PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The psychological and occupational impact of the Coronavirus (COVID-19) pandemic on UK surgeons: A qualitative investigation
AUTHORS	Al-Ghunaim, Tmam; Johnson, Judith; Biyani, Chandra; O'Connor, Daryl

VERSION 1 – REVIEW

REVIEWER	Ivan Herrera-Peco Faculty of Health Sciences. Alfonso X el Sabio University. Spain
REVIEW RETURNED	02-Nov-2020

GENERAL COMMENTS	Dear authors First of all, I must say that your study offers to future readers important information about how to feel the surgeons about their mental health on this pandemic. In relation to your manuscript and after review it, I have the following comments: 1.-General: 1.1-Title: I am not sure about the use of the words coronavirus and COVID-19 in the title. It could generate confusion because in your study you analyse the effect of COVID19 (the disease) has provoked over the surgeons' mental health, but you don't analyse the physical/physiological effects generated by the virus SARS-CoV-2. Please, would be possible to know the reasons to use coronavirus and COVID19 (disease) in the title? what is your point there? 1.2-Lines 52-53 (page 2). Authors repeat in the same sentence "in order", please use a synonym. 2.- Methods 2.1.- Study design and participants. 2.1.1.-Authors must introduce here the study design used, it was impossible to me find this definition. 2.1.2.- Authors must include information about where the questionnaires were implemented (on a web platform? google form? ...)Furthermore, it is necessary to add some information about the participation of surgeons, as in example if they completed the questionnaire voluntarily and how they express their permission to participate, among other points.

	2.1.3.-I have some concerns about the reasons that justify the use of quantitative methods to calculate the sample size, including the data like "power" and "alpha" in a qualitative design. A quantitative design with minimum sample size, as you mentioned, have a sense when you use aleatory sample methods to obtain your sample to develop an inferential statistic. However your study has a qualitative methodology, your data was analysed using a categorization, the sampling method is a snowball, etc. I can't understand the inclusion of this kind of information in your manuscript. Please, could you explain your reasons to include it? It will be possible that this information is not necessary for your kind of study? 2.2. Data analysis Authors write: " both qualitative and quantitative data were analysed", but authors explain only the qualitative analysis used and never mentioned the quantitative analysis. I understand that authors, related to quantitative analysis, only do a descriptive statistic (and this is why I can't understand information give to readers previously, like the power or the alpha). Please, check it. 3.- Results When authors describe the sample characteristics, could be necessary include it in an epigraph titled "Sample characteristics" in order to facilitate the future readers the comprehension of the given information. 4. DiscussionWhen authors define the limitations of their study, It was impossible to be found any reference to the sampling methods, not only about the small sample size, and how it could affect the extrapolation fo their conclusions to the whole UK surgeons' population. Furthermore, the authors need to explain the limitation of self-report measures used to evaluate their mental health situation. And please, include as a limitation the study design. On the other hand, it will necessarily to write more clearly that the conclusion obtained from the authors' study is not applicable to the whole population of the UK surgeons

REVIEWER	Mohammed Idhrees SRM Institutes for Medical Science, Chennai, India
REVIEW RETURNED	21-Nov-2020

GENERAL COMMENTS	This article really carries immense importance in today's time when we are facing a precarious situation of uncertainty and unauthenticity. There is abundant information, and I congratulate the authors to take up the uphill task of collecting data from across the country during the pandemic. The very fact that they have used thematic analysis in this regard to COVID, is really appreciated. There are a few concerns 1. The biggest problem with the manuscript is with the methodology.

	Web-based surveys are a very important tool but have to be well conducted and have to be representative of the population sampled. The mechanism of the survey and the response rates needs further elucidation and for this, the following questions need to be answered. a. How many surgeons are there in the country? b. How many of these were received/viewed/know about the survey? c. How many of them responded? d. How many responded to the initial survey? e. How many reminders were sent? f. The authors mention the usage of social media (Twittter). What was the response rate for this? g.What was the overall representation of surgeons in the survey? ie. What percentage of surgeons in the entire country is represented by the responders? 2. Inclusion/ Exclusion criteria should be mentioned in the methodology with prominence 3. What were measures taken by the authors to avoid multiple entries from the same participants

REVIEWER	Rachael Hunter Swansea University, Wales, UK
REVIEW RETURNED	05-Feb-2021

GENERAL COMMENTS	This was an important study and made good use of qualitative analysis. The brevity and synthesis reflected the context, and as well as the nature of the data gathered. Some minor suggestions to enhance the paper are: Results: At times the emotional impact of the factors being discussed could have been emphasized more (and linked to quotes without needing to refer so much to the supplementary material. For example: in 'Surgeons struggling with PPE). Adding descriptions of how these struggles impacted beyond discomfort/time pressures. What was the emotional impact of this 'struggle' (fear? etc), was this/how was this emphasized? Similarly, was there mention of the emotional impact of 'Cancellation of life plans'. This takes the data beyond descriptive to help emphasize the human experience (in keeping with qualitative/thematic approaches). I wasn't sure 'Communication with family' really reflected the examples given for his subtheme., which seemed to describe the impact on family life/relationships. 'Lost income' – I wasn't sure 2 comments within the large number of testimonies warranted a subtheme. Discussion: page 14, line 16-18: expanding a little on what/how surgical aspects of health care are different and how that s relevant here would strengthen this point. page 15, line 48-53: examples of these effective adaptations would be useful for the reader. In study limitations participation bias could be addressed. Also,

	In the introduction the issue of surgeons being reluctant to share emotional distress/seek support for mental health issues was highlighted. This is an important topic but wasn't returned to in the discussion – was that because this did not come up in people's responses? some brief discussion around this would be interesting and relevant for future research suggestions.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1:
R1.1: Title: I am not sure about the use of the words coronavirus and COVID-19 in the title. It could generate confusion because in your study you analyse the effect COVID-19 (the disease) has provoked in the surgeons' mental health, but you don't analyse the physical/physiological effects generated by the virus SARS-CoV-2. Please would it be possible to know the reasons for using coronavirus and COVID-19 (disease) in the title? What is your point there?
Response: Thank you for this feedback about the title. As the reviewer suggests, we have now amended the title to clarify that we are investigating the impact of COVID-19 pandemic rather than the disease itself. The new title is "The psychological and occupational impact of the coronavirus (COVID-19) pandemic on UK surgeons: A qualitative investigation".

R1.2: Lines 52-53 (page 2). Authors repeat in the same sentence "in order", please use a synonym.
Response: We made this change "Therefore, the current study aimed to ask surgeons directly about the impact of the COVID-19 crisis on their work and home life." (Page 5, line124)
R1.3: The authors must introduce here the study design used; it was impossible to find this definition.
Response: This paper describes a qualitative study that is part of a larger research project. We have now described this in the first part of the method section to make this clear for the reader: "This qualitative study is part of a larger longitudinal online survey investigating surgeon burnout. The larger study included a quantitative survey and a qualitative component, with the quantitative survey focusing on surgeon burnout and general patient care. By contrast, the qualitative component reported in the current paper assessed the impact of the COVID-19 outbreak on surgeons by offering two open-ended questions via the Qualtrics survey tool: 'What challenges is the COVID-19 crisis currently presenting to you in your work and home life?' and 'How is this stress affecting you personally?'" (Page 6, line 129)

R1.4:The authors must include information about where the questionnaires were implemented (on a web platform? Google form?) Furthermore, it is necessary to add some information about the participation of surgeons, for example if they completed the questionnaire voluntarily and how they expressed their permission to participate, among other points.

Response: We have now revised the study design section, stating the web platform used to collect the data (Qualtrics survey tool) and including further information about the nature of surgeons' participation: "By contrast, the qualitative component reported in the current paper assessed the impact of the COVID-19 outbreak on surgeons by offering two open-ended questions via the Qualtrics survey tool: 'What challenges is the COVID-19 crisis currently presenting to you in your work and home life?' and 'How is this stress affecting you personally?'" (Page 6, Line 132)
"All participants were provided with information about the research, and their participation was voluntary." (Page 6, line 152)

R1.5: I have some concerns about the reasons justifying the use of quantitative methods to calculate the sample size, including data like "power" and "alpha" in a qualitative design. I can't understand the

inclusion of this kind of information in your manuscript. Please could you explain your reasons to include it? It is possible that this information is not necessary for your kind of study.
Response: The editor also raised this issue, which has led us to realise a power calculation is not appropriate in the current report (as this related to a larger, related study). Therefore, we have removed it as the reviewer suggests.

R1.6: Data analysis: The authors write: "both qualitative and quantitative data were analysed", but the authors explained only the qualitative analysis used and never mentioned the quantitative analysis. I understand that the authors, in relation to quantitative analysis, only do descriptive statistics (and this is why I can't understand information given to readers previously, like the power or the alpha). Please check it.
Response: We are grateful to the reviewer for raising this point. The power and the alpha which were reported are related to the larger study, which understandably may confuse the reader, so we decided to remove this information and instead justify the sample size based on the qualitative analysis which we conducted in the current paper. We also clarified the nature of our approach:

““Recruitment ceased once it was deemed by the authors that the qualitative data collected provided sufficient ‘information power’, to address the research questions.19 (page 6, line 147)

"The data analysis covered qualitative (thematic) and descriptive analysis". (Page 7, line 165)

R1.7: When the authors describe the sample characteristics, it should be necessary to include it in an epigraph titled "Sample characteristics” in order to facilitate future readers’ comprehension of the given information.
Response: We are grateful to the reviewer for identifying this. We have added the subheading "Sample characteristics" to improve the clarity of this section (page 7, line 188).
R1.8: When the authors define the limitations of their study, it was impossible to find any reference to the sampling methods, not only about the small sample size but also how it could affect the extrapolation of their conclusions to the whole UK surgeon population.
Response: The reviewer raises an interesting point. As the study was a qualitative study, we did not believe that the small sample size was a limitation, as the data provided the necessary information power to conduct our qualitative analysis. However, we recognise that our sampling approach may have meant that our sample was not reflective of the wider population of UK surgeons and now consider this in our limitations section:
“Another limitation relates to the fact that we were not able to monitor our response rate and as such it is not possible to know whether our sample reflected the wider population of UK surgeons from which it was recruited." (Page 15, line 450)

R1.9: The authors need to explain the limitation of self-report measures used to evaluate the participants’ mental health situation. Please include as a limitation the study design.
Response: We have now revised the limitations to consider this issue:
"In addition, this study required surgeons to self-report their wellbeing and the challenges they had experienced. As surgeons are reluctant to share emotional distress and seek support16, this might have caused participants to avoid providing in-depth information about their COVID-19 pandemic struggles. If feasible, future studies ought to include other more objective evaluations of mental health (e.g., clinical interviews)." (Page 15, line 452).

R1.10: It will necessarily to write more clearly that the conclusion obtained from the authors' study is not applicable to the whole population of the UK surgeons
Response: We make this clear now : “Another limitation relates to the fact that we were not able to monitor our response rate and as such it is not possible to know whether our sample reflected the wider population of UK surgeons from which it was recruited." (Page 15, line 450)

Reviewer 2:
R2.1: How many surgeons are there in the country? How many of these received/viewed/knew about the survey? How many responded? How many responded to the initial survey? How many reminders were sent? The authors mention the usage of social media (Twitter). What was the response rate for this?
Response: We have now revised our study design and participants subsection of the Methods section to include this information. Unfortunately, due to using convenience sampling and recruitment via social media, it is not possible to know our response rate. However, we now clarify this in the methods and consider it as a limitation in the discussion section:
"Participants were enrolled using convenience and snowball sampling methods. Surgeons and surgical trainees working in various surgical specialties across the UK were invited to participate in the survey using social media channels (e.g., Twitter) and 306 individual surgeons were approached using an available networking email list. The first invitation was sent, then a reminder was sent five days later. Twitter advertising consisted of 10 tweets published at various times with the hashtags 'surgeons, UK', 'NHS' and 'COVID19'. The most recent UK surgeon statistics shows 57,500 surgeons with various specialties 18. "(Page 6, line 139)
" Another limitation relates to the fact that we were not able to monitor our response rate and as such it is not possible to know whether our sample reflected the wider population of UK surgeons from which it was recruited. In addition, this study required surgeons to self-report their wellbeing and the challenges they had experienced. As surgeons are reluctant to share emotional distress and seek support16, this might have caused participants to avoid providing in-depth information about their COVID-19 pandemic struggles." (Page 15, line 450)

R2.2: What was the overall representation of surgeons in the survey, i.e. what percentage of surgeons in the entire country is represented by the responders?
Response: The current study did not set out to recruit a representative sample of surgeons given we needed to launch the study very quickly as a result of COVID-19. However, we did want to ensure that our sample included a range of specialities, areas and year of practise. As shown in page 8, we managed to achieve a broad ranging sample in each of these respects, although, we recognise that the sample includes a relatively large number of surgeons from urology. Therefore, we have noted that the current sample is not necessarily representative of all surgeons and have highlighted this as a limitation in the Discussion:
"Another limitation relates to the fact that we were not able to monitor our response rate and as such it is not possible to know whether our sample reflected the wider population of UK surgeons from which it was recruited."(See page 15,line 450)

R2.3: Inclusion/exclusion criteria should be mentioned in the methodology with prominence.
Response: We have now revised the methods section to include this information:
" All UK surgeons could participate in the survey, regardless of their specialty or status as trainees or consultants. Anyone outside of that group was excluded, including retirees." (Page 6,line 136)
R2.4: What measures were taken by the authors to avoid multiple entries from the same participants?
Response: Thank you for mentioning this. To clarify this point, we have added the following passage:

"Data were screened and checked to confirm no participants had matching demographics (e.g., matching age, gender, location and role), preventing multiple entries from single participants." (Page 7, line 162)

Reviewer 3:
R3.1: At times, the emotional impact of the factors being discussed could have been emphasised more (and linked to quotes without needing to refer so much to the supplementary material, for example in "Surgeons struggling with PPE"), by adding descriptions of how these struggles impacted

beyond discomfort/time pressures. What was the emotional impact of this “struggle” (fear, etc.)? Was this/how was this emphasised? Similarly, was there mention of the emotional impact of “Cancellation of life plans”? This takes the data beyond descriptive to help emphasise the human experience (in keeping with qualitative/thematic approaches).
Response: Thank you for mentioning this. This is an important point. We have now increased this emphasis in the results section and included additional quotations to illustrate relevant points and we have expanded on the emotional impact on surgeons in the discussion section.
"Selected comments mentioned a lack of PPE and that surgeons struggled with an ‘ability to deliver care due to lack of PPE’. This lack might make surgeons feel unsafe in their work, causing anxiety about their safety. Other surgeons struggled with PPE causing communication difficulties (e.g., ‘Carrying out emergency surgeries with less familiar teams and adapting the ways of communication during the case due to PPE’). Surgeons also spent significantly more time donning and doffing PPE as well as performing infection control at work and upon returning home (e.g., ‘on-COVID wards means spending lots of time donning/doffing PPE rather than seeing patients’). Worry, annoyance and time pressure regarding these elements illustrated surgeon struggles with PPE." (Page 9, line 258)
"We found that shortages of PPE negatively impacted surgeons, making them fearful and anxious about their own safety and the safety of their patients and their families." (Page 13,line 373)

R3.2: I wasn’t sure that “Communication with family” really reflected the examples given for his subtheme, which seemed to describe the impact on family life/relationships.
Response: We are grateful to the reviewer for raising this point, which caused us to reflect on the title of this subtheme. Consistent with the reviewer’s suggestion, this has now been changed to “Family life and relationships” (see page 11, line 292).
R3.3: “Lost income” – I wasn’t sure two comments within the large number of testimonies warranted a subtheme.
Response: In order to address this comment and after consideration by the research team, we have now deleted this subtheme.
R3.4: Page 14, line 16-18: expanding a little on what/how surgical aspects of health care are different and how that is relevant here would strengthen this point. Page 15, line 48-53: examples of these effective adaptations would be useful for the reader.

Response: We have now expanded on how surgical aspects of healthcare are different and provide an example of an effective adaptation: "This study has implications for future research to formulate clear guidelines that compensate for cancelled training courses and lost time, which might help mitigate the stress currently experienced by surgeons and inform them how to reschedule training. This study also recommends virtual and simulation-based training during a pandemic. While surgeon training courses may require physical attendance due to their complexity, trainers should consider alternative methods (webinars and immersive technologies) to facilitate surgical training." (Page14, line 398)
R3.5: In the study limitations, participation bias could be addressed.
Response: Reviewer 1 raised similar concerns. To address this, we have now revised this part of the limitations section:
“Another limitation relates to fact that we were not able to monitor our response rate and as such it is not possible know whether our sample reflected the wider population of UK surgeons from which it was recruited.” (Page 15 ,line 450)

R3.6: In the introduction, the issue of surgeons being reluctant to share emotional distress/seek support for mental health issues was highlighted. This is an important topic but wasn’t returned to in the discussion—was that because this did not come up in people’s responses? Some brief discussion around this would be interesting and relevant for future research suggestions.

Response: Reviewer 1 raised similar concerns. In order to address this, we have now considered this in the limitations section:
“In addition, this study required surgeons to self-report their wellbeing and the challenges they had experienced. As surgeons are reluctant to share emotional distress and seek support, this might have caused participants to avoid providing in-depth information about their COVID-19 pandemic struggles. If feasible, future studies ought to include other more objective evaluations of mental health (e.g., clinical interviews) and investigate the reasons why surgeons are less likely to seek support and to discuss issues relating to their own mental health. ” (Page 15, line 452)

VERSION 2 – REVIEW

REVIEWER	Iván Herrera-Peco Universidad Alfonso X el Sabio Facultad de Ciencias de la Salud, Nursery department
REVIEW RETURNED	22-Mar-2021

GENERAL COMMENTS	The reviewer completed the checklist but made no further comments.

REVIEWER	Mohammed Idhrees SRM Institutes for Medical Science Vadapalani, Institute of Cardiac and Aortic Disorders
REVIEW RETURNED	16-Mar-2021

GENERAL COMMENTS	The authors have addressed all the comments satisfactorily.