Reviewer’s report

Title: The odd man out in Sub-Saharan Africa: Understanding the tobacco use behavior in Madagascar

Version: 3 Date: 30 April 2013

Reviewer: Asad Khan

Reviewer’s report:

This paper aims to estimate tobacco use in 17 Sub-Saharan Africa with a focus on understanding factors associated with tobacco use in Madagascar. The word ‘influenced’ [page 3, para 1] in stating the hypothesis is not appropriate as a cross-sectional study cannot establish any ‘influence’.

Given the four response categories, the use of multinomial logistic regression is appropriate while the technical details of the model (page 5, para 3) may not be useful.

There are some issues, mostly related to regression modelling, that deserve further investigation.

- There is no rationale or conceptual framework in the paper to justify inclusion of explanatory variables considered in the modelling as independent variables.
- The argument of pooling the data from men and women to run a single model is week, given the differential pattern of tobacco use in men and women. I suggest that authors rerun the analyses for men and women and present the results separately for men and women. This is also supported by very high values of RRR for male, compared to female (e.g. RRR=33.64 for dual use of tobacco).
- The authors used ‘robust standard errors’ without explaining the rationale for such use.
- The authors used ‘weighted percentages’ in the Result section, while there is no mention of weighting (how it was created?) in the Method section of the paper.
- Table 1 should include total number (n) in each response category so that readers can interpret the percentages more precisely. E.g. 3.4% of how many women were using smokeless tobacco? It has implication in modelling.
- There are inconsistencies in presentation of the results of multinomial logistic regression model. Table 2 presents RRR while the text says ‘odds ratio’ [page 10, para 2]. Some of the RRR estimates are very high with a very wide confidence interval (e.g. no education, compared to higher education, has an RRR of 30.9 with 95% CI: 7.58*126.0). These are difficult to interpret and may not have good precision.
- It is not evident why the authors have interpreted RRR as relative probability while in reality these are estimates of relative risk.
- There is no information about goodness of fit or adequacy of the fitted model.
and as such it is impossible to know whether the fitted model is a good fit.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests