Reviewer’s report

Title: Health and nutrition knowledge, attitudes and practices of pregnant women attending and not-attending ANC clinics in Western Kenya: a cross-sectional analysis

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Reviewer: Andrew Amos Channon

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This paper studies two different aspects of ANC attendance in Western Kenya. The first is to look at the difference in knowledge between those who attended and did not attend an ANC clinic during the current or recent pregnancy. The second was a multivariate analysis of the factors associated with knowledge, attitudes and practices. The paper has some interesting parts and has some clear policy implications, but it suffers from unclear writing and possibly too much information in the paper. A further issue, although highlighted in the limitations, is the cross-sectional nature of the survey. This limits the conclusions that can be drawn from the results, especially those relating to health-related behaviour and knowledge – it is unclear whether the ANC visits occurred before or after the health behaviour occurred – or even at the same time.

Overall it is a paper with lots of ideas but no clear narrative. Rewriting and simplifying the paper would make it much stronger indeed, as long as the issues surrounding the survey design are answered. There are a number of typos throughout too which should be corrected, with the writing style changed to be more conducive to reading.

Major Compulsory Revisions

The following aspects were the main concerns with the paper:

1. Too many results from different analyses, leading to a lack of in-depth discussion. The paper might be stronger if it is split into too – one looking at the differences between those who did and did not use ANC services, while the second looks at the determinants of KAP.

2. Related to the first point, the research questions were not clear. These are listed at the end of the introduction, but they did not flow from the background and the two separate questions were not signposted well.

3. The methods section is very confusing – it was not clear what was done at different times for different analyses. The sub-titles were clear, but it was difficult at that point to understand what was actually being proposed. Exactly what is being tested is unclear. For instance, why was logistic regression used? I really did not follow what was being tested or done and only understood after reading the whole paper.

4. The conceptual model, Figure 1, was placed in the text before actually being
introduced. The model also had specific variables in it, rather than general concepts that were operationalized later. For instance, rather than radio use it might be better to have ‘media interaction’, which in the methods was noted as being measured by radio use. The way in which the model informs the analysis, and how the analysis changes and updates the model, should also be very clear.

5. Due to the cross-sectional nature of the survey, it is unclear if the malarial and antihelmintic treatment was actually given at ANC clinics in some cases. If they were they would not represent health behaviour but ANC seeking behaviour, which is a predictor.

6. What is the sampling frame used to select the villages proportional to size?

7. How many women did not participate? There must have been lots of missing data – between 9 and 10 women on average participated in each village, which seems low. The method of having the women travel to the village elder’s homestead needs to be discussed. There is no appreciation of any bias in the results due to the survey.

8. On P8 is says that weights were not used due to ‘lack of benefit in accuracy’. What is mean by this? On the same page it mentions ‘ideal response’ - how was this decided upon?

9. Multilevel not used – but unclear why not. The ‘estimates’ not changing by 10% - was this the main effect or the SE? Found it difficult to compare the results from Additional Files and the main file as it wasn’t clear stated what should be studied.

Minor Essential Revisions

10. There was information given about the larger project this was taken from – is this needed? The relevance of this was not made clear.

11. P10 – why is the reference ’20, 20, 10’?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests