

## Peer Review Report

# Review Report on The association between tobacco use and risk of COVID-19 infection and clinical outcomes during the second wave of the pandemic in Sweden: A population-based study

Original Article, Int J Public Health

Reviewer: Philipp Kohler

Submitted on: 22 Jun 2023

Article DOI: 10.3389/ijph.2023.1606175

### EVALUATION

#### **Q 1** Please summarize the main findings of the study.

In this large population-based Swedish cohort, the authors found active smoking status (assessed before the pandemic) to be associated with lower risk for a COVID-19 diagnosis, but with increased length of hospital stay in case of hospitalization due to COVID. For snus users, which is a nicotine product used in Northern countries which is not inhaled, COVID-19 diagnoses were more common than in non-tobacco users.

#### **Q 2** Please highlight the limitations and strengths.

The main limitation is the lack of adjustment for testing frequency among groups (as acknowledged by the authors), but also for other important factors such as vaccination status. Some co-variables used need more explanation. An important critique is that these data will only be of minor interest to the research community, as several similar studies have shown the same associations for smoking and COVID-19.

Strengths include the large sample size, the robustness of the results in multiple sensitivity analyses, and the very clear language used.

#### **Q 3** Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Major comments:

- Your introduction is lengthy, try to be more concise. Also, you should not criticize other studies for not being able to assess causal relationships between smoking and COVID-19, because your study neither can.
- Methods: I miss a table comparing co-variables between smokers and non-smokers (these data are much more important than the baseline data of those with tobacco use assessed in 2018 and 2015). Also, give more information about the covariable "occupational risk" (how was this categorized? What were the most common professions? Give examples of the most common professions in the supplements). Also, tell the reader more about "cohabitation status". What does that mean? How was it categorized? Household exposure is probably the most important risk factor for COVID-19, therefore, this variable is key.
- Results: data presentation could be improved. Instead of showing multiple tables, consider showing a Figure with your main results comparing outcomes between groups. This would make the results more reader-friendly and increase attractiveness of the manuscript.
- Discussion: even if the association between smoking and less COVID-19 was true, there should be a statement about the net impact of smoking on individual health. I think from a public health perspective, this overall judgment is important.

Minor comments:

- consider omitting "during the second wave of the pandemic" in the title, it seems too detailed for the title
- Abstract: typo in the Background section "av"

- Introduction: consider removing the point about reverse causality. Although you are technically correct, it is very unlikely that a COVID-19 diagnosis causes someone to start smoking. The idea seems a little bit off to me.
- Results: COVID-19 incidence is 12.1% in the table and 12.0% in the text.
- Discussion: what you found has been termed "the smokers paradox" by others. Consider including this term in your discussion (e.g. PMID 32788164).

**PLEASE COMMENT**

**Q 4** Is the title appropriate, concise, attractive?

Appropriate and concise yes  
A little shorter would be more attractive (see above)

**Q 5** Are the keywords appropriate?

Yes

**Q 6** Is the English language of sufficient quality?

Yes

**Q 7** Is the quality of the figures and tables satisfactory?

Yes.

**Q 8** Does the reference list cover the relevant literature adequately and in an unbiased manner?)

Yes

**QUALITY ASSESSMENT**

**Q 9** Originality



**Q 10** Rigor



**Q 11** Significance to the field



**Q 12** Interest to a general audience



**Q 13** Quality of the writing



**Q 14** Overall scientific quality of the study



**REVISION LEVEL**

**Q 15** Please make a recommendation based on your comments:

Major revisions.