

March 5th, 2021

Dr. Antonis Kousolis
Editorial Board Member
BMC Public Health

Dear Dr. Kousolis,

We are very pleased and thankful that you and the reviewers have carefully read our manuscript and provided us with excellent feedback on how to improve it.

Below, we provide a point-by-point description of how we addressed the issues raised by you and the expert reviewers (presented verbatim and in **boldface**).

We hope that the revised manuscript meets the high standards of the editors, reviewers, and future readers and look forward to hearing your feedback.

Kind regards,

Martin Tušl and the co-authors

Editorial Board Comments

The reviewers find merit in your manuscript but believe that several things need to be addressed prior to considering the paper for publication. Please focus on these issues across all sections of your manuscript, including carefully reviewing your methods and how you refer to existing literature

Response: Thank you very much for your positive feedback. We appreciate the thorough reviews we have received. We have carefully reviewed all the sections and, hopefully, fulfilled reviewer's expectations and improved overall quality of our manuscript. Below we provide point-by-point answers to the Reviewer's comments indicating the changes we have made in the manuscript.

Reviewer Comments

Reviewer 1

Thank you for the opportunity to review this article. After detailed examination of the article I have come to the conclusion to recommend a rejection of the article. My decision is based on different reasons, which I would like to present to you briefly. 1) I see no novelty in the research questions. 2) The theoretical background was not worked out properly. References were cited incorrectly and important references were not cited at all. 3) Hypotheses are missing. 4) Inadequate measurement instruments/no valid measurement instruments (except one) were used. 5) The statistics could be more mature. 6) Why was not controlled for all variables? 7) Important limitations (e.g. selection bias) were not stated. 8) I would strongly recommend checking the content of the manuscript for relevance and shortening the manuscript accordingly. 9) The discussion section is not mature and lacks clear statements. In addition, there is a lack of topical literature (for example, offers for stress reduction in times of COVID-19).

Response: Thank you for taking time to read our manuscript. We appreciate your feedback; although the comments are of more general nature, we still tried to address the key issues you raise. Several of them also overlap with comments made by the other reviewers, and thus are also addressed in more detail further below. Here, we provide numbered answers to the general points you raised.

- 1) We see novelty in our research in several aspects that we mention throughout our manuscript. First, the COVID-19 pandemic poses novel and unique challenges to work and private life domains and we were able to collect data exactly at the onset of the first wave of the pandemic. We believe our study provides a valuable account of the immediate effects of the pandemic on the Swiss/German working population. Second, our study focuses not only on the negative effects of the crisis, as most studies have done so far, but we also aimed to identify some positive changes that the crisis brought about in work and private life domains. Third, our study is the first looking into the relationships between reported changes in working life and private life triggered by the crisis, the subjective evaluation of the perceived overall impact of the crisis, and relevant, validated health indicators (i.e., mental wellbeing & self-rated health). Fourth, we studied the impact on different subgroups to identify those who have been affected by the crisis most negatively, compared to those who could benefit from the crisis in some ways or the other. This detailed analysis helps to understand the complex and diverse effects that crisis had on different groups.
- 2) Theoretical background: Theoretically, our study builds on the health development model [1] that postulates that environmental changes such as a pandemic can trigger simultaneously both pathogenic and salutogenic paths of health development. Overwhelming demands combined with lack of resources to deal with them lead to a pathogenic health development, indicated e. g. by reduced SRH and MWB as in our study. Simultaneously, feasible demands combined with sufficient resources to deal with them foster a positive health development indicated by enhanced SRH and MWB in our study. This dual path of health development has been thoroughly studied in the working context building on the job demands resources theory [2]. As this theory justifies our approach to consider both negative and positive consequences of the pandemic, but is otherwise not essential, and as the other reviewers did not miss a theoretical background, we also now did not include this information into the manuscript, but are happy to do so upon request by the editor. References: As the seemingly incorrectly cited references and missing important references were not specified, we again thoroughly reviewed our reference list and corrected some details that may not have complied with the journal guidelines. Also, we have included some additional references of related and recently published studies (highlighted in yellow).
- 3) Thank you for raising this point. We had indicated specific research objectives that we aimed to achieve with our study (p. 6). We decided not to formulate any hypothesis as this was an exploratory study and our aim was not to test any pre-defined propositions.
- 4) We used valid scales to analyze health outcomes (MWB and SRH). Further, we collected standard sociodemographic characteristics which we used as independent variables in the regression analysis. Additionally, we developed new items to assess the perceived impact and self-reported changes that the crisis had triggered. This was necessary as they were tailored specifically to the pandemic, and no validated instruments exist to capture these issues. We designed these items with clear statements and pre-tested them with our research team for comprehensibility and face validity prior to the administration.
- 5) After also having consulted with our biostatistics department, we considered ordinal regression analysis as the appropriate statistical methods to address our research objectives. Further, the statistical models are controlling for all important variables that we thought might be relevant to the dependent variables while not over-complicating the models.
- 6) We controlled for all analyzed variable in the models. We have now added a correlation matrix to provide an overview of the associations between the studied variables
- 7) We have added a part on selection bias in limitations section where we also discuss more in depth the representativeness of the sample. Also, in the methods section we added more information about the survey and the data collection indicating the methods used to reduce the likelihood of biased data.
- 8) We have shortened the results part.

- 9) We have reworked the discussion section, added some clear statements and policy recommendations. We also added few references to literature discussing potential interventions to reduce the negative impact of the COVID-19 crisis.

References

1. Bauer G, Davies JK, Pelikan J, Euhpid Theory Working Group and The Euhpid Consortium. The EUHPID Health Development Model for the classification of public health indicators. Health promotion international. 2006 Jun 1;21(2):153-9.
2. Bakker AB, Demerouti E. The job demands-resources model: State of the art. Journal of managerial psychology. 2007 Apr 3.

Reviewer 2

- The paper deals with an interesting topic, however in order to provide a feedback to the paper, it is important that you explain how this data was made available. In particular, what were the characteristics of the survey. How did you access to a sample ? In what extend the sample is free of biases and representative of the working-age population ? If not, why did you not weighted the results ? Are the results from the German part and the Swiss part comparable ?

Response: Thank you for your comment, we have added information on the online panel data service provider (respondi.com) and the data collection process in the methods section. Regarding the representativeness of the sample, we compared the sociodemographic characteristics of the sample with data for the general German and Swiss working populations (age 18-65 years, employed, working at least 20 hours per week) which indicates that the sample is a good representation of that target population. We have added more information in the manuscript (Methods section). Here, we summarize the comparisons between the general German and Swiss working populations and our sample:

Median age: Germany 48 (2020), Switzerland 43 (2020), our sample 48 years.

Gender ratio for age group 18-65: 1.02 male/female (Germany and Switzerland), our sample 1.22 male/female (slight overrepresentation of males, most likely because we excluded employees who work less than 20 hours which is more common among female employees).

Source Germany: https://www.indexmundi.com/germany/demographics_profile.html

Source Switzerland: https://www.indexmundi.com/switzerland/demographics_profile.html

Single households for age group 18-65: Germany approx. 25%, Switzerland 36%, our sample 28% (Data from Switzerland are for the total population including age group 65+ which has a higher proportion of single households compared to younger age generations and was not included in our sample)

Source Germany: [https://www.destatis.de/EN/Themes/Society-](https://www.destatis.de/EN/Themes/Society-Environment/Population/_Graphic/_Interactive/households-families-people-living-alone-age.html)

[Environment/Population/_Graphic/_Interactive/households-families-people-living-alone-age.html](https://www.destatis.de/EN/Themes/Society-Environment/Population/_Graphic/_Interactive/households-families-people-living-alone-age.html)

Source Switzerland: <https://www.bfs.admin.ch/bfs/en/home/statistics/population/effectif-change/households.html>; https://www.swissinfo.ch/eng/home-alone_one-third-of-swiss-live-in-single-person-households/44454824

Attained tertiary education age group 25-64: Germany 29% (2018), Switzerland 41% (2018), our sample 37%

Source: OECD - Education at a glance 2019 (p. 49)

https://www.oecd-ilibrary.org/education/education-at-a-glance-2019_f8d7880d-en

Also, regarding the comparability of the Swiss and German population, we controlled for country membership as independent variable in all statistical models and did not find a significant effect on neither of the studied dependent variables.

- Some very important information seems to be missing in the survey, especially the level of education, which plays a role on the dependent variables. I suppose that this is not possible to correct this.

Response: Thank you for your comment, we agree that education is an important independent variable that could be included in the models. We do have data on education, but only for a part of the sample, as we included an item on education in a subsequent wave of data collection (December 2020). Therefore, we have data on education only for $n = 1194$ of overall $n = 2218$ participants from the sample used in the present study. Nevertheless, we have imputed the missing values for the rest of the sample and re-run the regression analysis adding education to the models. Education did not have any significant effects on any of the variables compared to the original models presented in the results. We now included this information in the methods section. Further, we added a correlation matrix in the results section and include education to show the associations between the variables. We also added the R code with imputation and regression analysis to the github repository (<https://github.com/jesuismartin/covid>)

- The construction of the models is a bit weird. You put variables that are self-correlated. For instance, if you loose your job, you cannot experience home office and cannot have unchanged working time. Therefore, the reader cannot interpret correctly the results. I strongly suggest to use more developed models in order to control the interactions between the independant variables

Response: Thank you for your comment. We were interested in exploring the unique predictive value of each independent variable in the model so the regression models show Odds Ratios for the independent effect of each variable on the dependent variable. The example you mention is relevant, however, it is not valid in our case as we introduced a logic in the survey to prevent redundant questions. For instance, participants who answered that they lost their job were not shown the items on the change in working time and home-office. Moreover, only a very small part of the sample lost their job as a result of the crisis $n = 25$. Still, job loss was significantly associated with perceived negative impact on work life (which could be expected), although the confidence interval is very large 14.89 – 90.03 due to the small size of this group. To make our approach clearer, we have added information about the survey logic in the methods section and a correlation matrix of the analyzed variables to the results section to provide more information on the association between the variables.

- It is a bit curious to run a survey in two countries and not to mention the differences in the impact of the Covid on the German and Swiss labour market. Moreover, the impact was different according to the sector of activity and it would have being interesting at least to provide more information on the distribution of the employees according to the kind of work.

Response: Thank you for your comment, we added details about the onset of the restrictive COVID-19 measures and their severity in both countries. We assume that the impact on the labor market was comparable in both countries as they entered the lockdown in a similar time period. We agree that it would be interesting to provide more insight into the impact on different occupations. However, we don't have data on the type of occupation, as this was beyond the scope of our study. Our aim was to explore the perceived impact of the different subgroups of the general working population based on sociodemographic characteristics, and to identify the most important changes that the crisis brought about in work and private life along with the consequences for health (i.e., mwb, srh).

The affirmation "another study projects that the average Swiss person would suffer a loss of 0.205 years of life due to the psychosocial consequences of COVID-19 confinement measures " reflects a study that was published, but you should mention that the estimates of this impact were done using very curious approaches (for instance estimating the impact of the lockdown on suicide using data coming from prisons,.. at least for Switzerland the lockdown was very smooth and not comparable to imprisonment).

Thank you for this helpful comment. After carefully reviewing the study, we decided to remove it from the manuscript as it is not crucial as background for our study and the methodological issues you raise would, indeed, need to be presented in more detail. However, we replaced it with a different, more recent study that is more relevant to our objectives.

Reviewer 3

This is a well-conducted and well-reported study on an important topic. The manuscript reads well, is clearly structured and is easy to follow, and I recommend it for publication. There are, however, a number of issues which should be addressed beforehand.

Response: Thank you very much for your thorough and well-structured feedback that helped us to further improve the quality of our manuscript. Below, we provide answers to your general and specific comments and we hope to address them well.

General comments

Reporting guidelines: Please use and refer to an appropriate reporting guideline to make sure that you report all relevant aspects of your study. The most widely used reporting guideline for observational studies is STROBE (Strengthening the Reporting of Observational Studies in Epidemiology, see www.equator-network.org/reporting-guidelines/strobe/). Besides, there are several specific reporting guidelines for surveys (see <https://www.equator-network.org/reporting-guidelines/good-practice-in-the-conduct-and-reporting-of-survey-research/> and <https://www.equator-network.org/reporting-guidelines/improving-the-quality-of-web-surveys-the-checklist-for-reporting-results-of-internet-e-surveys-cherries/>). These reporting guidelines may include items that are not applicable or not relevant to your study – this should be noted in the respective checklist, which can be included as a supplementary appendix to the manuscript.

Response: Thank you for this helpful recommendation, we have reviewed the manuscript using the STROBE guidelines and the CHERRIES checklist and included this information in the methods section. Also, we provide the STROBE checklists in the supplementary material indicating pages for the relevant items.

Registration / protocol availability: Study registration prior to the start of a study is now recommended for all study types, not only for clinical trials. Please state explicitly if your study was registered, and provide details on the registry entry, or explain why it wasn't registered, if this is the case. Moreover, please state if your study is based on an a priori protocol, developed before you conducted the analyses. Please also include a declaration on protocol fidelity, e.g. along the lines: "Any discrepancies between the protocol and the study as conducted have been explained. The manuscript is an accurate and transparent account of the study, and no important aspects of the study or any analyses conducted have been omitted." (This is not because there is any reason to suspect that your manuscript is not an accurate and transparent account of the study, or that you omitted anything relevant; rather, this is a general rule intended to remind readers and authors of the importance of avoiding selective reporting. Many medical journals require such declarations, and including such a statement is worth considering in any case.)

Response: Thank you for mentioning these important formal aspects of the study. We have added a paragraph commenting on the registration and study protocol in Declarations under the section "Ethics approval and consent to participate"

Graphical presentation of results: I was wondering if it was possible to present some of the data

(e.g. the data from table 2 and 3) in graphical form, e.g. as stacked bar chart, to help readers to get an intuitive grasp of the results.

Response: Thank you for this helpful suggestion, we have replaced Table 2 and Table 3 with two types of bar charts presenting the data in a graphical way.

Wording: Throughout the manuscript, in particular in the section on „Aim and objectives“ and in the abstract, you differentiate between „perceived impacts“ and „actual changes“ in certain outcomes. However, if I have understood your manuscript correctly, all your data is self-reported data from an online survey. I would suggest to use the wording „self-reported changes“ instead of „actual changes“ throughout the manuscript.

Response: Thank you for this comment, as you correctly assume, we analyzed self-reported data, therefore it makes more sense to use the term “self-reported changes”. We have modified it in the manuscript accordingly.

Key findings: You may want to consider including a box with a bullet list of key findings, focused on findings that are relevant to non-specialists, including the general public, journalists and policy makers, using a mostly non-technical language. In my view, this is particularly worth considering in the case of your study, as the results are relevant to the ongoing debates on appropriate policy responses to the pandemic and its repercussions, and are thus of interest to non-specialists who may not have the time or expertise to read the full manuscript.

Response: Thank you for this helpful suggestion, we have included a section with the key findings at the beginning of the manuscript.

Review by an epidemiologist/statistician: Before being accepted for publication the manuscript should also be reviewed by statistician or a social scientist specialized in survey research.

Response: The manuscript has been reviewed by a social scientist specialized in survey research of the University of Zurich.

Specific comments

Title: Please mention in the title what kind of cross-sectional study you report (e.g. „a cross-sectional online survey“)

Response: We have changed the title according to your well-taken suggestion.

Abstract: Please report in the abstract explicitly on the following aspects: how data were collected (e.g. through a self-completed online or paper-based questionnaire, etc.); how participants were selected, and what kind of employees were included; if participants were representative of the general adult population in Germany and Switzerland. Information on these aspects should also be reported in greater detail in the Methods section. Please also comment on the socio-economic characteristics of the participants.

Response: Thank you for your comment, we have added more detailed information about the sample, the sampling method and the representativeness of the sample in both the abstract and the methods section. Also, we are aware that some additional socio-economic characteristics could be provided, however, we collected information on education only in the following wave of data collection (December 2020) and therefore, we have the data on education only for $n = 1194$ participants from the sample used in the present study due to drop out. We have, however, imputed the data and we added the information on education of the sample based on the imputed data.

Moreover, we have re-run the regression analysis adding education with the imputed data to the models to check that it would not affect the conclusion we made based on the original model. Education did not have any significant effects on the models compared to the original models that we present in the results. We added a correlation matrix with education to the manuscript to show the association between variables. Also, we added the R code with the imputation procedure and the results of the additional regression models with education to the github repository (<https://github.com/jesuismartin/covid>).

Background section: The background section is very informative and well-written.

Response: Thank you very much for your positive feedback on the background section. We have, nevertheless, edited some parts to address comments from Reviewer 1 and 2. We hope these changes further improve the quality of this section.

Methods section: See my comments above regarding the additional details which should be reported here.

Results section: See my comments on the graphical presentation of results. Besides, you may want to double-check if the long verbal descriptions of the data presented in the tables are really necessary, or if they could be made a bit more concise (this applies e.g. to page 7, line 208-213 and line 219-225), as well as multiple passages on the following pages).

Response: Thank you for your comment, we have added the graphics, and we have removed some of the text from the description of the results for a better flow of the text.

Section on strengths and limitations: Please include a discussion on representativeness of the data in this section.

Response: Thank you for your comment, we have added more information about the representativeness of the data and the strategies we used to prevent collecting biased data.

Discussion section: This sections seems a bit lengthy to me, with relatively much space used to summarize, rather than discuss findings. You may want to double-check if the summary of findings may be made more concise, and if you could expand on the critical discussion of findings instead.

Response: Thank you for your comments, we have edited the discussion section, shortening the summaries of the results and refining some of the argumentation.

Discussion and conclusion section: You may want to consider including a section on policy implications, in which you discuss the relevance of your findings to public health policy, and current debates on how to respond to the crisis.

Response: Thank you for this useful suggestion. We have added some policy recommendations in the conclusion section, focusing on the main practice implications of our findings. Also, we have added further literature regarding good practices in health promotion.