

Peer Review Report

Review Report on Did COVID-19 policies have the same effect on COVID-19 incidence among women and men? Evidence from Spain and Switzerland

Original Article, Int J Public Health

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EVALUATION

Q 1 Please summarize the main findings of the study.

The authors used official SARS-CoV-2 case numbers between February 2020 and June 2021 from Switzerland and Spain and calculated sex-specific incidence rate ratios (IRR) and excess cases. Also, they summarized COVID-19-related sanitary measures in place over this time period in both countries to contextualize the previously calculated IRR and excess cases. The authors found that women in working age had an increased risk of being diagnosed with a SARS-CoV-2 infection, especially during periods of more stringent sanitary measures, and therefore concluded on a gender effect, whereby women would be more exposed to the virus and infected more often.

Q 2 Please highlight the limitations and strengths.

The manuscript is well written, and summarizes well case numbers and sanitary measures in both countries. There are 5 major issues. Most importantly, the findings do not fully justify the authors' conclusions as the excess cases in women may be due not only to gender-related differences in exposure but also to surveillance bias.

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 issues:

1. Figure 1 and 2 are identical: this seems like a mistake
2. The findings do not fully justify the authors' conclusions. Indeed, more SARS-CoV-2 infections were found in women: this can be due to women being more exposed and infected but this can also be the result of detection bias and the supplementary material (Figure S2) does not allow to exclude that (PMID: 34479862). Figure S1 shows that proportionally more women were tested than men, and the higher case number may just reflect that. I would suggest the authors compare their findings with population-based seroprevalence studies (<https://serotracker.com/en/Explore>), which, as opposed to case-finding through PCR testing, are independent of testing strategy and represent cumulative cases (PMID: 27417916). Also, the authors may want to consider running a simulation study, with proportions of tests kept equal across men and women.
3. In its current version, the abstract does not provide a balanced summary of the work that has been done. I would suggest following modifications:
 - Overall, I would suggest the authors be more specific about some terms: in objectives, they should mention the incidence of what they are investigating; in methods, "contextualize" and "sex dynamics" are ambiguous (the authors may want to consider mentioning interaction or effect modification by sex instead of "dynamics"); in results, when they mention effect of public health measures, the outcome they refer to should be mentioned, i.e., infection, hospitalization, death. Importantly, "cases" should be defined as to how they were ascertained, e.g., PCR positive only.

- In methods, the authors should mention what population was under investigation, i.e., whether they had data on all residents of the country, or all individuals present in the country during the period of interest. Also, I would suggest mentioning analytical methods that were used.
 - In results, mention some numeric results.
 - The conclusion is an overstatement: the authors investigated differences in case numbers between male and female, but they cannot conclude with certainty on gender norms.
4. Some key elements of study design are missing in the methods section. I would suggest the authors add some more precise information on "Swiss MoH" and "RENAVE": they should mention what the abbreviation SwissMoH stands for, and explain what type of institutions both of them are (national surveillance organizations?). They should also mention how the data was collected, how cases were defined, and how exactly IRR and excess cases were calculated (please specify exact calculation and time period under consideration)
5. The authors should report IRR results (mentioned line 88)

Minor issues

6. Lines 33–34: following sentence is hard to understand: "Even if countries report sex-disaggregated data, this includes only male vs female sex, without including intersex."
7. Lines 42–43: I would suggest mentioning how infections were ascertained in following study "The study reported a higher rate of infections among women compared to men of working-age (20–59 years old)"
8. Lines 96–98: add references to documents informing on policies and testing strategies
9. Lines 59–60: in the following sentence, the authors should mention the incidence of what they talk about: "how different phases of the pandemic have impacted men and women differentially with a specific focus on incidence and its policy drivers"
10. I would suggest moving Figure S2 to main text
11. Lines 315–317 following sentence is, in my opinion, mainly speculation and seems unnecessary: "We hypothesize that women of that age have often lost their partners, and so are living in assisted living or nursing homes, where there was more spread of COVID-19 [39]. Men of that age are probably still living at home with a younger partner".
12. Supplementary material: figures should be named according to legend and there are only 4 figures included in supplementary material, whereas 5 are mentioned in the main text
13. Overall, the tables should be self-explanatory and unambiguous. They authors should make sure that texts do not overlap and indicate years on the X axis

PLEASE COMMENT

Q 4 Is the title appropriate, concise, attractive?

Yes, although the authors could mention what incidence they investigated

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?

No.

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

Yes

QUALITY ASSESSMENT

Q 9 Originality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 10 Rigor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 11 Significance to the field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q 12 Interest to a general audience	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Q 13 Quality of the writing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 14 Overall scientific quality of the study	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REVISION LEVEL

Q 15 Please make a recommendation based on your comments:

Major revisions.