

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Impact of the COVID-19 lockdown on psychological health and nutritional habits in Italy: results from the #PRESTOinsieme study
<b>AUTHORS</b>	Lorenzoni, Giulia; Azzolina, Danila; Maresio, Elisabetta; Gallipoli, Silvia; Ghidina, Marco; Baldas, Solidea; Berchiolla, Paola; Giron, Maria Cecilia; Silano, Marco; Gregori, Dario

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Amatori, Stefano University of Urbino Carlo Bo, Biomolecular Sciences
<b>REVIEW RETURNED</b>	24-Feb-2021

<b>GENERAL COMMENTS</b>	<p>The paper "Impact of lockdown against COVID-19 epidemic on psychological and nutritional habits in Italy: results from the #PRESTOinsieme study" aimed to investigate the sociodemographic and lifestyle characteristics, and the prevalence of psychological discomforts in the Italian population during the first wave of the COVID-19 pandemic.</p> <p>The manuscript is truly well written and presented. The introduction is complete and well structured, methods are explained in a detailed way, statistical analyses are flawless.</p> <p>I just have a couple of suggestion which might help the authors to further enrich the paper before accepting it for publication. I think that the discussion section could be slightly expanded comparing the results with other similar studies in the field: I believe that this one (doi:10.3390/nu12123660) could be of your interest for this aim. Furthermore, please expand the limitation section, for example recognising the limit of using retrospective questionnaires to assess dietary habits and physical activity. Lastly, the quality of Figure S1 can be improved in order to be more readable (for example, removing the grid behind Panel D. Would I consider removing Panel C, as it does not add any relevant information not already presented before.</p> <p>In my opinion, if the authors could solve these few comments, the manuscript truly worth to be published in BMJ Open.</p>
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<b>REVIEWER</b>	Snuggs, Sarah London Metropolitan University
<b>REVIEW RETURNED</b>	09-Mar-2021

<b>GENERAL COMMENTS</b>	Thank you for the opportunity to review this manuscript which looks at various aspects of mental health and dietary behaviours in the 2020 lockdown. This is a worthwhile project with a strong
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	<p>sample size which can give insight into mental and physical health in Italy.</p> <p>At the moment, I think the manuscript needs some work. The written English needs improvement and I have suggested hiring a proof reading service to address this. I think there are also some issues around exploring the implications of the findings in a bit more depth.</p> <p>It is a valuable piece of work and I would be happy to review a revision of this paper.</p> <p>Please note, for page numbers I have used the ones from the top of the pdf (e.g. 8 of 27), not the bottom right hand corner (the two sets are out of sync).</p> <p>Abstract:</p> <p>I. 16 Setting – more detail needed. Online?</p> <p>I.19-22 More detail of what, precisely, was being measured would be helpful.</p> <p>I. 23 onwards. Results: These should be reported consistently – I’m not clear why some CIs are reported and others are not. Additionally, it is not accurate to state that ‘most’ of the respondents suffered from moderate or severe depressive symptoms, as the total of these two groups comes to 47.5%</p> <p>I. 31 typo, should be ‘<u>the</u> present results’. Consider whether implications could be more specific.</p> <p>Strengths &amp; limitations section:</p> <p>General comment: it would be helpful to be a bit clearer about which of these elements is a strength and which is a limitation.</p> <p>Introduction:</p> <p>General comments: the level of English needs improvement at times (this applies to all sections of the manuscript). Although possible to understand, it does not always read fluently. I suggest accessing a proof reading service or similar. In particular, tenses when describing containment measures in Italy are incorrect.</p> <p>I also think the Introduction would benefit from a more detailed explanation of what the authors are hoping to find, and what the nature of the psychological impact is thought to be.</p> <p>As a wider point, I also think it would be helpful to explain the interest in mental health and dietary habits in more detail in the introduction. i.e. why is it useful to look at both of these together?</p> <p>p.6 I.33 ‘Unfortunately, public health interventions may...’ – sentence meaning unclear. Is this referring to public health interventions to address psychological consequences of lockdown or public health interventions to address the Covid-19 outbreak?</p>
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	<p>Methods:</p> <p>Please clarify the exact start and finish dates for data collection (currently reads ‘most of the survey...were recorded until...’ so it’s unclear).</p> <p>Again, some grammatical issues, for e.g. l.27, ‘for what concerns psychological health...’</p> <p>p. 7 l.27 onwards: It would be helpful to keep the measures in the same order consistently when describing them. For e.g. on lines 27-8, they are listed in the order of psychological distress, depression and post-traumatic stress, but then they are described in more detail in the order psych, distress, post-traumatic stress and finally depression.</p> <p>p. 7 l.46 Can a reference be provided for the INRAN?</p> <p>Results:</p> <p>p.8, l3: I’m not clear what ‘whatever appropriate’ means. The authors should tell the reader what is appropriate, and why.</p> <p>p.8 l.7: Can you clarify what you mean by ‘considered as endpoints’?</p> <p>p.8 l.25: ‘Survey respondents were 5008’ needs a rephrase. Suggest ‘There were 5008 survey respondents’ or similar.</p> <p>p.8, l.26/7: Similar rephrase needed on the next sentence, ‘for what concerns....’. Should simply be ‘Concerning socio-economic status...’ or similar.</p> <p>p.8, l.38: Who were more likely to have done these things? The older or younger groups described in the previous sentence?</p> <p>p.8, l.44 onwards: typically, p values should be reported as follows: ‘<math>p = ...</math>’ or ‘<math>p &lt; 0.001</math>’).</p> <p>p.9, l.5: Please replace ‘subjects’ with ‘participants’ throughout.</p> <p>p.9, l.42: I’m unclear what the term, ‘analysis of dietary habits according to psychological wellbeing...’ means. Please clarify.</p> <p>Discussion:</p> <p>General comments: As with the other sections, there are some language difficulties and inconsistencies in this section. I recommend using an English proof reading service. For example, p.11, l.27/8, ‘we cannot clear the issue...’. This is not a conventional turn of phrase in English.</p> <p>I think the Discussion would benefit from some deeper reflection on the results; we are already well into the second wave and/or coming out of it in many countries so the phrasing around this could be updated, and the authors could also consider whether their results might be useful for more long term consideration. Do</p>
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	<p>we expect people to ‘bounce back’, or is there evidence to indicate that these effects might last beyond the next wave?</p> <p>A clearer strengths and limitations section would also be helpful. The study has a very large sample size which is a clear strength that should be emphasised but the fact that it is retrospective and also that data collection occurred over a number of months with an ongoing changing landscape is important to recognise. More thought into the implications of this research and for future research would also be useful.</p> <p>p.10, l.24 – States that ethical approval was not applicable. I’m not sure why? Please can the authors either expand and explain why they did not think they needed ethical approval or include details of the ethical approval that was given?</p> <p>Table 1: The response number in the text is 5008 but most of the Ns given in the table are considerably lower than this, in the 4400s. I assume this is down to missing data. I suggest the authors consider being more transparent about this in the text (and recognising that the sample might be skewed if a particular group of people is more prone to dropping out) and/or explain in the tables where the missing people have gone.</p> <p>The p values should be reported to a consistent number of decimal places. I suggest two DP (most are currently 3). Either is fine, but it should be the same throughout, including at the 0 as the third DP where appropriate.</p> <p>All tables: Why do so many more people seem not to be answering the dietary questions?</p> <p>Table 4: Please can you explain the importance of ‘days from starting of the survey’?</p> <p>Table S1: Typo on alcoholic.</p>
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<b>REVIEWER</b>	Osimo, Sofia University of Lausanne
<b>REVIEW RETURNED</b>	22-Mar-2021

<b>GENERAL COMMENTS</b>	<p>Overall comments:</p> <p>The study design is well thought, the data is interesting, and the analyses are well conducted. The manuscript is succinct but well structured.</p> <p>The manuscript needs to be reviewed by a native English speaker. Many expressions are obsolete, and the verbs are often in the wrong tense (especially in the introduction). See for example: Change “Containment measures (e.g., social distancing, national lockdown) are the critical public health strategies to fight the COVID-19 outbreak [1]” to “Containment measures (e.g., social distancing, national lockdown) are a critical public health strategy to fight the COVID-19 outbreak [1]”</p>
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Change “in which the epidemic outbreak has spread first” to “in which the epidemic outbreak first spread”

The reference list is lacking, as there have been a lot of studies by now on the subject. Please integrate the introduction and discussion, with particular focus on the studies run on the Italian population:

Cecchetto, C., Aiello, M., Gentili, C., Ionta, S., & Osimo, S. A. (2021). Increased emotional eating during COVID-19 associated with lockdown, psychological and social distress. *Appetite*, 160, 105122. <https://doi.org/10.1016/j.appet.2021.105122>

Fiorillo, A., Sampogna, G., Giallonardo, V., Vecchio, V. D., Luciano, M., Albert, U., Carmassi, C., Carrà, G., Cirulli, F., Dell'Osso, B., Nanni, M. G., Pompili, M., Sani, G., Tortorella, A., & Volpe, U. (2020). Effects of the lockdown on the mental health of the general population during the COVID-19 pandemic in Italy: Results from the COMET collaborative network. *European Psychiatry*, 63(1). <https://doi.org/10.1192/j.eurpsy.2020.89>

Rossi, R., Socci, V., Talevi, D., Mensi, S., Ntoli, C., Pacitti, F., Di Marco, A., Rossi, A., Siracusano, A., & Di Lorenzo, G. (2020). COVID-19 Pandemic and Lockdown Measures Impact on Mental Health Among the General Population in Italy. *Frontiers in Psychiatry*, 11. <https://doi.org/10.3389/fpsy.2020.00790>

Abstract:

Change the conclusions as we are already past the “second wave”

Intro:

“Preliminary data on the Italian population during the lockdown show impaired emotional wellbeing and unhealthy lifestyle changes [9]”: please update and extend references, by now there have been a lot of surveys on emotional wellbeing and lifestyle changes during the lockdown.

“These days, some of the European countries initially most affected by COVID-19 are experiencing a second wave of the epidemic. We cannot rule out that severe containment measures might be introduced again to control the virus spread in the next few months”. Change this sentence as it is not up to date anymore

Methods:

“The response rate ranged between 70% and 95% during the study period (Figure S1, Panel A)” please clarify what is meant here by response rate (and add the explanation to Figure S1's caption)

“Most of the survey accesses and survey responses were recorded until the end of the lockdown”: change to “before the end of the lockdown”. Are the responses recoded after the end of the lockdown included in the analyses?

Discussion:

“The prevalence of moderate/severe depressive symptoms was found to be higher compared to a recent metanalysis in the field, i.e., prevalence of 33.7% [3]” Please do a statistical comparison (t

	<p>test on means) and report the p value of the comparisons, or rephrase the sentence. Same on the following sentences.</p> <p>“Present results might be useful in facing the second wave of COVID-19, which is ongoing in almost all European countries. Such indications may provide data to implement public psychological support programs for the community if new containment measures should be introduced to face the second wave of COVID-19.” Update as we are now in or past the third wave.</p> <p>Please include the snowballing sampling technique and unbalanced representation of southern region respondents in the study limitations.</p>
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### VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. Stefano Amatori, University of Urbino Carlo Bo

Comments to the Author:

The paper "Impact of lockdown against COVID-19 epidemic on psychological and nutritional habits in Italy: results from the #PRESTOinsieme study" aimed to investigate the sociodemographic and lifestyle characteristics, and the prevalence of psychological discomforts in the Italian population during the first wave of the COVID-19 pandemic.

The manuscript is truly well written and presented. The introduction is complete and well structured, methods are explained in a detailed way, statistical analyses are flawless.

I just have a couple of suggestion which might help the authors to further enrich the paper before accepting it for publication. I think that the discussion section could be slightly expanded comparing the results with other similar studies in the field: I believe that this one (doi:10.3390/nu12123660) could be of your interest for this aim. Furthermore, please expand the limitation section, for example recognising the limit of using retrospective questionnaires to assess dietary habits and physical activity. Lastly, the quality of Figure S1 can be improved in order to be more readable (for example, removing the grid behind Panel D. Would I consider removing Panel C, as it does not add any relevant information not already presented before.

In my opinion, if the authors could solve these few comments, the manuscript truly worth to be published in BMJ Open.y

We would like to thank the reviewer for his comments. The manuscript has been amended according to the reviewer’s suggestions. It has been included the suggested paper to the discussion, it has been improved the limitations sections, and the quality of Figure S1 has been improved. For what concerns Panel D of Figure S1, we think that it would be important to show the distribution of survey responses according to the Italian regions since the spread of the epidemic was heterogeneous across the Italian regions. Changes have been highlighted using coloured text.

Reviewer: 2

Dr. Sarah Snuggs, London Metropolitan University

Comments to the Author:

Thank you for the opportunity to review this manuscript which looks at various aspects of mental health and dietary behaviours in the 2020 lockdown. This is a worthwhile project with a strong sample size which can give insight into mental and physical health in Italy.

At the moment, I think the manuscript needs some work. The written English needs improvement and I have suggested hiring a proof reading service to address this. I think there are also some issues around exploring the implications of the findings in a bit more depth.

It is a valuable piece of work and I would be happy to review a revision of this paper.

We would like to thank the reviewer for the comments. The discussion section has been improved, together with the other sections of the paper. Furthermore, the paper underwent professional English editing. Authors' changes have been highlighted using coloured text. Professional English language editing service's changes have been highlighted using track change function.

Reviewer: 3

Dr. Sofia Osimo, University of Lausanne

Comments to the Author:

Overall comments:

The study design is well thought, the data is interesting, and the analyses are well conducted. The manuscript is succinct but well structured.

The manuscript needs to be reviewed by a native English speaker. Many expressions are obsolete, and the verbs are often in the wrong tense (especially in the introduction). See for example: Change "Containment measures (e.g., social distancing, national lockdown) are the critical public health strategies to fight the COVID-19 outbreak [1]" to "Containment measures (e.g., social distancing, national lockdown) are a critical public health strategy to fight the COVID-19 outbreak [1]" Change "in which the epidemic outbreak has spread first" to "in which the epidemic outbreak first spread"

We would like to thank the reviewer for the suggestion. The manuscript underwent professional English editing. Changes have been highlighted using track change function.

The reference list is lacking, as there have been a lot of studies by now on the subject. Please integrate the introduction and discussion, with particular focus on the studies run on the Italian population:

Cecchetto, C., Aiello, M., Gentili, C., Ionta, S., & Osimo, S. A. (2021). Increased emotional eating during COVID-19 associated with lockdown, psychological and social distress. *Appetite*, 160, 105122. <https://doi.org/10.1016/j.appet.2021.105122>

Fiorillo, A., Sampogna, G., Giallonardo, V., Vecchio, V. D., Luciano, M., Albert, U., Carmassi, C., Carrà, G., Cirulli, F., Dell'Osso, B., Nanni, M. G., Pompili, M., Sani, G., Tortorella, A., & Volpe, U. (2020). Effects of the lockdown on the mental health of the general population during the COVID-19 pandemic in Italy: Results from the COMET collaborative network. *European Psychiatry*, 63(1). <https://doi.org/10.1192/j.eurpsy.2020.89>

Rossi, R., Socci, V., Talevi, D., Mensi, S., Niolu, C., Pacitti, F., Di Marco, A., Rossi, A., Siracusano, A., & Di Lorenzo, G. (2020). COVID-19 Pandemic and Lockdown Measures Impact on Mental Health Among the General Population in Italy. *Frontiers in Psychiatry*, 11. <https://doi.org/10.3389/fpsy.2020.00790>

We would like to thank the reviewer for the suggestion. We have improved the reference list.

Abstract:

Change the conclusions as we are already past the “second wave”

Intro:

“Preliminary data on the Italian population during the lockdown show impaired emotional wellbeing and unhealthy lifestyle changes [9]”: please update and extend references, by now there have been a lot of surveys on emotional wellbeing and lifestyle changes during the lockdown.

Done. The introduction has been revised. Changes have been highlighted using coloured text.

“These days, some of the European countries initially most affected by COVID-19 are experiencing a second wave of the epidemic. We cannot rule out that severe containment measures might be introduced again to control the virus spread in the next few months”. Change this sentence as it is not up to date anymore

Done. The manuscript has been updated according to the most recent evidence and developments. Changes have been highlighted using coloured text.

Methods:

“The response rate ranged between 70% and 95% during the study period (Figure S1, Panel A)” please clarify what is meant here by response rate (and add the explanation to Figure S1’s caption)

Done, we have specified how the “response rate” was calculated. Changes have been highlighted using coloured text.

“Most of the survey accesses and survey responses were recorded until the end of the lockdown”: change to “before the end of the lockdown”. Are the responses recoded after the end of the lockdown included in the analyses?

Yes, they were included in the analysis but represents only the 27% of the responses. Changes have been highlighted using coloured text.

Discussion:

“The prevalence of moderate/severe depressive symptoms was found to be higher compared to a recent metanalysis in the field, i.e., prevalence of 33.7% [3]” Please do a statistical comparison (t test on means) and report the p value of the comparisons, or rephrase the sentence. Same on the following sentences.

“Present results might be useful in facing the second wave of COVID-19, which is ongoing in almost all European countries. Such indications may provide data to implement public psychological support programs for the community if new containment measures should be introduced to face the second wave of COVID-19.” Update as we are now in or past the third wave.

Done. The sentences have been revised. Changes have been highlighted using coloured text.

Please include the snowballing sampling technique and unbalanced representation of southern region respondents in the study limitations.

Done. Changes have been highlighted using coloured text.

## VERSION 2 – REVIEW

<b>REVIEWER</b>	Snuggs, Sarah London Metropolitan University
<b>REVIEW RETURNED</b>	24-Aug-2021



**GENERAL COMMENTS**

Thank you for the opportunity to review this manuscript, which considers psychological distress and health behaviours in lockdown in Italy. A strength of this study is its very large sample size. Unfortunately, the authors do not make a clear case as to how this study is unique or why the results are useful. There is an implication in the Discussion that they could inform approaches to public health interventions but very little suggestion as to how this would be done in practice. There are also some issues around data collection because the data was collected during the period of full lockdown and then also for a number of months after restrictions started to be lifted. The authors draw broad findings around the effects of lockdown, but do not appear to separate the two time periods which is disappointing because there are so many different elements at play in this timeline. There is also some narrative around emotional eating that I have some concerns about because the authors did not measure emotional eating. They have a potentially very interesting data set but the description of the data and findings was too limited and did not offer new insight into the psychological effects of lockdown as promised.

**Abstract:**

I.11 I suggest clarifying what 'characterizes participants presenting with impaired psychological status' means, not clear in English.

I.13 It would be helpful to indicate that this is a cross-sectional design.

I.16 'side-effects of lockdown' is a bit of a misleading phrase. I wonder whether 'psychological effects' would be more appropriate?

I.19 the limitation of 'further studies needed for long-term consequences' is a bit vague. Can you be more specific about what this study did not capture which future studies should aim to do?

I'm not clear why ethical approval was not applicable?

**Introduction:**

I.12/13 beginning 'Mental health changes...'. It would be useful to know which country/s these findings refer to. And the same with the next couple of sentences.

The final paragraph of the Introduction would benefit from a bit more explanation as to why this study is important – i.e. what gap does it fill in the evidence base? This, in part, relates to my point above – the authors have described the existing literature, and it's not clear what this study adds to that, except perhaps a larger sample size. If, however, the other findings relate to other countries, it would be good to say so here and that is then one of the unique things about this particular study.

**Methods:**

I.5 Correct way to write the date is '20th March 2020' (even though we say 20th OF March in spoken language!). Also, this is confusing because a previous section stated that the lockdown did not begin until 22nd March? So did the study start two days before national lockdown?

I.11 a bit more information about sampling strategy would be helpful. Did the authors just use their own personal social networks and messaging apps, or did they request other people/organisations to share? This important to give an insight into whether there is likely to be a bias in recruitment.

It would also read more clearly if the dates for data collection and lockdown ending are clarified at the beginning of the Sampling

	<p>Strategy. It needs to be upfront that this survey occurred past the end of lockdown</p> <p>Figure S1: I'm not sure why this isn't just labelled 'Figure 1?'. The map figure indicates that there were a number of regions where no one responded. Is this correct? If so, please clarify this in the text as well because it currently sounds like the survey was administered across the whole country.</p> <p>There is also a typo here that says the regions are shown in Panel C when in fact they are in Panel D.</p> <p>I.30 I'm not sure that it is appropriate to treat time in this manner because the Covid restrictions in Italy presumably didn't change in gradual, continuous way? Rather, as stated above for example, on 3rd May, lockdown ended so presumably certain restrictions were removed overnight and others stayed for longer. I think it would be more sensible to treat time in this categorical way. I.e. either people filled the survey in 'during lockdown' or 'after lockdown ended'? Or depending on how it worked in Italy, you might have additional categories for different levels of restriction?</p> <p>I.33 onwards: all the scales used should be properly and consistently referenced. It would also be helpful to add any information about whether the scales have been psychometrically tested and validated.</p> <p>I.42 Suggest rephrasing 'the female gender was most prevalent' to read more conventionally.</p> <p>L.53 onwards. It's unclear why this is the case – are the higher Covid numbers related to these factors (and does this data compare to other national data in this sense?) or is something else going on? Mostly this is for the Discussion, but it would be worth adding a brief sentence as to whether this is representative of trends in the country more generally.</p> <p>Table 1 title: <math>\geq 14</math> (psychological distress) is unclear, please clarify.</p> <p>Age is also unclear in this table – I'm not sure what 26/34/28 means as compared to 26/38/53?</p> <p>Also unclear what the p values represent? Whether there is a difference between groups on the psychological distress score?</p> <p>As I suggested in the methodology, I also think it would be very helpful and interesting to split the group into lockdown and not lockdown to look for differences.</p> <p>Discussion:</p> <p>I.25 – is this correct? That people with all of those risk factors put together were at higher risk than, say, someone with only one of them? My understanding from the Results is that the authors only established these as individual risk factors and no pathway analysis or similar was attempted to consider whether, combined, the risk increased?</p> <p>I.40 Emotional eating is mentioned in the Introduction and the Discussion but the authors didn't collect data on this so I'm not clear of the relevance? Similarly on I.39 it is unclear why the authors are concluding that their participants are emotionally eating when they haven't measured this. It is pure speculation as far as I can see.</p> <p>I.41-42 – this limitation is very important and should be discussed in more depth. No measures were taken before lockdown, therefore it is impossible to characterise any change. You could potentially draw on data from Italy from other studies about the prevalence of psychological distress, depression etc. but this would also have its limitations. As it stands, the only conclusions that can be drawn relate to characterising the sample during the</p>
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	<p>time period in 2020 that was measured and the authors should be clear about this.</p> <p>I.48 the authors mention in the results and here that there is a higher proportion of people answering from 'higher Covid-19 areas'. Did the authors ask participants whether they themselves had had or suspected to have had Covid? This would be important data to include for two reasons. 1) The authors can see whether there is indeed a higher proportion of Covid in those regions for this sample (if so, would go some way towards claiming representativeness) and 2) they could look for differences on the psychological measures between those who had and had not experienced the illness.</p> <p>I.57 not clear what 'in line with the literature' means here.</p> <p>p.12 I.3 refers to the possible selection bias I mentioned in the Methods. This is why it is important to be more explicit about recruitment methods.</p> <p>I.13 The authors claim to have characterised individuals who are more vulnerable to the psychological effects of lockdown, but this hasn't really been explored in detail in the Discussion properly.</p> <p>I.15 onwards. There is brief reference here to the fact that this information could be helpful for future research and public health but this is, in my opinion, too brief. The authors could be much clearer about 1) Why this is important and 2) What the future implications are. For example, how would one use the information from this study to inform public health interventions?</p>
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## VERSION 2 – AUTHOR RESPONSE

Abstract:

1) I suggest clarifying what 'characterizes participants presenting with impaired psychological status' means, not clear in English.

We agree with the reviewer. The sentence was misleading and it was deleted.

2) It would be helpful to indicate that this is a cross-sectional design.

Done. It has been specified in the Abstract and Methods sections.

3) I.16 'side-effects of lockdown' is a bit of a misleading phrase. I wonder whether 'psychological effects' would be more appropriate?

Done. The sentence has been amended.

4) I.19 the limitation of 'further studies needed for long-term consequences' is a bit vague. Can you be more specific about what this study did not capture which future studies should aim to do?

The concept has been clarified in the discussion section

5) I'm not clear why ethical approval was not applicable?

The ethical approval was not applicable because data collected were anonymous.

Introduction:

6) I.12/13 beginning 'Mental health changes...'. It would be useful to know which country/s these findings refer to. And the same with the next couple of sentences.

Done. The countries to which these findings refer have been reported in the text.

7) The final paragraph of the Introduction would benefit from a bit more explanation as to why this study is important – i.e. what gap does it fill in the evidence base? This, in part, relates to my point above – the authors have described the existing literature, and it's not clear what this study adds to that, except perhaps a larger sample size. If, however, the other findings relate to other countries, it would be good to say so here and that is then one of the unique things about this particular study.

Done. The explanation as to why this study is important has been added at the end of the Introduction section.

Methods:

8) I.5 Correct way to write the date is '20th March 2020' (even though we say 20th OF March in spoken language!). Also, this is confusing because a previous section stated that the lockdown did not begin until 22nd March? So did the study start two days before national lockdown?

A partial lockdown was implemented on 11 March 2020. Restaurants, bars, pubs, and other commercial activities were closed. Full lockdown was implemented on 22 March 2020 with the closure of all non-essential activities. The lockdown was ongoing when the survey started.

9) I.11 a bit more information about sampling strategy would be helpful. Did the authors just use their own personal social networks and messaging apps, or did they request other people/organisations to share? This important to give an insight into whether there is likely to be a bias in recruitment.

It would also read more clearly if the dates for data collection and lockdown ending are clarified at the beginning of the Sampling Strategy. It needs to be upfront that this survey occurred past the end of lockdown

The issue has been clarified in the manuscript. Furthermore, survey's starting and ending dates have been clarified through the manuscript.

10) Figure S1: I'm not sure why this isn't just labelled 'Figure 1?'. The map figure indicates that there were a number of regions where no one responded. Is this correct? If so, please clarify this in the text as well because it currently sounds like the survey was administered across the whole country.

There is also a typo here that says the regions are shown in Panel C when in fact they are in Panel D.

The Figure is not just labelled "Figure 1" because it has been included as Supplementary Material. The typo was corrected. The survey was administered across the whole country, grey regions were those with less than 500 respondents. There were no regions where no one responded.

11) I.30 I'm not sure that it is appropriate to treat time in this manner because the Covid restrictions in Italy presumably didn't change in gradual, continuous way? Rather, as stated above for example, on 3rd May, lockdown ended so presumably certain restrictions were removed overnight and others stayed for longer. I think it would be more sensible to treat time in this categorical way. I.e. either people filled the survey in 'during lockdown' or 'after lockdown ended'? Or depending on how it worked in Italy, you might have additional categories for different levels of restriction?

The removal of the restrictions was progressive, starting from the 3 May 2020, i.e., end of full lockdown. Furthermore, more in general, pre-lockdown conditions were never restored until Summer 2021. This is the reason why it is not appropriate to identify two periods ('during lockdown' or 'after lockdown ended'). The concept has been clarified in the text, specifying that "The time was entered in

the models to account for potential confounding since the COVID-19 restrictions changed over the survey timespan, i.e., the full lockdown ended on 3 May 2020, but restrictions' removal was progressive and went through the summer.”

12) I.33 onwards: all the scales used should be properly and consistently referenced. It would also be helpful to add any information about whether the scales have been psychometrically tested and validated.

All the scales were validated in the Italian language. References have been added to the text.

13) I.42 Suggest rephrasing ‘the female gender was most prevalent’ to read more conventionally.

Done

14) L.53 onwards. It's unclear why this is the case – are the higher Covid numbers related to these factors (and does this data compare to other national data in this sense?) or is something else going on? Mostly this is for the Discussion, but it would be worth adding a brief sentence as to whether this is representative of trends in the country more generally.

The regions with high COVID-19 incidence were mainly located in the Northern Italy. According to official data, Northern regions are characterized by higher socio-economic level than Southern ones. The sample characteristics are representative of trends in the country. The concept has been added to the Discussion.

15) Table 1 title:  $\geq 14$  (psychological distress) is unclear, please clarify.

Age is also unclear in this table – I'm not sure what 26/34/28 means as compared to 26/38/53?

Done. It has been specified in the table caption what figures represent. Furthermore, the meaning of “ $\geq 14$ ” has been clarified.

16) Also unclear what the p values represent? Whether there is a difference between groups on the psychological distress score?

The p-values refer to the comparison of the distribution of subjects' characteristics according to the psychological distress score category (0-13 vs.14-36)

17) As I suggested in the methodology, I also think it would be very helpful and interesting to split the group into lockdown and not lockdown to look for differences.

As stated before, the removal of the restrictions was progressive, starting from the 3 May 2020, i.e., end of full lockdown. This is the reason why we did not split the group of respondents into lockdown and not lockdown. Anyway, the time from the beginning of the lockdown to the day of response was included in all the models to account for potential confounding related to the time on which subjects responded to the survey.

Discussion:

18) I.25 – is this correct? That people with all of those risk factors put together were at higher risk than, say, someone with only one of them? My understanding from the Results is that the authors only established these as individual risk factors and no pathway analysis or similar was attempted to consider whether, combined, the risk increased?

We thank the reviewer for the comment. We agree that the sentence is misleading. We have revised.

19) I.40 Emotional eating is mentioned in the Introduction and the Discussion but the authors didn't collect data on this so I'm not clear of the relevance? Similarly on I.39 it is unclear why the authors are

concluding that their participants are emotionally eating when they haven't measured this. It is pure speculation as far as I can see.

Measuring emotional eating was not a study aim and it was not reported among study's objectives through the manuscript. It was mentioned in the Introduction to provide an overview of "what is already known" about the topic of psychological distress during the lockdown: "...An example of such a relationship is represented by emotional eating. Individuals experiencing anxiety and depressive symptoms are prone to emotional eating habits,..". Furthermore, in the discussion it has been mentioned as a possible interpretation of the fact that subjects with depression symptoms ate more frequently foods high in fat and sugar than subjects without depression symptoms, as clearly outlined by the sentence: "Such a finding could be interpreted as emotional eating, which has been reported during lockdown".

20) I.41-42 – this limitation is very important and should be discussed in more depth. No measures were taken before lockdown, therefore it is impossible to characterise any change. You could potentially draw on data from Italy from other studies about the prevalence of psychological distress, depression etc. but this would also have its limitations. As it stands, the only conclusions that can be drawn relate to characterising the sample during the time period in 2020 that was measured and the authors should be clear about this.

We agree with the reviewer. The study limitation has been stressed out according to the reviewer's suggestion.

21) I.48 the authors mention in the results and here that there is a higher proportion of people answering from 'higher Covid-19 areas'. Did the authors ask participants whether they themselves had had or suspected to have had Covid? This would be important data to include for two reasons. 1) The authors can see whether there is indeed a higher proportion of Covid in those regions for this sample (if so, would go some way towards claiming representativeness) and 2) they could look for differences on the psychological measures between those who had and had not experienced the illness.

We asked survey respondents about COVID infection. The prevalence was 9%.

22) I.57 not clear what 'in line with the literature' means here. p.12 I.3 refers to the possible selection bias I mentioned in the Methods. This is why it is important to be more explicit about recruitment methods.

Done. The sentence has been clarified. Furthermore, the issue has been discussed in the study limitations section.

23) I.13 The authors claim to have characterised individuals who are more vulnerable to the psychological effects of lockdown, but this hasn't really been explored in detail in the Discussion properly.

We agree with the reviewer. The term "characterization" is misleading. "To identify risk factors for psychological distress" is more appropriate. The manuscript has been amended accordingly.

24) I.15 onwards. There is brief reference here to the fact that this information could be helpful for future research and public health but this is, in my opinion, too brief. The authors could be much clearer about 1) Why this is important and 2) What the future implications are. For example, how would one use the information from this study to inform public health interventions?

Details have been added to the discussion section specifying what we mean when we refer to "long-term consequences of the lockdown" and future implications.

