




No definitive evidence for neuroanatomical correlates of system-justifying ideologies

A recommendation by [Chris Chambers](#)  based on peer reviews by [Bonni Crawford](#) and 1 anonymous reviewer of the STAGE 2 REPORT:

Jan Paolo M. Balagtas, Serenella Tolomeo, Bindiya L. Ragnath, Paola Rigo, Marc H. Bornstein & Gianluca Esposito (2023) Neuroanatomical Correlates of System-justifying Ideologies: A Pre-registered Voxel-based Morphometry Study on Right-Wing Authoritarianism and Social Dominance Orientation. OSF, ver. 3, peer-reviewed and recommended by Peer Community in Registered Reports.

<https://doi.org/10.17605/OSF.IO/9AEBG>

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According to the tenets of system justification theory, system-justifying ideologies are beliefs held by individuals to defend and justify the status quo, even when doing so perpetuates social inequalities (Jost and Hunyady, 2005). Two such well-studied ideologies to emerge from political science and social psychology are *social dominance orientation* (SDO) – the belief that some social groups are superior to others – and *right wing authoritarianism* (RWA) – the belief that people should follow conventional traditions and authorities, avoiding rebellious ideas. Although considered to be stable traits that may have a heritable basis, there has been little investigation of the neural correlates of SDO and RWA, and it remains unknown whether they are associated with common or distinct brain systems. In the current study, Balagtas et al. report a novel investigation of the neuroanatomical correlates of both SDO and RWA in a Chinese Singaporean sample using voxel-based morphometry. Based on previous research, the authors chose to focus especially on relationships between SDO, RWA and the volume of the amygdala, ventromedial prefrontal cortex, and anterior insula. As predicted, the results showed a reliable positive correlation between measures of RWA and SDO; however, none of the neuroanatomical hypotheses were fully supported. Preregistered whole brain analyses revealed no significant regions associated with either RWA or SDO, while ROI analyses identified overlapping (including the amygdala and ventromedial prefrontal cortex) and non-overlapping regions (including left anterior insula) associated with RWA and SDO. Exploratory robustness checks suggested that the authors' spherical ROI localisation method

may have identified clusters that were not within the amygdala or left anterior insula, prompting the need for future replication in a larger sample using more precise, atlas-based analyses. The Stage 2 manuscript was evaluated over two rounds of in-depth review. Based on detailed responses to the reviewers' comments, the recommender judged that the manuscript met the Stage 2 criteria and awarded a positive recommendation.

URL to the preregistered Stage 1 protocol: <https://osf.io/btkwq> **Level of bias control achieved:** **Level 4.** *At least some of the data/evidence that was used to answer the research question already existed AND was accessible in principle to the authors (e.g. residing in a public database or with a colleague) BUT the authors certified that they had not yet accessed any part of that data/evidence prior to IPA.* **List of eligible PCI RR-friendly journals:**

- [Brain and Neuroscience Advances](#)
- [In&Vertebrates](#)
- [NeuroImage: Reports](#)
- [Peer Community Journal](#)
- [PeerJ](#)
- [Royal Society Open Science](#)

References:

1. Jost, J. T., & Hunyady, O. (2005). Antecedents and consequences of system-justifying ideologies. *Current Directions in Psychological Science*, 14, 260-265.
<https://doi.org/10.1111/2Fj.0963-7214.2005.00377.x>
2. Balagtas, P. M., Tolomeo, S., Rangunath, B., Rigo, P., Bornstein, M. H. & Esposito, G. (2023). Neuroanatomical Correlates of System-justifying Ideologies: A Pre-registered Voxel-based Morphometry Study on Right-Wing Authoritarianism and Social Dominance Orientation. Stage 2 Registered Report, acceptance of Version 3 by Peer Community in Registered Reports. <https://osf.io/nrqtz>

Reviews

Evaluation round #2

DOI or URL of the preprint: <https://osf.io/nrqtz>

Version of the preprint: v1

Authors' reply, 06 February 2023

[Download author's reply](#)

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Decision by [Chris Chambers](#) , posted 27 January 2023, validated 27 January 2023

Minor Revision

Thank you for your revised submission. I have now received comments on your Stage 2 manuscript from the one reviewer (Bonni Crawford) with major concerns, particularly regarding the ROI analyses. As you will see, most issues are now resolved, but there are some remaining clarifications required concerning the details and reporting of the new analyses. These issues appear to be readily addressable. I will evaluate your next (and hopefully final) revision/response at desk, and provided you are able to comprehensively address these points, I anticipate being able to award a final Stage 2 recommendation without further in-depth review.

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Evaluation round #1

DOI or URL of the preprint: <https://osf.io/nrqtz>

Authors' reply, 17 December 2022

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Decision by [Chris Chambers](#) , posted 10 October 2022

Revision invited

I now have two evaluations of your Stage 2 manuscript, kindly provided by the two reviewers who assessed the proposal at Stage 1. As you will see, one of the reviewers is broadly satisfied, asking for minor changes (including some key adjustments to the language). However, the other reviewer (Bonni Crawford) notes a potential error, or at least imprecision, in the ROI localisation method that we need to attend to carefully before proceeding with full acceptance. At Stage 2, is unusual for additional analyses to be required, but in this case I think that the reviewer's suggestion for an additional exploratory analysis is well made, and indeed likely to be essential to ensure that [Stage 2 Criterion 2E](#) is met (that the conclusions are based on the evidence). Note that the original analysis should be maintained, and this additional analysis added as transparently *post hoc*. I look forward to your revision and response, which I will return to the reviewer for further consideration. Note also that changes to the Introduction section should be minimal.

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Reviewed by anonymous reviewer 1, 02 October 2022

It was interesting to read about the results of the preregistered analyses which I had reviewed some months ago. I have no fundamental concerns regarding these analyses and think that the papers provides some new information that advances our knowledge in understanding the psychobiological foundations of intergroup attitudes/behavior. Here are some minor points of mine:

p.3.: "These were certainly not demented nor sadistic individuals who participated." Please eliminate "demented" here, because it could be misunderstood as negative labelling of people who suffer from this terrible disease.

general comment on Introduction: A lot of effort is put into explaining why SDO and RWA are either unidimensional or separate constructs. May be this could be formulated in a less "black or white" way, because it is highly likely that both constructs own both shared, but also unique variance - which is also represented by the neuroanatomical findings of this paper

Figure 1: please add confidence intervals to the figure

Table 3: please add information on the direction of the observed relationships (positive vs. negative correlations).

Results & Figures: In my opinion, some of the figures could be moved to the supplemental material, and only the main findings should be presented.