Review of: "Covid-19 vaccine uptake and its associated factors among rural households in The Gambia: a community-based cross-sectional study"

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Potential competing interests: No potential competing interests to declare.

General Comment.

This study is an important contribution that can shed more light on and inform policy makers about interventions to increase COVID-19 vaccinations in The Gambia. It is well written and has followed most of the procedures for conducting cross-sectional surveys. To further improve the quality of the study, I suggest the following:

1. Introduction: It is generally okay, and I have no comments.
2. Methods:

a. The study used a multistage sampling method, first by villages, then households, and then within the households, two adult individuals. However, this multistage sampling was not accounted for in the analysis. I suggest they use a mixed effects logistic regression model or complex data analysis to include weights to account for cluster differences.
b. The sample size calculation formula used is for prevalence determination but does not account for a design effect. They may consider the design effect.
c. The analytical component, where they determined factors associated with vaccination, can further be enhanced by powering the study to detect a difference in one of their leading predictor variables such as sex, region, or whichever predictor they want to use as the main exposure. In that case, their formula changes to a difference in two proportions formula.

1. Results: While the results are well presented in tables and well explained in the narrative, I have noted the incorrect interpretation of odds ratios. For example, the adjusted odds ratio for males being vaccinated was 2.73 compared to the reference group, women. The authors report that males were “2.73 times more likely to receive vaccines than females.” This is incorrect, as odds are calculated differently from just putting one percentage on top of another. I would suggest they say the odds of males being vaccinated were higher by 1.73 compared to women.
2. Discussion: The discussion can also be improved by a more robust interpretation of the results through scientific reasoning. This is largely missing. For example, education: they have not explained how those with secondary education may have higher odds of vaccination compared to those with university education when those with no education or primary or junior secondary school were not significant, even if odds were higher. They just start describing the policy implementation in institutions such as public offices and schools; how does this relate to

education? Are public workers with secondary education only, or what? Secondly, since no education was not statistically significant, they must not say that the majority of those vaccinated had no education, as the higher odds may just be due to random error.

3. Similarly, how does earning less than D10,000 reduce the odds of being vaccinated? They just present results and say xyz found similar findings and move on. This discussion needs to be improved to demonstrate that they have understood how the various factors are at play from a thorough literature review and scientific reasoning.