Author’s response to reviews

Title: Geographical variation in determinants of high-risk fertility behavior among reproductive age women in Ethiopia using the 2016 Demographic and Health Survey: a geographically weighted regression analysis.

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Reviewer 1
Very interesting work. This paper quality will be more upgraded if authors also add the unadjusted and adjusted effect of different social, economic, and demographic factors. Thank you very much for your comments. We tried to include different social, economic and demographic factors in the weighted regression model but those variables were not significantly affected high-risk fertility behavior geographically.

Reviewer 2
1. Putting Colon (:) after the main topic looks good: Geographically vary determinants of High-Risk Fertility Behavior among Reproductive age women in Ethiopia: Geographically Weighted Regression Analysis
   Thank you very much for your comments. I corrected accordingly (see the main document).
2. Women live in primary clusters were 13% more likely venerable HRFB than outside the cluster. In geographically weighted regression not contraceptive use, and home delivery were statistically significant spatially vary risk factors affecting HRFB.
   Not use a contraceptive, and home delivery were statistically significant predictors locally in different regions of Ethiopia Thank you very much for your comments. I corrected accordingly (see the main document).
3. Space before High-risk inline 74
   Thank you very much for your comments. I corrected accordingly (see the main document).
4. Restructure the sentence with grammatical correction [line 102:104, 107 ]
   This study is a community-based cross-sectional study was conducted using a nationally representative Ethiopian Demographic and Health Survey (EDHS) dataset 2016. Ethiopia is situated in the Horn of Africa from.
   women were included in the...
   Thank you very much for your comments. I corrected accordingly (see the main document).
5 Why the exposure variable [line 128] in outcome variable section: Three exposure variables...Thank you very much for your comments. I corrected accordingly (see the main document).

6 Why the exposure variable [line 128] in outcome variable section: Three exposure variables...Thank you very much for your comments. We used DHS guide line statistics to generate the outcome variables (Three Exposure variables ). We said women faced high-risk fertility behavior if
- Children born to mothers under age 18 and 35 years and older
- Children of birth order 4 or higher
- Children born less than 24 months since a preceding birth

Therefore the outcome of this study was composite generated from the above women delivery characteristics that why

7 The equation in line [190], use the equation format and correct the error Thank you very much for your comments
I corrected accordingly (see the main document).

8 Capitalize the sentence in line (195)Thank you very much for your comments. I corrected accordingly (see the main document).

9 It would be great to understand if you explain briefly the Neighborhood Type used for your analysis in the method sectionThank you very much for your comments. There are two types of Neighborhood moving and search radius. Incremental spatial autocorrelation was performed to detect a distance band in which HRFB pronounced. Using max distance we used search radius neighborhoods analysis technique.

For this study to calculate a specified statistic for the cluster within a specified neighborhood around each input cluster

10 It is always better to present and explain the goodness of fit test for the model: Thank you very much for your comments. The goodness of fit of the model was checked using the statistics 1. Joint Wald Statistic 120.01; p=0.0000001
2. Koenker (BP)Statistics 47.8; p=0.0000001
3. Breusch–Pagan statistic 75.5; p = 0.000001
The significant p-value indicates the model good fit the data

Reviewer #3:
1 Small spelling mistakes can be correctedThank you very much for your comment. We tried to correct punctuations and grammar in the main document

Editors comment 1 Titles of tables and figures: include study name, place, and time in all. Do not use abbreviations in the titles.
Thank you very much for your comments
I corrected accordingly (see the main document).

2 Rescaling of graphs: please make sure that the letter types are not too much deformed
Thank you very much for your comments
I corrected accordingly (see the main document).