"Conversely, none of the previously conducted studies assesses the prevalence of active trachoma among the pastoralist population".

- This is the differentiating feature of your study and this point needs to be made in a more relevant way otherwise so far this is a list of percentages in different regions with a list of statements about which well documented and proscribed interventions are required.

"goal of eliminating active trachoma as a public health problem by the year 2020" -
This is not the goal, elimination of trachoma (including TT) is the goal.

The point is you need to establish if in the special circumstances of a pastoralist population the risk factors and therefore the recommended SAFE interventions will work or if micro- or context specific changes are required in these for them to be effective.

Methods

line 18 - frequency of face washing, soap use during face washing

- how was this data collected by questionnaire rather that observation?
Same for latrine - observed use or questionnaire?

Active trachoma: Trachomatous inflammation follicular (TF) has been suggested by WHO as the key indicator for assessing active trachoma and it was defined as the presence of five or more follicles in the upper tarsal conjunctiva (follicles must be at least 0.5 mm in diameter).

- Yes this should be correct but to be accurate the region of the everted conjunctiva should be described. This is just a standard definition so why not just say it's the standard WHO simplified grading system.

What about TI - TI can mask TF and is part of the WHO simplified grading system.

TF and or TI is the definition of active trachoma not just TF.
Data quality

line 14 questioner - questionnaire

line 18 - field not filed

Trachoma graders

What did the graders have to do to pass the training and how was this judged and by whom?

Results

Define an unprotected water source?

18 "From the multivariable logistic regression analysis; source of water, time to collect water, presence of latrine, and soap use for face washing were significantly associated with active trachoma among children

- the data has not been shown yet and we are moving directly to multivariable regression, ideally should be univariate then a stepwise progression in the multivariate analysis to identify the independent factors

Line 20 - "A child whose household use unprotected water were nearly 6 times more likely to develop active trachoma as compared with a child whose households use pipe water (AOR=6.1, 95 % CI: 1.0, 36.5).
- To be accurate you can't say this is more likely to develop, they have increased risk of active trachoma, to develop implies you directly observing the development of TF this would require some sort of longitudinal aspect where you observed those that did and those that did not develop active trachoma and that was shown to be dependent on unprotected water source.

"Similarly, the likelihood of acquiring active trachoma was higher among households THAT use surface water and rain water (AOR=13, 95 % CI: 2.9, 58.2) and (AOR= 4.8, 95 % CI: 1.3, 17.8), respectively. It was also revealed that, time to fetch water (AOR= 8.7, 95 % CI: 2.20, 34.2), presence of latrine (AOR = 2.5, 95 % CI: 1.8, 5.3), and use of soap during face washing (AOR = 4.3, 95 % CI: 1.8, 10.6) were independently associated factors for presence of active trachoma (Table3).

- as the data are described or presented why would use of soap increase risk of trachoma (these aORs are above zero which implies in this order there is increased risk), plus also the presence of a latrine? These make little sense you need to be clear the use of soap or the presence of latrine reduce the risk of active trachoma either in the way you describe it in the text or the in the regression itself such that the ORs appear in the correct orientation?

Overall it would be useful to have recorded or discussed the volume of water and what it is used for and likewise seems more important that latrine use rather than presence or absence and proximity of cattle (for fly breeding sites animal faeces) should be discussed or recorded.

Discussion

"The prevalence of active trachoma among children aged 1-9 in the study population was found to be 21.9%, which is higher than the WHO trachoma elimination target (a prevalence of active trachoma (grade TF) in children aged 1-9 years of <5%)"

- why would it be below the elimination threshold unless some interventions had been planned?
If it is a suspected endemic area, then this is establishing through survey what the trachoma prevalence is and if it is endemic then what level of intervention is recommended. If it's an impact survey, then continued invention is required (all of SAFE) if TF drops below 5% at the district level communities may require individual attention and F & E needs to continue. Again, the discussion is basically repeating the introduction and results as a list of prevalence by district and reiterating the risk factors. This would be much improved by more insightful review of the results in the wider context.

WHO recommends at this prevalence 3 years of SAFE followed by impact survey at which point intervention may stop or it should continue depending on prevalence after the 3rd round of MDA.

"Despite the fact that, trachoma is a water-washed (?) Please change or clarify this wording water-washed does not make sense) disease and the availability of water seems to be more critical than the type of water source in reducing trachoma, in rural pastoralist community the type of water source seems to be important. In line with this finding, a study from Gazegibela district (north Ethiopia) reported the source of water supply has been significantly associated with the occurrence of active trachoma among children"

- there are many factors that could be dependent on this statement including socio-economic, behavioral and cultural. Water type and use measured in this way may be associated with risk, but risk is increased with some unlikely factors such as soap and latrines (but see below as this seems to be just a reflection of how you have written about this analysis). The study really should have investigated why or how these risk factors lead to increased risk of active trachoma?

This is not what you have indicated before - "Presence of latrine is one of the risk factors for active trachoma identified in this study. Those of children who were living without latrines owned households were almost three-fold increased risk of having trachoma than their counterparts. In support of this, other studies also reported similar finding"

- before it was 2.5 times increased risk with aOR >1

limitation section is correct is this study has several
- "estimations of household time to fetched water were merely based on the respondents' response, which may be uncertain"

- and many others including soap use.

This following statement needs is ok but could be made more clear "Source of water supply, time to collect water, presence of latrine, and soap use for face washing were determinant factors associated with increased prevalence of active trachoma".

For example - Source or type of water supply, increased time to collect water, absence of a latrine, and lack or reduced use of soap use for face washing were determinant factors associated with risk of active trachoma.

Yes, SAFE is required and for some years - the question being has it not already been implemented, the 2013 survey would imply it is already active in the district and sub-district. Your study gives no indication of treatment either before or as a result (i.e. action to be taken since you have surveyed these communities and then not done anything about the trachoma. Could you explain or describe how will your data on the prevalence of trachoma be used - who is responsible for delivering treatment and when is it going to happen?

Table 2 - presences of eye drainage?

P-values in table 3. There is no legend and the reader needs to be reminded of the variables adjusted for. Please indicate in the table the calculated p-value rather than <0.05 or <0.005
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?
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Yes

Are the conclusions drawn adequately supported by the data shown?
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I am able to assess the statistics

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