Review of: "Real-World Efficacy of N95, Surgical, and Cloth Masks in Mitigating SARS-CoV-2 Respiratory Infections: A Comprehensive Comparative Study"

David Vernez[1]

1 Unisanté

Potential competing interests: No potential competing interests to declare.

General comment

The effectiveness of masks during COVID was the subject of intense debate. On the one hand, laboratory tests show clear differences in efficacy between different types of mask, but on the other, this difference is difficult to observe in real-life conditions. Indeed, there are several confounding factors that make interpretation of the results difficult: presence of other modes of transmission, household exposure, mask-use behavior. This study, which proposes a trial on volunteers in real-life conditions, is therefore welcome and may add important elements to the current evidence, which is still limited. That said, in my opinion, important contextual and methodological information is lacking to appreciate the extent of the results obtained. Editorially, the article is easy to read and well structured.

Specific comments

- Literature review (p.2).The description of the state of knowledge on the effectiveness of masks in real-life situations is very succinct and does not sufficiently reflect the current state of knowledge. This section should be fleshed out more fully, so as to situate the contribution of this study in relation to what already exists, for example by drawing on reviews carried out by certain authorities:

https://www.gov.uk/government/publications/face-coverings-and-covid-19-statement-from-an-expert-panel

- Material and methods (p.2). Letting the wearer choose which type of face covering to use is understandable, but potentially a significant bias. We can assume that the most cautious individuals will choose the most protective masks, but will also have more cautious lifestyles (e.g. in terms of hand hygiene). There is therefore a risk of accentuating the result. More information on the context of the study (in which pandemic phase, what was the prevalence of cases in the population) and on the conditions of choice given to volunteers (e.g. information distributed) would undoubtedly enable us to better appreciate this bias. It also seems to me that this should be debated in greater depth in the discussion section.
- I'm having a bit of trouble understanding the metrics of the graphs, despite the fact that they seem relatively simple. The cumulative number of cases is expressed per 1000 individuals, but the groups of volunteers are 1000 individuals. According to equation (1), the cumulative number of cases C should therefore correspond to the number of "physical"

cases in a sample. However, on graphs 1-4, we can see that these numbers correspond to fractions of units. How is this possible?

- I think it's a shame that only descriptive graphs are presented and that the authors didn't conduct statistical tests to find out whether the samples were significantly different. This would seem useful in view of the small number of cases reported.