

The role of novel nicotine-containing products on SARS-CoV-2 infection and COVID-19 progression

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Background

- Because of the alleged protective effect of nicotine on SARS-CoV-2 infection, **some researchers**, whose conflicts of interest with the tobacco industry could not be ruled out, **speculated that e-cigarettes (e-cig) could lower the risk of SARS-CoV-2 infection**

Methods

- We conducted a **systematic review** on the association between novel products and the risk of COVID-19 incidence and progression
- On 7 June 2022 we run our search strings on PubMed/MEDLINE and Embase
- Exposure variables: **e-cig and heated tobacco products (HTP) use**
- Outcomes: COVID-19 incidence, hospitalization, severity and mortality
- Starting from 422 non-duplicate publications (**Figure 1**) we found 14 original publications, including:
 - **10 on SARS-CoV-2 infection**
 - 4 on hospitalization
 - 3 on severity
 - 1 on mortality



Figure 1: Flow-chart

Results

E-cig use and SARS-CoV-2 infection

- Ten studies (**Figure 2**) provided data on the **risk of SARS-CoV-2 infection** for current/ever **e-cig users vs. never/non-users**
- Studies based on a total of **>230.000 individuals** with tested or self-reported COVID-19 diagnosis
- All studies but one provided **adjusted estimates** (mostly odds ratios; OR)
- None** of the studies found a significant **decreased risk** of SARS-CoV-2 infection among e-cig users
- Four studies** (2 on adults and 2 on youth) found a **significant increased risk** for (exclusive or dual) e-cig users

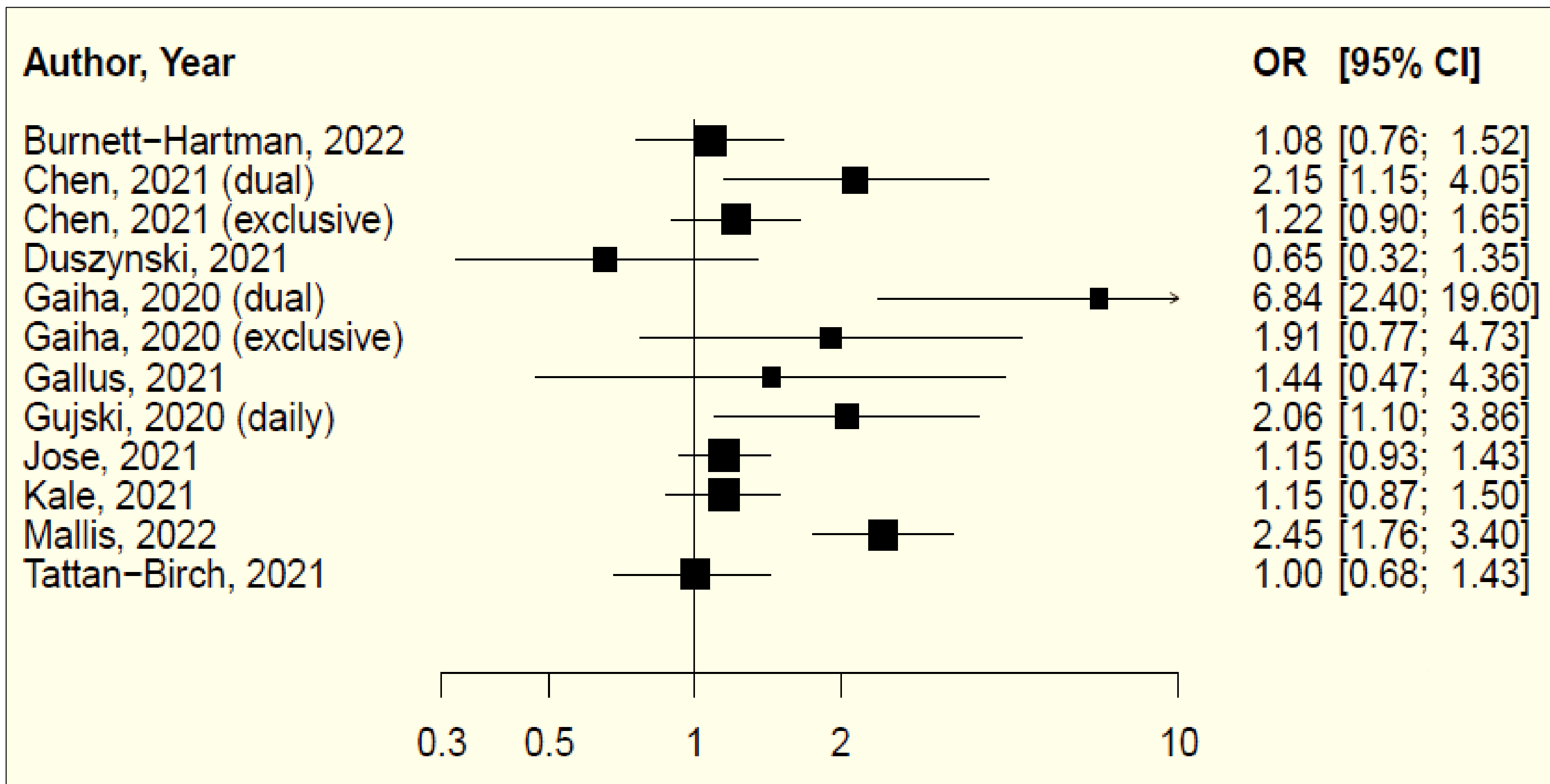


Figure 2: Forest plot, studies on e-cig use and SARS-CoV-2 infection

HTP use and SARS-CoV-2 infection

- A couple of cross-sectional studies investigated the association between HTP use and COVID-19 incidence, finding **no significant association**

E-cig use and COVID-19 progression

- At least three studies showed **more frequent and persistent COVID-19 symptoms** or severity/mortality in e-cig users
- A recent large cohort from the UK did not find **any relationship** between **e-cig use and COVID-19 progression** among ever smokers

Conclusions

The growing evidence on the role of e-cig on COVID-19 incidence, shows that, if any, **e-cig use is associated with an increased risk of SARS-CoV-2 infection** when compared to non-use

E-cig use might increase the risk of severe forms of COVID-19
 But the studies on this topic are few and conflicting

No significant association was found in the few studies on the association between **HTP use and COVID-19**

Conflict of interest: None.

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