Author’s response to reviews

Title: Objective and perceived food environment and household economic resources related to food insecurity in older adults living alone in rural areas

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Reviewer 2 (Reviewer 2): REVISION ASSESSMENT FROM THE ACADEMIC PEER REVIEWER:

Has the author addressed your concerns sufficiently for you to now recommend the work as a technically sound contribution? No

Reviewer comments: Although a major revision is suggested and revised analyses are expected, the authors just highlighted a few lines in the discussion and conclusion as the response. Therefore, the authors did not address the reviewers' comments.

The reviewer's previous comments: About the inconvenience bus route, the authors argued that using personal cars as the substitute to bus route to lower the risk of food insecurity. If that's the case, then using personal car should be the predictor instead of the bus route. More analyses are needed.

Response: As you pointed out, we actually had analyzed the variable of transportation (including variable “by driving” in the table 3) to get to the nearest food stores as an objective measure of community food accessibility. Using cars (variable “by driving”) was not a significant factor of food security in the results of table 3. Instead, perception indices of community food accessibility such as difficulty in food purchasing due to food stores being located far from home and difficulty in food purchasing due to inconvenient bus routes were significant factors as shown in the table 3. Thus, we included the inconvenient bus routes instead of using personal car in the final model. When use of personal car was included instead of inconvenient bus route as the reviewer recommended, the variable was not significant as expected from descriptive analyses in Table 3.

We discussed that using cars could be one of possible explanation on the unexpected results (lower risk of food insecurity) for subjects with inconvenient bus route, and more important reason of the unexpected results could be the general characteristics (younger, higher income...
level, responsible for cooking and preparing) of older adults who experienced difficulty in food purchasing due to inconvenient bus routes and used cars to buy foods. We presume that the negative association between inconvenient bus routes and food insecurity might reflect characteristics of food secure persons who are younger and have higher income level. In addition, there is a possibility of the reverse-causal association since this is a cross-sectional study. We added more explanation on this issue. (page 13, line 225-232)

Additionally, due to the relatively small sample size of our study, further larger studies are needed to confirm these results, especially the role of inconvenient bus route or personal driving on food insecurity, as the reviewer suggested. We added the limitations of our sample size in the discussion section as below: “Moreover, the relatively small sample size limits our ability to detect practically meaningful results, although our study might have statistical significance. Further larger studies are needed to confirm our results.” (page 15, line 270-273)