

## Peer Review File

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### Reviewer A

This is an interesting paper worth publishing. I like the methodology employed. However, the manuscript has some important limitations:

**Comment 1:** The authors search literature till 9th of April 2020. During the next months several new papers on face masks have been published and I am not sure if the manuscript is updated enough. At least this should be mentioned as limitation in the Discussion section.

**Reply 1:** Thank you for your careful review. We think your suggestion is very important for our research. According to the publication cycle of systematic reviews and randomized controlled trials, we will update the study within two years to present the latest comprehensive evidence. In the discussion (Page 13, Paragraph 1), We added the “**Second, our findings are only based on publications before the search date (April 9, 2020). With the emergence of newly related studies, regular updates of the existing results will be done in two years.**”.

**Changes in the text:** page 13, line 9-11

**Comment 2:** The authors properly follow the PRISMA guideline and assessed the risk of bias. Did they register their project in PROSPERO?

**Reply 2:** We really appreciate your comments. The PROSPERO does not currently accept registrations for scoping reviews, literature reviews or mapping reviews (<https://www.crd.york.ac.uk>). Therefore, we did not register this article.

**Changes in the text:** N/A

**Special thanks to you for your good comments.**

### Reviewer B

**Comment:** After careful reading of this review manuscript, I have the following comments:

- (1) Authors did a fully literature review.
- (2) Comparison method is clearly described and applicable.
- (3) Results are clearly discussed.,
- (4) The manuscript is well organized and written.

**Reply:** We really appreciate reviewer’s positive comments on our study.

**Changes in the text:** N/A

**Special thanks to you for your good comments.**

### Reviewer C

**Comment 1:** This is a very well written article. The English is excellent and it is easy to read. I am not familiar with the technique of Evidence Mapping and asking several colleagues, it does not seem to be widely known and therefore requires further explanation, particularly what advantages it offers and what disadvantages it has. This should be around lines 23-6 on page 3. The majority of the rest of the introduction and methods are clearly explained.

**Reply 1:** We really appreciate reviewer's positive comments on our study. As a research method that has attracted much attention in recent years, the evidence mapping is being promoted and studied by many institutions, such as The Campbell Collaboration (<https://campbellcollaboration.org/>). We have modified our text as advised.

In the introduction (Page 3, Paragraph 3), we added the “EM presents a visual overview of existing evidence in a certain research field, and clarifies the characteristics of the studies in this field from multiple dimensions (such as the types of interventions, the research population, conclusions of the research, etc.), thereby providing systematic evidence support for decision makers (17). Furthermore, EM can also help identify evidence gaps (18). Therefore, EM can be the first step to conduct SRs or the framework to inform policy development (19). However, EM does not provide details on the generation of research results or incorporate meta-analytic techniques for pooling effect estimates, which is currently perhaps the most controversial point in EM methodology (20).”.

**Changes in the text:** page 3, line 28-30; page 4, line 1-5

Specific points

**Comment 2:** Page 9 line 22-3. I do not understand how a mask can affect radio reception. I could understand how a mask can affect communication, especially if the person has poor hearing or relies on lip reading. This is not however covered, but really does need to be.

**Reply 2:** Thank you for your kind reminder. We think your reminder is very important for our research. In order to explain this problem more clearly, in the Results (Page 10, Paragraph 1), we have corrected the statement “moreover, the use of masks adversely affect radio reception accuracy” into “In addition, since masks seem to affect the precise and clear transmission and reception of some aviation terms or instructions (ie, helipad, fuel, weather) by pilots, flight nurses, layperson, dispatcher, etc., especially when the aircraft's engine is turned on, mask use may adversely affect radio communication (55)”.

In the discussion (Page 11, Paragraph 2), we added the “In addition, for individuals with poor hearing or those who rely on lip reading, whether masks will significantly affect work efficiency and daily communication is worth further research.”.

In the discussion (Page 12, Paragraph 2), we have corrected related statement into “especially in special populations (such as children, pregnant women, the elderly population, and individuals with chronic diseases, poor hearing, patients who rely on lip reading, or those performing high-intensity exercise), and cases of special reactions (such as the obstruction of vision, skin allergy and sudden death)”.

**Changes in the text:** page 10, line 1-4; page 11, line 28-30; page 12, line 18-21

**Comment 3:** Page 9 line 25. ILI is not explained. In general I think that the section on the adverse effects of wearing a mask should be expanded to cover the areas I have mentioned above. This could also be covered in more detail in the discussion section.

**Reply 3:** Thank you for your kind reminder. ILI is the abbreviation of influenza-like illness, and we have added corresponding further explanations in the introduction part of the article. We have modified our text as advised and the details are as follows:

In the Introduction (Page 3, Paragraph 2), we have corrected the statement “In addition, the outcomes that we mainly focused on were influenza-like illness (ILI), laboratory-confirmed respiratory infection, and self-reported infection symptoms, which are the most common judgment indicators with regard to the spread of respiratory viruses” into “**In addition, the outcomes that we mainly focused on included influenza-like illness (ILI), laboratory-confirmed respiratory infection, and self-reported infection symptoms, which are the most common judgment indicators with regard to the spread of respiratory viruses (11). The ILI was usually defined as fever >38°C and one or more of the following symptoms: nasal discharge/congestion, cough, conjunctivitis, respiratory distress (tachypnea, retractions), sore throat, and new seizure (8).**” Meanwhile, based on your suggestions, we have made an extended statement on the adverse effects of wearing a mask, and see the reply to the previous comment for details.

**Changes in the text:** page 3, line 16-21; page 11, line 28-30; page 12, line 18-21

**Comment 4:** Page 11 line 28. Household contact needs to be defined. I also think some more explanation of exactly what trials have been carried out in hospital staff would be beneficial.

**Reply 4:** Thank you for your careful review. We have modified our text as advised.

In the introduction (Page 3, Paragraph 2), we have corrected the statement “Most of the current research on masks has been focused on healthcare workers and household contacts” into “Most of the **available** research on masks focused on healthcare workers and household contacts **(individuals living in a household with patients with a respiratory virus infection) (8)**”.

In the discussion (Page 10, Paragraph 3), we added the “**especially for healthcare workers, all relevant studies included show “probably beneficial” effects of masks.**” and “**In addition, among the 10 studies included, the subjects of nine studies were healthcare workers. Combined, the results of these studies largely showed that there were conflicting results regarding whether healthcare workers should wear N95 respirators or medical masks.**”

In the discussion (Page 12, Paragraph 2), we have corrected related statement into “Accordingly, further research is required for differential ratings of conclusions between SRs and RCTs in terms of effectiveness of N95 respirators compared with medical masks, **especially for healthcare workers**”.

In the conclusions (Page 13, Paragraph 2), we have corrected related statement into “However, the study conclusions on the effectiveness of N95 respirator over medical masks are contradictory, **especially for healthcare workers,**”.

**Changes in the text:** page 3, line 8-9; page 10, line 24-25; page 10, line 29-30; page 11, line 1-2; page 12, line 15; page 13, line 18

**Comment 5:** It would also be useful if there was some discussion on the effects of wearing masks outdoors as well as indoors. I realise that this might be difficult and data might not exist, but it would still be useful for completeness.

**Reply 5:** Thank you for your kind suggestion. Although the published articles do not mention this, all of authors are very interested in your opinion, so we have added to the discussion (Evidence gaps) section.

In the discussion (Page 12, Paragraph 2), we added the “Fifth, optimal settings and exposure circumstances for populations to use masks should be **investigated. For example, high-quality research is needed to explore the effects of wearing masks outdoors as well as indoors**”.

**Changes in the text:** page 12, line 25-27

**Comment 6:** In the section on Adverse effects on Page 9, is there any work on the increase in accidents when wearing face masks due to obstruction of vision. It is something that I have heard anecdotally but never seen anything published. I would be interested in the authors' opinion.

**Reply 6:** Thank you for your careful review. Although the published articles do not mention this, we are very interested in your opinion, so we have added to the discussion section.

In the discussion (Page 12, Paragraph 2), we added the “Third, high-quality studies evaluating the adverse events of **the** prolonged wear of masks are **of utmost importance**, especially in special populations (such as children, pregnant women, **the elderly population**, and individuals **with** chronic diseases, **poor hearing, patients who rely on lip reading**, or those performing high-intensity exercise), and cases of special reactions (such as the **obstruction of vision**, skin allergy and sudden death)”.

**Changes in the text:** page 12, line 17-21

However my main comment is concerning the main diagram of the paper on page 25 which shows the evidence mapping.

I think as this is so important to the paper it needs to be as clear as possible. As such the legends on the figure need to be improved and the diagram made more clear. I have a number of specific points to raise.

**Comment 7:** Are the size of the bubbles/balloons related to the number of people in the various trials? If not, what are they related to? If they are, some sort of scale would be useful.

**Reply 7:** Thank you for your careful review. The size of the bubbles is related to the number of people in the various trials. The bubble size represents the sample size of RCTs included in this mapping.

**Changes in the text:** N/A

**Comment 8:** It would be good if the balloons could be linked to the references by putting the numbers of the references to the papers in the balloons.

**Reply 8:** Thank you for your kind suggestion. We have modified the Figure 4 and putted the numbers of the references to the papers in the bubbles.

**Changes in the text:** Figure 4

**Comment 9:** The legends on the y-axes are particularly unclear and it took me some time to work out exactly what they were referring to. For example - high, low etc should be next to the line they are specifying, not remote from it. This is particularly the case in Fig 4a. Perhaps having them horizontal would make it clearer.

The legend for this diagram has to be very carefully written to ensure that readers easily understand what is being displayed.

**Reply 9:** Thank you for your careful reminder. Based on these comments, we have modified Figure 4, especially for the legend of this figure (including the position of the legend, font size, etc.).

**Changes in the text:** Figure 4

**Comment 10:** Finally I would be interested to hear the authors' opinion on the priority for further research in the future. A section on what they feel are the highest priorities for such research, having done such a thorough job in this review, could be very beneficial to stimulate further research in the future.

**Reply 10:** Thank you for your careful review. We have described the priority for further research in the future in the discussion (Evidence gaps and future directions) section, and we have made corresponding improvements based on your comments, as follows:

“Current evidence of high-quality design research concerning the **mask use** may be insufficient to deal with a second impact of such a pandemic in the future. First, **in our study**, EM showed that most studies focused on the effectiveness of masks compared with usual practice than that of N95 respirators compared with medical masks. Accordingly, further research is required for differential ratings of conclusions between SRs and RCTs in terms of effectiveness of N95 respirators compared with medical masks, **especially for healthcare workers**. Second, over 70% of RCTs focused on healthcare workers and household contacts, and the study of populations in places of gathering, such as students and company staff, was limited. Third, high-quality studies evaluating the adverse events of **the** prolonged wear of masks are of **utmost importance**, especially in special populations (such as children, pregnant women, **the elderly population**, and individuals **with** chronic diseases, **poor hearing, patients who rely on lip reading**, or those performing high-intensity exercise), and cases of special reactions (such as the **obstruction of vision**, skin allergy and sudden death). Fourth, given difficulty in accessing medical masks for many individuals during the pandemic, cloth masks were used as a substitute. However, there is currently only one RCT evaluating the effects of using a cloth mask, which reported that the **cloth mask reuse** showed a “harmful effect” and may increase the risk of **an** infection. Accordingly, **additional** high-quality studies are needed in the future. Fifth, optimal settings and exposure circumstances for populations to use masks should be **investigated**. **For example, high-quality research is needed to explore the effects of wearing masks outdoors as well as indoors.**”

**Changes in the text:** page 12, line 10-27

**Special thanks to you for your good comments.**

**Reviewer D**

**Comment:** This is a nicely written manuscript.

Although, there are not many good quality studies, this is probably the best possible attempt.

**Reply:** We really appreciate reviewer's positive comments on our study.

**Changes in the text:** N/A

**Special thanks to you for your good comments.**