Author's response to reviews

Title: Individual and Community Level Determinants of Childhood Full Immunization in Ethiopia: A Multilevel Analysis

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Author's response to reviews:

Thank you for contemplation of our manuscript for publication in BMC Public Health. We have reviewed the manuscript according to your reviewer’s comments.

Reviewer: Chiara de Waure

Comment 1: When Authors speak about the final data set, they refer to two criteria. One of them is the age of child. This is surprising since the study population was represented by mothers having at least one child from 12 to 59 months of age. Hence, it is not clear to me why Authors refer to age criterion.

Clarification: As stated in line 102-115 of the manuscript, we have clearly stated as “This study analyzed the sample of mothers aged 15-49 years who had at least one child aged 12-59 months in the last five years (2005-2010)”.

As you said the study populations used in the 2011 EDHS were mothers. But immunization service is given for children less than five years only and to collect this specific data mothers having at least one child were included and the age criterion is set 12 to 59 months due to the fact that immunization service is provided only to children of this age category.

Comment 2: Missing data are not dealt with in an appropriate way. In the point by point answers sheet Authors declared to exclude observations having missing data. Notwithstanding, as also reported by the same Authors in tables, there are observations with missing data. Please, clarify this point.

Clarification:

As stated in Line 126-130, for the purpose of analysis age of the child (12-59 months) and number of children per cluster at level-2 was used as criteria to create the full data set. Based on these criteria 896 children were excluded from the analysis. Hence, the final data set used in the analysis comprises 4983 children distributed in 520 clusters.

The 896 records are excluded from the analysis not due to having missing values rather they are excluded since they didn’t fulfill both of the criteria’s used for the
multilevel regression analysis (age of the child and number of children per cluster at level-2). But those missing values which are described in the tables are for the different independent variables which are generally small values to affect the analysis results.

Comment 3: In my opinion, clarifications should be provided with respect to the sentence “The number of under five years children in the households was also a significant predictor of childhood immunization; as the number of under five years children in the household increases the chance of the last child to be fully vaccinated decreases”. The Authors refer to the vaccination status of the last child but this point arises only in discussion. Which was the outcome of the study? The vaccination status of the last child only or the vaccination status of all children in the families? This should be made clear.

Clarification:

The outcome of this study is vaccination status of the last child. We used the number of under five children in the household as one predictor (independent variable) of the status of the vaccination status of the last child.

This finding is also shown in the results section. In line 230-232 of the results section we depicted that “when the number of children in the household increased by one child, the chance decreases significantly (Table 2)”

In the discussion part from line 308-314, we tried to justify and support our finding with other findings as “This finding is consistent with other studies conducted by Elizabeth et al (2003), as compared to children born to parents having one under five children, those children born to families with 2 or 3 children have lesser chance of being fully immunized [25]. Also Alister et al (2007) revealed that Children born from larger families showed a low vaccination uptake [23]. ”

This shows that the total number of under five children in a given household have an effect on the vaccination status of the last child.

Comment 4: Furthermore and finally, I would recommend a careful editing of the text because of the great amount of misspelling and punctuation mistakes.

# Misspelling and punctuation mistakes are edited carefully page by page in the whole manuscript.