

## Peer Review Comments

**Article:** Turiano, N. A., et al. (2020). Is Healthy Neuroticism Associated with Longevity? A Coordinated Integrative Data Analysis. *Collabra: Psychology*, 6(1): 33. DOI: <https://doi.org/10.1525/collabra.268>

**Article type:** Original research report

**Editor:** M. Brent Donnellan

**Article submitted:** 18 June 2019

**Editor decision:** Revisions required

**Revision submitted:** 18 March 2020

**Article accepted:** 26 May 2020

**Article published:** 21 July 2020

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### Responses for Version 1

Reviewer A:

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate?:

This paper uses a coordinated analysis to test whether neuroticism interacts with conscientiousness to predict mortality risk. There are some very clear strengths of this paper including the focus on an interesting and intuitive question (one that has been proposed before but not studied with methods as strong as those used here), a large sample size (with multiple independent replications), thoughtful analyses, and careful interpretation of results. Some of the samples used in these analyses have been used to investigate the links between neuroticism and mortality risk in previous studies, but the current work goes beyond these prior studies by using additional data from these previously analyzed studies, additional studies, and an additional substantive question. Overall, I think this is a great paper. I just had a few concerns and suggestions for the authors.

The introduction is well-written and clear. My preference is to shorten it a bit, because the ideas are straightforward, and I'm not sure a relatively detailed narrative review of each major study that has examined the links

between neuroticism and mortality risk is needed. I think a shorter intro would help orient readers to the major issues more quickly, but of course, this is personal preference and I leave it up to the editor and authors to decide what they think works best. One addition that might be needed, however, is a very brief overview (maybe even just one paragraph) on the literature on conscientiousness and mortality risk, as this simple effect is a focus of the paper (it is described in the abstract, even if it is not the main focus).

The first two links to the osf site are not public so I could not access them (though I didn't need to access the material posted there to complete this review). The links to the analysis scripts were open. The link to the preregistration document was open, but the preregistration that was there appeared to be a minor update of an earlier one, and thus, had no information. I could not find the earlier version, which apparently had more information. The authors should make sure that the correct preregistration document is available for review (and links to it are clear). Although the description of the steps taken to plan and conduct these analyses sound appropriate, the preregistration document should probably be checked before publication.

It looks like all analyses included all five of the Big Five as predictors. That's fine, but I wonder (a) whether that varied across the studies that have investigated the links between neuroticism and mortality risk in the past and (b) whether the main effects of neuroticism changed at all when only neuroticism was included (and maybe even whether the N X C interaction results change when only those two traits are included). I'm not suggested that the authors search for a way to find additional effects of neuroticism, but to include these analyses as a way of clarifying whether past inconsistencies might be due to different analytic choices. In addition, I think it would be helpful to include in the note to Table 2 that the models also included the other Big Five traits. Some readers may glance at the table without reading the paper carefully and miss this detail. The note currently only mentions age, gender, and education.

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I always sign my reviews: Rich Lucas

## 2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant.

Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here).:

See above comments about tables and availability of supplemental material.

Data will not be made available, but this is justifiable.

## 3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant

authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

I don't think such statements were included.

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:

Yes.

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Reviewer B:

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope.

A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate?:

The authors conducted an updated meta-analysis to examine whether trait neuroticism interacts with conscientious to predict differential risks of mortality after controlling for age, education, and gender. It includes 12 datasets from previously published studies. The authors' hypothesis was not supported based on the overall meta-analytic results.

Overall, I think this paper was very well written and clearly organized. The amount of participants through the 12 studies was impressive and the statistical analyses were appropriate to address the research question. The authors also referenced the appropriate literature. My main concerns with the paper are primarily about missing information in parts of the manuscript. These are outlined below:

1) In the introduction (page 7), you reference two meta-analytic studies and comment that they included many of the same studies you use in this paper but that there is more updated data. I think more information about the magnitude of the differences is warranted. As the paper currently reads, it is not really clear how your study uniquely contributes over the literature in the introduction.

2) In your pre-registration document, you specify a hypothesis about a three way interaction with gender, neuroticism and conscientiousness, but this is not written in section on the current study (page 9). In the analytic plan the three way interaction is again brought up but the results do not provide much information on the results other than page 20, line 485 saying “none of the three way interactions... were statistically significant. These results seem to be glossed over and are not discussed in the discussion/conclusion of the paper. I would like more information on this finding.

3) I would like more references to the measurement validity of the different personality instruments since they varied across study and all were standardized. Coefficient alpha was the only information provided and it is really not a good metric to use as justification that these different tools are all measuring the same thing. Also of note were cases where alpha was quite low (.56 in MIDUS for conscientiousness). On page 16 you state “Each of the 12 samples had a baseline assessment of the Big Five personality dimensions. Although the personality items for each trait were not identical across studies, different measurements of the same trait are highly correlated”. What is “highly correlated” .5, .6, .9? I think more information is required justifying the use of the different measures for the same construct.

4) How much missing data were present and how was this dealt with? In your scripts it appears that simple listwise deletion was used, implications of this decision should be discussed.

I also have one theoretical criticism which I think warrants some additional thought or comment in the paper to justify the research question. In the introduction the links between certain risky or health behaviours (smoking, drinking vs. exercising etc.) and mortality are presented along with the fact that these behaviours are associated with low/high conscientiousness in individuals with high neuroticism. Before seeing your results and the lack of interaction, I cannot help but wonder whether what mechanism is hypothesized here and the utility of thinking about associations with neuroticism at all. To me, it is perfectly logical that people who engage in behaviours like smoking and drinking will have higher mortality risks and people who exercise more and are health conscious will have a reduced mortality risk. Now, these behaviours may be associated with neuroticism and conscientious but the million dollar question is “so what?” I’m not convinced of the utility of models focusing on personality traits for predicting mortality risk without including any information about behaviours that are known to influence mortality risk. Would there be a relationship between neuroticism/conscientiousness and mortality if risky behaviour were controlled? What is the clinical or policy significance of links between these personality traits and mortality risk? To me the focus would be on minimizing the risky behaviours and not on necessarily changing personality traits.

Minor points:

1) Some of the OSF links for materials don't work because they require permission for viewing (I think the supplementary materials). Double check these against an account that is not one that has full access to the project.

2) Is it necessary to include a full paragraph to describe each of the 12 studies? This takes up a lot of space. I think more basic information could be presented in the paper with more detailed information available as a supplemental resource. Reading through the details of all of the studies took away from the paper.

2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant.

Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here):

Figures/tables were mostly sufficient. I don't think the results for the three way interactions are presented anywhere in a table or figure though.

The full datasets are not available, but RMarkdown files, other analysis scripts/tables are made, and some of the data for the key covariates and outcomes are in Rdata files available on the OSF.

3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

I did not see any information about consent or ethics in this paper.

Statements that people who participated were informed that their data could be used in future studies, consent was obtained in each study, etc. is warranted.

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:

The language in the paper was extremely clear and jargon free.

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## Editor Decision for Version 1

**Editor:** M. Brent Donnellan

**Affiliation:** Michigan State University

**Editor decision:** Revisions required

**Decision date:** 23 September 2019

Dear Dr Eileen K Graham,

Thank you for submitting your work to Collabra: Psychology. I will first apologize for the time it took to issue a decision. As you know, three papers on conceptually related ideas and using the same methodology were submitted to Collabra: Psychology. Each analysis represents a huge amount of work and I understand the need to have papers that are of a manageable size. The alternative view is that all three of these papers could be integrated into a single mega-manuscript. I can see merit in this view as well but I also see the value in the approach taken here so I was fine with strategy of submitting 3 papers. Accordingly, I selected different reviewers for each paper so as not to burden any single reviewer. This way the reviewers would also be able to evaluate whether each paper stands as an independent contribution. (I worried I would not be in a good position to evaluate this issue once I read all three papers). Given that there are methodological similarities across the three papers, I thought it was wise to wait until all reviews were submitted for all papers so I could provide a coordinated decision. But that created a delay and I apologize.

Fortunately, all reviews are now all in for all papers and I have had a chance to read each paper carefully before considering the reviews. I want to thank all reviewers for their time and expertise. All were outstanding scholars with expertise in personality psychology, longitudinal methods, and open science practices.

As a set, the reviewers are all supportive of the approach in these papers and all seem to admire the amount of work that was done in each single paper. I concurred with their positive sentiments. The current paper was clear, straightforward, and interesting. The Reviewers raised a few questions and offered some constructive suggestions but I believe all of their comments and concerns are addressable. Thus, I would like to move forward with a revise decision. I do not plan to send a revision back out for review and thus the time lag to the final decision should be greatly reduced if/when you submit the revised manuscript. My plan would be to review the new version and the letter of response and then make a final up or down decision. I still reserve the right to consult with one or both of the reviewers if anything drastically changes.

The reviewers did an outstanding job and you should address each of their concerns either in the revised text or in the response letter. Addressing their concerns will make this a stronger paper. I will highlight some issues that came up as I read your paper and some comments from the reviewers of other papers that seem relevant to this work. I acknowledge that you might disagree with some (or all) of these points so feel free to pushback against any suggestions you believe will harm your work. Just describe your

counterpoints in the letter. I also encourage all first authors to share the reviews of the different papers and address any smaller issues that are relevant to all papers (e.g., how missing data were addressed). I tried to hit the big issues in each letter but I did not consistently point to some of the minor comments that could apply to all papers.

1. I think there should be a new Table 1 that provides some summary information on each study in a way that a reader could quickly glean the design of each study and then determine similarities and differences across the studies. This could include the ages, length of study, # of deaths, specific measures of personality traits, and other demographic information. Some of this material is in the current Table 1 or the Supplemental Table(s) but it seems to get a little obscured in that particular mix. I think having this kind of information readily available in this paper will help readers understand the different datasets.

2. One issue that is raised in the Discussion is the task of trying to understand the nature of the coverage of each personality measure from each study. I think a more detailed discussion of what facets of N and C are emphasized in a given measure will help readers be in a better position to critically evaluate the breadth and depth of the personality assessments in each study and across all of the studies. I also agree with Reviewer B as well that it would be worthwhile to describe the overlap between measures in specific terms. A strong correlation might not necessarily reflect perfectly similar content given that the level of convergent validity for broad personality measures is less than unity and sometimes "only" around .60 or .70 (at least based on my impressions). This kind of critical evaluation of the content of the measures can help ground the speculations that are discussed around page 21.

3. I think having consistent subsections in all papers referencing the other related papers and the actual results will help readers gain a bigger picture perspective on this work and the conclusions that can be drawn from this set of studies. This will involve coordination with the other first authors and some attention to how material is ultimately presented to readers in the Introduction, Method, and Discussion sections of all papers. I also think a COG statement should appear in all three papers but the length could be calibrated by reference to the other sections. I am also sure there will be some commentators who do not like the approach of having three separate papers so it could be useful to be proactive and provide a short but consistent explanation for such a strategy that appears in all three papers.

4. A reviewer of another paper in this set expressed concerns about raising issues in the Discussion that could be tested with the existing data. I think that comment is valid as I thought some of the Discussion raised topics that could be tested with the data at hand (e.g., quadratic effects for N). I am not

exactly sure as to what is the best course of action given the coordination involved in the research but some editing and even some ancillary analyses could be useful for addressing this concern.

5. I was struck by the lack of heterogeneity in results. A reviewer of another paper correctly points to power concerns with these tests. Those power concerns could be addressed directly but assuming power was decent, the uniformity of the null results could be worth a sentence or two.

6. I think it would be helpful to be even more generative in the Discussion. This team has done a thorough job of using the existing resources in studies on aging and health to address an important question. Such insights put your group in a position to make some recommendations about next steps. So I encourage you to consider including a paragraph or two that describes what you might think of as the ideal design to test this idea of healthy neuroticism and mortality and your informal "priors" on whether the null results here will replicate in this ideal design.

7. Given that correlations with other Big Five traits can vacillate depending on the inventory, I thought there could be some value in estimating models that just had N, C, and the interaction (i.e., drop the other traits). (I apologize if I missed this in some of the materials). Assuming those results are similar to what is in the paper, this could be a footnote or a one sentence aside in the paper.

8. I saw a few typos (e.g., mortaliry risk) on page 5. Those should be corrected.

9. Please check that all pre-registrations and supplemental materials are available to all readers.

Those were the most salient issues that occurred to me in reading the paper and the reviews. Please feel free to contact me for any clarifications.

To access your submission account, follow the below instructions:

- 1) login to the journal webpage with username and password
- 2) click on the submission title
- 3) click 'Review' menu option
- 4) download Reviewed file and make revisions based on review feedback
- 5) upload the edited file
- 6) Click the 'notify editor' icon and email the confirmation of re-submission and any relevant comments to the journal.

If you have any questions or difficulties during this process, please contact us. Good luck revising this work. Thank you for trusting us with your paper.



Sincerely,

Brent Donnellan  
Michigan State University  
donnel59@msu.edu

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**Author's Response to Review Comments for Version 1**

**Author:** Eileen Graham  
**Affiliation:** Northwestern University, Chicago  
**Revision submitted:** 18 March 2020

We appreciate all of the feedback that has made this manuscript stronger.  
Please reach out if you need any additional information.

**Attached document:**

<https://s3-eu-west-1.amazonaws.com/ubiquity-partner-network/ucp/journal/collabra/268-4297-1-SP.docx>

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**Editor Decision for Version 2**

**Editor:** M. Brent Donnellan  
**Affiliation:** Michigan State University  
**Editor decision:** Accept submission  
**Decision date:** 26 May 2020

Dear Dr Eileen K Graham,

After review, we have reached a decision regarding your submission to Collabra: Psychology, "Is Healthy Neuroticism Associated with Mortality?: A Coordinated Integrative Data Analysis", and are happy to accept your submission for publication, pending the completion of copyediting and formatting processes. Thank for your attention to the issues raised in the review process and patience with the time lines. Congratulations to you and your team!

As there are no further reviewer revisions to make, you do not have to complete any tasks at this point. The accepted submission will now undergo final copyediting. You will be contacted once this is complete to answer any queries that may have arisen during copyediting and to allow a final chance to edit the files prior to typesetting. If you wish to view your submission during this time, you can log in via the journal website.

The review information should be included in this email.

Kind regards,

M. Brent Donnellan  
Michigan State University  
donnel59@msu.edu