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.

The authors have addressed a key theme underlying the COVID-19 pandemic.

Introduction

Authors state that more than 150 people in The Gambia are fully vaccinated and less than 7% of the population is fully vaccinated. Does 7% of the population translate into 150 people?

Is the study known for its high immunization coverage among children less than five years old?

The study timeline could be mentioned in the introduction, especially as so much time has elapsed since the pandemic started.

Methodology

Sample size calculation:

1) Margin of error is erroneously mentioned as 0.05%. This should be 0.05 for a two-sided 95% confidence interval.

3) The sample size does not account for the sampling technique. The calculated sample size described would be sufficient for a simple random sampling technique. However, for complex techniques such as multi-stage sampling, a design effect should be incorporated to account for variance and loss of precision. As a rule of thumb, the design effect for multi-stage sampling is taken as 1.5 or 2.

Sampling procedure: It would be helpful to write the procedure with some more detail. How was the number of villages to be sampled chosen? How was the number 15 for selection of households derived? How was the systematic sampling of households done? Random sampling of households could have been done using the taxpayer's list.

How were the 'vaccinated' defined? Since two different vaccines were utilized in the study population (the one-dose J&J vaccine and the two-dose Oxford-AstraZeneca vaccine), how did the authors define the outcome? Did the vaccinated include all those who had had even one dose of the vaccines of any type, or did it mean getting both doses of a 2-dose vaccine? Was the time factor included, e.g., having received the vaccine at least 7 days or 14 days after the last dose (as was taken as standard definitions at that time)?

Study variables:

There were three different vaccines used in The Gambia from the description in the introduction. Of them, two (Sinopharm and Oxford-AstraZeneca) required two doses for the description of ‘fully vaccinated’, whereas the Johnson & Johnson vaccine was initially given as a single-dose vaccine. But from the results, it is apparent that the study population did not receive Sinopharm.

It could be assumed, from the text, that the authors have categorized the ‘uptake of COVID-19 vaccines’ to be one dose. In any case, it would be helpful for the reader to know the definition used by the authors for this variable (outcome).

What does ‘COVID-19 positivity status’ mean? If through this, the authors sought information on COVID-19 history (i.e., disease history), did the authors consider collecting information on symptoms or test results? If so, it would be good to mention it; if not, what was the reason?

Ethical considerations: Why were both written and verbal consent taken from the participants? Under which conditions was verbal consent taken?

Results

The majority of survey respondents were females (~ 61%). There should be some explanation for this. Was it that the survey was carried out when the men were away at work? What sort of bias will this introduce into the study, and hence, how would that affect the results and the interpretation of findings?

Did the authors explore the age and gender distribution? It could be that the men who were included in the study were older (possibly retired?) and were at home, as opposed to men of younger ages who were at work?

Table 1 should be revised to display the data in a more meaningful manner. There should be either row totals (e.g., number and proportion of vaccinated among males = 76/197 % = 38.5%) or column totals (number and proportion of males and females among those vaccinated = 34.2% for men and 65.7%).

In any case, the data shows that there was a higher proportion of women among the vaccinated individuals. How has that translated into a two-fold increase of odds of vaccination among men in the logistic regression model?

Suggestion: "Divorced" and "widow" could be made into one category given the sparsity of data in the latter category, but that is up to the authors.

In the reporting of associated factors, the likelihood of vaccine uptake among those who tested positive for COVID-19 vaccine decreased by 77.3%...should this not be among those who tested positive for COVID-19 **infection?**

Discussion

The authors should elaborate on the differences and similarities seen between their study and others in the literature.

What is the reason, in the authors' view and from their review of the literature, for the low vaccination rates among the

elderly, even though vaccine programs in most countries specifically targeted health care workers and the elderly, at least initially.

Abstract shows the following statement: "….*In terms of associated factors, males [aOR: 2.728, 95% CI (1.638 - 4.542)] and those at the senior secondary educational level [aOR: 4.525, 95% CI (1.272 - 16.098)] were more likely to utilize Covid-19 vaccines…".* While, in the discussion, the authors state, "…. The vaccination prevalence was higher in females (29%) than in males…". Thereafter, the discussion focuses on the higher proportion of vaccinated women compared to men. How are the odds of being vaccinated higher among men when a greater proportion of women were vaccinated? The authors should revisit the data.

Strengths and limitations

Recall bias is often confused with limitation in recall. Which one would apply here, and how would it impact the study findings?