Author’s response to reviews

Title: Coverage of Vitamin A Supplementation in Nigeria and Implications for Childhood Blindness

Authors:

Ada Aghaji (aaghaji@yahoo.co.uk)

Roseline Duke (dr.roselineduke@gmail.com)

Ugochukwu Aghaji (aghaji.ugochukwu@mail.utoronto.ca)

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Author’s response to reviews:

Thank you for your insightful comments. They have helped improve the quality of the study report. The corrections have been done and are included. Please see the marked copy.

Reviewer reports:

Clare Gilbert (Reviewer 1): This is an important topic and the authors are to be congratulated in performing this analysis.

A: Thank you

Small point: vitamin A deficiency is now called vitamin A deficiency disorders (VADD), reflecting the systemic and widespread impact of deficiency on multiple systems.

A: Thank you. This has been corrected.

Introduction

"The primary cause of VAD is lack of an adequate intake of vitamin A". Please add to this by saying that children have relatively high requirements for vitamin A, and demand for vitamin A increases during infections.

A: Thank you. This has been inserted. Pg 2. Lines 17-18
VAS is only one strategy for control of VADD, and others should be mentioned in the introduction and discussion e.g., reducing diarrhoeal diseases; nutrition education; local production of vitamin A rich foods etc, as was originally advocated by WHO.

A: Thank you. This has been inserted. Pg 2. Lines 21-23.

Please explain in the introduction how and where vitamin A is currently dispensed in Nigeria, and by whom. Does Nigeria use the Integrated Management of Newborn and Childhood Illness as the child health component of primary level maternal child health services? If so then routine VAS and measles immunization are included in this. Does MNCHW include VAS - we only learn about this in the discussion whereas it would be useful to know about this before reading the results.

A: This has been included. Pg 3. Lines 10-13

Methods

Greater clarification is needed on how data on VAS were collected: what was asked? Were Road to Health charts checked to verify what the mothers said? If not then this should be stated.

A: Thank you. Data on VAS were collected from charts where available or based on mothers’ recall. No information from the NDHS is given on the proportion of mothers that had charts. This has been written as a study limitation. Pg 5. Lines 13-15.

Data analysis: as acknowledged by the authors, children aged 6 months would not be expected to have had a dose of vitamin A within the previous 6 months. This may explain the lower coverage in infants aged 6-11 months (13%). It would good to analyse data for children aged 9 months and above as well, keeping 6 months and above as these findings are comparable with other studies.

A: Thank you. This has been done as shown in Figure 2 and explained on Pg 8. Lines 25-27

More clarity is needed on the sources of data on blindness in children, and whether the data are population based, facility based, or came from examining children in special education.

A: Thank you. The data on blind children was obtained from published population-based estimates in three regions in Nigeria. Pg 5. Lines 21-24
Results.

This is not written well. Paragraphs and sentences should not start with "Table X", but the table should be referred to at the end of a section of text which describes some of the main findings in the table.

A: Thank you. This section has been overhauled. Pg 8. Lines 18-27 and Pg 9 Lines 1-8.

Re childhood blindness data: all studies have their sources of bias, which should be alluded to in the discussion. It is also not legitimate to perform statistical analyses as this requires population-based data with variables that are normally distributed.

A: Thank you. The data were obtained from population-based estimates using key informant methods. However, the variables may not be normally distributed, and we have included this as one of the limitations of this study. Pg 15. Lines 7-12.

Discussion

This could be written more succinctly.

A: Thank you. This has been re-written.

It is not clear whether the strategy adopted for VAS is by house-to-house visits in Nigeria, which would take an extraordinary amount of staff time, would be very expensive and take staff away from other duties in facilities.

A; Thank you. It has been reported that VAS is facility based. Pg 13. Lines 22-24.

Re mass immunization days (AVW/MNCHW in Nigeria). There is anecdotal evidence that one mother may take several children to be vaccinated, including those from neighbouring households. This means that mothers who did not accompany their child would not know what had happened. The authors should highlight that the data they present is, therefore, likely to be a minimal estimates.

A: Thank you. This has been included in the text. Pg 9. Lines 15-18.
Discussion

The discussion should not repeat the results: the rural / urban differences in VAS in the univariate and adjusted analyses should be highlighted in the results, and then commented upon in the discussion.

A: Thank you. This has been corrected. Pg10. Lines 4 and 7

The paper reads as if the main reasons for the lower coverage in the north is because of religious and cultural reasons, which may be misleading. As I understand it, the north of the country has far poorer infrastructure and health care services than the south, which may be other explanations not captured in the analysis. The reference to disapproval by fathers needs to be mentioned with caution, as the same may apply in other areas of the country but where studies were not done.

A: Thank you for this. Several articles suggest that religion and culture are the main reasons for health disparities between the north and south of Nigeria. There is anecdotal evidence that the north has less health infrastructure than the south. However recent evidence shows that this is not the case. The north actually has 57% of health facilities in the country. In addition, people in the north are more likely to live within 5km of a routine vaccination service point compared to their southern counterparts. The section has been rewritten. Pg 11. Lines 17-24. Pg 12. Lines 1-5.

The paragraph starting "Identifying inequities" needs to be broken up, separating regional differences from differences according to mother's education.

A: Thank you. This has been done.

The paragraph on blindness in children needs to be qualified, as above, as eye care services are likely to be less available in the north than in the south to manage children with measles infection or corneal ulcers due to VADD or other causes.

A: Thank you. However, research suggests that the main reason in both northern and southern Nigeria for not seeking medical treatment for eye diseases (cataract) has been cost-and not the availability of health facilities.

Vitamin A deficiency disorders increase the risk of mortality, and this should be reflected in the concluding paragraph.

A: Thank you. This has been corrected. Pg 15. Lines 17-18
Silvia Martini (Reviewer 2): Well-written paper on an interesting topic. Although the evaluation performed is limited to a very specific setting (ie, Nigeria), I assume that the information provided can be relevant also to other African low-income countries.

A: Thank you. Yes. The information provided can be relevant also to other African low-income countries. In the discussion we have compared our results to those of Ethiopia, Ghana, Mali and Sierra Leone.

Methods are on the whole appropriate, and the few limitations have been correctly identified and acknowledged. Statistics, including multivariate analyses, seem adequate. The results have been thoroughly discussed, and support the conclusion drawn. References are updated.

A: Thank you!

I just suggest to better clarify this point: "low coverage among children in this age group may be because of the child may not have attained the age of 6 months at the time of the VAS but became of age during the survey".

A: Thank you. This has been corrected. Pg 10. Lines 14-15.