

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	How is the COVID-19 lockdown impacting the mental health of parents of school-age children in the United Kingdom? A cross-sectional online survey
AUTHORS	El-Osta, Austen; Alaa, Aos; Webber, Iman; Riboli Sasco, Eva; Bagkeris, Emmanouil; Millar, Helen L; Vidal-Hall, Charlotte; Majeed, Azeem

VERSION 1 – REVIEW

REVIEWER	Yuan Yuan Wang De Montfort University, UK
REVIEW RETURNED	23-Aug-2020

GENERAL COMMENTS	<p>Abstract: The “1214 Community-dwelling adults in the United Kingdom” does not seem to suitable under “setting” heading. Under the Participants heading, the authors mentioned the participants were school-age children, while under the Results heading the authors mentioned “The factors that were associated with higher levels of loneliness on UCLATILS were female gender, parenting a child with special needs”. This sentence described parents rather than children. The abstract was not clear whether the participants included both parents and children. The results were not clear on who were the “respondents”.</p> <p>Introduction: This is a meaningful topic during the COVID lockdown. 1. The author mentioned the closure of schools and the suspended activities for children. It seems children should be more impacted compared to parents. Why the authors decided to survey on parents rather than children? 2. The authors mentioned mental health issues caused by loneliness and social isolation. What are the specific impacts on parents? Why is this group requires special attention? 3. It will be better to add the specific influence of social isolation and loneliness caused by COVID. E.g., what are the unique characteristics of COVID compared to previous crisis?</p> <p>Method: 1. It will be better to specify the dates for data collection period. 2. Why is it “snowball sampling”? Please describe how did you know the eligible participants would contact people in their network?</p> <p>Result 1. The results are simple and straightforward. 2. The authors assessed two loneliness outcome variables completely separated.</p>
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	<p>3. What is the purpose of using two loneliness scales? It will be better to highlight the aims.</p> <p>Discussion</p> <p>1. What are the unique contributions of the current study? Why is it meaningful? What are the main differences between this study and previous COVID-19 mental health studies?</p> <p>2. What are the practical implications based on the current results? How to solve the problems identified?</p>
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REVIEWER	Nicholas Wagner Boston University
REVIEW RETURNED	25-Oct-2020

GENERAL COMMENTS	<p>The current study investigated the impact of the COVID-19 lockdown on feelings of loneliness and social isolation in parents. Clearly this is an important and timely topic. While the manuscript had many strengths, my enthusiasm for this work is limited by the following critiques.</p> <p>More information should be provided for the measures of loneliness. Specifically, what validation data are available and how does the performance of the specific items in this study compare to other validation studies? Since the entire study rests on the validity of these report measures, as much information as possible about the functioning of specific items as well as composites should be provided.</p> <p>How were responses of 'no opinion' handled? Were these considered missing? How did these responses impact the sum scores?</p> <p>How were the two measures of loneliness related? A bivariate correlation table with variable demographics should be provided. Why were they analyzed separately? More justification should be provided for why both measures were used, and confirmatory factor models (testing one factor vs. two factor solutions) should be offered to support their inclusion as separable constructs.</p> <p>Why were logistic regression models used when results from the first loneliness measure ranged from 1 to 9? Were they appreciably skewed? Collapsing into these groups loses information – there are many papers outlining the drawbacks to creating categorical variables from continuous ones.</p> <p>Finally, as the authors note in the discussion, these findings confirm much of what has already been published regarding the impacts of COVID 19. It's not clear how this adds to the literature – what are the points of innovation or how do these findings advance what we know? It's not clear this is a significant contribution.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1	Author's response
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<p>Abstract</p> <p>1.The “1214 Community-dwelling adults in the United Kingdom” does not seem to suitable under “setting” heading.</p>	<p>Thank you. We corrected this to reflect that data collection was the ‘community setting’</p>
<p>2.Under the Participants heading, the authors mentioned the participants were school-age children, while under the Results heading the authors mentioned “The factors that were associated with higher levels of loneliness on UCLATILS were female gender, parenting a child with special needs”. This sentence described parents rather than children. The abstract was not clear whether the participants included both parents and children. The results were not clear on who were the “respondents”.</p>	<p>Thank you for highlighting this. It was an editorial error from our part. Respondents were parents of school-age children. The title of the manuscript has been edited to: “How is the COVID-19 lockdown impacting the mental health of parents with school-aged children?”</p>
<p>Introduction:</p> <p>3.The author mentioned the closure of schools and the suspended activities for children. It seems children should be more impacted compared to parents. Why the authors decided to survey on parents rather than children?</p>	<p>The aim of this study was to assess direct and indirect measures of loneliness in parents with school-aged children and not the children themselves- as we appreciate the parent may not be able to provide objective feedback. However, it was possible to assess the parent’s feelings of loneliness by using two validated tools (UCLATILS & DMOL). We also asked parents some questions about their child’s sleeping patterns and other lifestyle habits.</p>
<p>4.The authors mentioned mental health issues</p>	<p>Whereas various studies and reviews have considered the impact of the lockdown on the mental health of children,</p>

<p>caused by loneliness and social isolation. What are the specific impacts on parents? Why does this group require special attention?</p>	<p>young people and adults, the population of parents with school-aged children remains largely understudied.</p>
<p>5.It will be better to add the specific influence of social isolation and loneliness caused by COVID. E.g., what are the unique characteristics of COVID compared to previous crisis</p>	<p>Thank you for raising this point. We acknowledged in the introduction and discussion sections of the paper that the lockdown in the UK was unprecedented and shed a light on the subsequent social and economic consequences of the pandemic including a rise in inequalities and those factors that could be considered as a proxy-measure of income deprivation such as digital exclusion, reduced access to tablets and smartphones or a dedicated study where the child can study. It was also the first study to measure social isolation & loneliness using both a direct and indirect measures as recommended by the Office of National Statistics (ONS).</p>
<p>Methods</p> <p>6.It will be better to specify the dates for data collection period.</p>	<p>We specified in the methods that data collection was between 29 May-11 July (6 weeks)</p>
<p>7.Why is it “snowball sampling”? Please describe how did you know the eligible participants would contact people in their network?</p>	<p>We removed mention of snowball sampling as initial emails were sent out by the head teacher of Brackenbury Primary School (where the 1st author is also a Co-Opted School Governor) to his counterparts in other schools in London. Recipients were also invited to disseminate the survey to their counterpart (hence our initial mention of snowball sampling)</p>
<p>Results</p> <p>8.The authors assessed two loneliness outcome variables completely separated. What is the purpose of using two loneliness scales? It will be better to highlight the aims.</p>	<p>We highlighted the aims of why we used both the direct and indirect measures of loneliness in the introduction & discussion sections of the manuscript. The UCLATILS is an indirect measure of loneliness, whereas the DMOL is a single-item direct measure of loneliness recommended for use by the ONS. Although both scores measure loneliness, they are fundamentally different. The composite score of UCLATIS measures general and indirect loneliness and feeling of social isolation, whereas the DMOL is a separate (single item) measure that assesses the current/temporal feeling of loneliness by the respondent and is recommended for use by ONS. Furthermore, we found that the two scores are not highly correlated, and the level of their relationship (Cohen’s kappa = -0.34) has been assessed and reported in the</p>

	<p>methods and the results section illustrating the lack of agreement between the two tests.</p>
<p>Discussion:</p> <p>9.What are the unique contributions of the current study? Why is it meaningful? What are the main differences between this study and previous COVID-19 mental health studies?</p>	<p>The unique contributions of the current study are now further elaborated in the discussion section of the manuscript. “The COVID-19 pandemic is having monumental effects on the mental health and wellbeing of populations worldwide” (The Lancet). However, whilst these are findings from the general population and focus on general aspects of mental health such as anxiety, depression and suicidal thoughts while fewer studies have looked at the effect of the COVID-19 first lockdown on the loneliness and none has looked at the loneliness among parents with school-age children. Investigating such a population is of great importance because of the well-established and known effects of parental mental health on child neurodevelopment. It is not just a matter of raising a healthy “new generation” but a matter of raising awareness of the importance of lockdown in the mental health of those who are challenged to act on their dual role (both as adults and as parents) under a more stressful environment.</p> <p>The unique contributions of this study can be summarised as follows:</p> <ol style="list-style-type: none"> 1. This is the first UK study to assess feelings of loneliness in parents of school-aged children using both the direct and indirect measure of loneliness as recommended by ONS 2. Parents of school-aged children remains a lately understudied population 3. Physical activity and maintenance of good sleep hygiene practices are highlighted as key modifiable risk factors associated with loneliness. This could guide the development and implementation of target interventions for this understudied segment of the population.
<p>10.What are the practical implications based on the current results? How to solve the problems identified?</p>	<p>We describe in the discussion the implications of this study which suggest that physical activity and maintenance of good sleep hygiene practices are two key modifiable risk factors that could be controlled to potentially reduce feelings of social isolation and loneliness. Thus, whereas other factors are important (such as lack of dedicated space to study, having children with special needs etc.), they are not modifiable. Highlighting physical activity & maintenance of good hygiene practices as two modifiable risk factors could support the development and implementation of target</p>

	interventions for this largely understudied segment of the population.
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Reviewer 2	Author's response
<p>Methods:</p> <p>1.How were responses of 'no opinion' handled? Were these considered missing? How did these responses impact the sum scores?</p>	<p>Thank you for raising this. We updated the manuscript to highlight that the 'no opinion' were handled as missing data. As this only constituted <1.5% of the total dataset, imputation of the missing data was not considered, and a complete case analysis was conducted. There is a precedent for this. To quote Jacobsen: "<i>Complete case analysis may be used as the primary analysis if the proportions of missing data are below approximately 5% (as a rule of thumb) and it is implausible that certain patient groups (for example, the very sick or the very 'well' participants) specifically are lost to follow-up in one of the compared groups)</i>"</p> <p>https://pubmed.ncbi.nlm.nih.gov/24588900/</p> <p>https://pubmed.ncbi.nlm.nih.gov/25416419/</p>
<p>2.How were the two measures of loneliness related?</p>	<p>We highlighted the aims of why we used both the direct and indirect measures of loneliness in the introduction & discussion sections of the manuscript. The UCLATILS is an indirect measure of loneliness, whereas the DMOL is a single-item direct measure of loneliness recommended for use by the ONS. Although both scores measure loneliness, they are fundamentally different. The composite score of UCLATIS measures general and indirect loneliness and feeling of social isolation, whereas the DMOL is a separate (single item) measure that assesses the current/temporal feeling of loneliness by the respondent and is recommended for use by ONS. Furthermore, we found that the two scores are not highly correlated, and the level of their relationship (Cohen's kappa = -0.34) has been assessed and reported in the methods and the results section illustrating the lack of agreement between the two tests.</p>
<p>3. bivariate correlation table with variable demographics should be provided</p>	<p>The bivariate associations between UCLATILS & DMOL with demographic characteristics of study participants are already provided in table 1</p>
<p>4.Why were they analyzed separately? More justification should be provided for why both</p>	<p>The reason for separate analysis of the outcomes of interest was to allow the comparison of our findings to other studies that have separately explored these measures (ULCATIS & DMOL) as separate outcomes</p>

<p>measures were used, and confirmatory factor models (testing one factor vs. two factor solutions) should be offered to support their inclusion as separable constructs</p>	<ul style="list-style-type: none"> • Loneliness - What characteristics and circumstances are associated with feeling lonely? • Recommended national indicators of loneliness <p><u>Both the UCLATILS & DMOL are validated tools but assess loneliness in different ways.</u> Indirect measures of loneliness were measured using the validated UCLA 3-item Loneliness Scale (UCLATILS) with responses never/hardly ever (score of 1), some of the time (score of 2), and often (score of 3) (50). The questions were each scored 1 to 3, then totalled to a score ranging from 3 to 9. Indirect measure of loneliness using UCLATILS was subsequently categorized as follows: no loneliness (score =3), moderate loneliness (score = 4-6), and severe loneliness (score = 7-9). An additional one item Direct Measure of Loneliness (DMOL) was also used as recommended by the Office of National Statistics (51).</p> <p>As stated in the introduction, the UCLA 3-item Loneliness scale (UCLATILS) is a validated but indirect measure of loneliness. The 4th (additional) item - the Direct Measure of Loneliness (DMOL)- was recommended for use in England by the ONS:</p> <ul style="list-style-type: none"> • Loneliness - What characteristics and circumstances are associated with feeling lonely? • Recommended national indicators of loneliness <p>Indeed, we found that the two scores are not highly correlated in our study. The level of their relationship (Cohen's kappa = - 0.34) between DMOL & UCLATILS in our study was assessed and reported in the methods and the results section illustrating the lack of agreement between the two tests.</p>
<p>6. Why were logistic regression models used when results from the first loneliness measure ranged from 1 to 9? We're they appreciably skewed? Collapsing into these groups loses information – there are many papers outlining the drawbacks to creating categorical</p>	<p>As specified in the methods section, the UCLA 3 item loneliness scale (UCLATILS) by definition scores between 3-9. This is because the respondents cannot give a score of less than 1 for each question (range = 1-3 for each question on the 3 items, therefore 3-9 in composite/total). This is the standard way of reporting loneliness according to this scale. We acknowledge the limitation of score categorisation in the discussion, however considering that this is a validated score, we used the recommended methodology of categorisation (as also recommended by ONS) and given their ordinal nature of the score, ordinal logistic regression was used for modelling</p>

<p>variables from continuous ones.</p>	<ul style="list-style-type: none"> • Loneliness - What characteristics and circumstances are associated with feeling lonely? • Recommended national indicators of loneliness
<p>Discussion</p> <p>7. More information should be provided for the measures of loneliness. Specifically, what validation data are available and how does the performance of the specific items in this study compare to other validation studies? Since the entire study rests on the validity of these report measures, as much information as possible about the functioning of specific items as well as composites should be provided.</p>	<p>Thank you for this suggestion. We have now expanded the relevant detail in the introduction, methods and discussion sections of the manuscript.</p>
<p>8. Finally, as the authors note in the discussion, these findings confirm much of what has already been published regarding the impacts of COVID 19. It's not clear how this adds to the literature – what are the points of innovation or how do these findings advance what we know? It's not clear this is a significant contribution.</p>	<p>This study was developed as part of our unified response to the COVID-19 pandemic. The unique contributions of the current study are now further elaborated in the discussion section of the manuscript. “The COVID-19 pandemic is having monumental effects on the mental health and wellbeing of populations worldwide” (The Lancet). However, whilst these are findings from the general population and focus on general aspects of mental health such as anxiety, depression and suicidal thoughts while fewer studies have looked at the effect of the COVID19 first lockdown on the loneliness and none has looked at the loneliness among parents with school-age children. Investigating such a population is of great importance because of the well-established and known effects of parental mental health on child neurodevelopment. It is not just a matter of raising a healthy “new generation” but a matter of raising awareness of the importance of lockdown in the mental health of those who are challenged to act on their dual role (both as adults and as parents) under a more stressful environment.</p> <p>The unique contributions of this study can be summarised as follows:</p>

	<p>4. This is the first UK study to assess feelings of loneliness in parents of school-aged children using both the direct and indirect measure of loneliness as recommended by ONS</p> <p>5. Parents of school-aged children remains a lately understudied population</p> <p>6. Physical activity and maintenance of good sleep hygiene practices are highlighted as key modifiable risk factors associated with loneliness. This could guide the development and implementation of target interventions for this understudied segment of the population.</p>
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VERSION 2 – REVIEW

REVIEWER	Wagner, Nicholas Boston University
REVIEW RETURNED	04-Jan-2021

GENERAL COMMENTS	The authors provided a thorough response to Reviewers' comments. I have no additional comments.
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VERSION 2 – AUTHOR RESPONSE

Reviewer 1	Author's response
1. Please add the Country (United Kingdom) to the title.	Thank you for suggesting this. We have updated the manuscript to confirm that data collection was form the United Kingdom: "How is the COVID-19 lockdown impacting the mental health of parents of school-age children in the United Kingdom? A cross-sectional online survey"
2. Please ensure that the Strengths and limitations section contains at least one clear limitation of the study methods or design. Please remember that a maximum of five points are allowed, and each should be one sentence.	We revised the strengths & limitations section to align with this recommendation. We highlighted that: "A key limitation of the study was lack of follow-up which restricted the assessment of the trajectory of feelings of social isolation and loneliness over time"
3. Please expand your data availability statements in the manuscript and submission questionnaire to	We expanded the data statement to the following:

explain why no additional data are available	“The data that support the findings of this study are available from the corresponding author, AEO, upon reasonable request”.
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