Reviewer's report

Title: Association between tobacco and alcohol use among young adult bar patrons: a cross-sectional study in three cities

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Reviewer: Adetayo Kasim

Reviewer's report:

The authors used multinomial logistic regression to analyse the association between smoking and drinking/binge drinking based on the definition of smoking status as non-smoker (0 days), occasional smoker (< 20 days) and regular smoker (>= 20 days). The drinking status was also defined as non-drinker (0 days), occasional drinker (< 10 days) and frequent drinker (>= 10 days). Similar grouping was performed for binge drinking based on at least five shots/drinks in the same night. This review is focused on the statistical component of the manuscript.

I commend the authors for the intuitive interpretations of their results and the thorough discussion of their findings. However, I recommend the statistical component of the manuscript be improved as follows.

Major Compulsory Revisions

1. The analysis does not account for bars effect. Based on the study design bars may be considered as clusters. Ignoring clustering effects may lead to false conclusions as the analysis would assume more information than what is actually present in the data. It may be the case that there are bar specific factors which may influence the smoking/drinking behaviour of the participants. The clustering effects may be accounted for by using random effects multinomial logistic regression with bars specified as clusters.

2. The authors analyzed the smoking status as a nominal outcome using multinomial logistic regression. By definition, it is an ordinal outcome and should be analyzed using ordinal logistic regression (specifically, random effects logistic regression to account for clustering effect). At least the authors should motivate their preference for multinomial logistic regression instead of ordinal logistic regression.

Discretionary Revisions

1. I suggest to start with a simpler model based on two categories of smoking status (0 = non-smoker and 1 = smokers (occasional + regular smokers)) using random effects logistic regression to investigate the association between smoking and drinking (non-drinkers vs drinkers (occasional + frequent drinkers)) / binge drinking (no binge drinking vs binge drinking (occasional + frequent )). A descriptive statistics of the association between smoking and drinking should
also be included. For example: percentage of smokers among the drinkers and the percentage of drinkers among the smokers. After establishing the association between smoking and drinking, the authors may then proceed to investigate whether people who smoke more also drink more.

2. Using of BIC on page 9 is valid. However, model comparison can better be done using likelihood ratio testing for nested models. The issue with BIC and other information criteria is “How small is the smaller value”

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

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