



# Weak-to-no evidence for a positive link between loneliness and anthropomorphism

A recommendation by **Chris Chambers**  based on peer reviews by John Protzko of the STAGE 2 REPORT:

Qinyu Xiao, Mahmoud Elsherif, Hoi Yan Chu, Ming Chun Tang, Ting Hin (Angus) Wong, Yiming Wu, Christina Pomareda, Gilad Feldman (2024) Insufficient evidence of a positive association between chronic loneliness and anthropomorphism: Replication and extension Registered Report of Epley et al. (2008). OSF, ver. 6, peer-reviewed and recommended by Peer Community in Registered Reports. <https://doi.org/10.17605/OSF.IO/2SB7X>

Submitted: 27 March 2024, Recommended: 22 June 2024

**Cite this recommendation as:**

Chambers, C. (2024) Weak-to-no evidence for a positive link between loneliness and anthropomorphism. *Peer Community in Registered Reports*, 100750. [10.24072/pci.rr.100750](https://doi.org/10.24072/pci.rr.100750)

Published: 22 June 2024

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Anthropomorphism is a widespread phenomenon in which people instil non-human entities or objects with human-like characteristics, such as motivations, intentions, and goals. Although common, the tendency to anthropomorphise varies between people, and a growing body of psychological research has examined the importance of various individual differences. One major theoretical account of anthropomorphism (Epley et al. 2007) suggests that *sociality motivation* – the drive to establish social relationships – is a key moderator of the phenomenon. In support of this account, some evidence suggests that people who experience greater loneliness (a proposed marker of sociality motivation) are more likely to anthropomorphise. In an influential series of studies, Epley et al. (2008) found that anthropomorphism and loneliness were positively correlated and that inducing participants experimentally to feel more lonely led to greater anthropomorphism. Later studies, however, produced more mixed results, particularly concerning the effectiveness of the experimental interventions. In the current study, Elsherif et al. (2024) undertook a partial replication of Epley et al. (2008), focusing on the correlational relationship between anthropomorphism and loneliness, with extensions to examine free will beliefs, anthropomorphism for supernatural beings (in addition to objects/gadgets), and the extent to which participants judged objects/gadgets to be controllable. The results revealed no reliable evidence for a positive relationship between anthropomorphism and loneliness. Analyses of the extended questions revealed that the perceived controllability of gadgets was associated negatively with anthropomorphism and that free will belief was associated positively with belief in anthropomorphism of supernatural beings.

Broadly, the current findings constitute a non-replication of Epley et al. (2008). The authors conclude by calling for more direct and conceptual replications to establish the link (if any) between sociality motivation and anthropomorphism. The Stage 2 manuscript was evaluated over one round of in-depth review. Based on detailed responses to the reviewer's and recommender's 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/by89c> **Level of bias control achieved:** Level 6. *No part of the data or evidence that was used to answer the research question was generated until after IPA.* **List of eligible PCI RR-friendly journals:**

- [Collabra: Psychology](#)
- [F1000Research](#)
- [International Review of Social Psychology](#)
- [Meta-Psychology](#)
- [Peer Community Journal](#)
- [PeerJ](#)
- [Royal Society Open Science](#)
- [Social Psychological Bulletin](#)
- [Studia Psychologica](#)
- [Swiss Psychology Open](#)

### **References:**

1. Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review*, 114, 864–886. <https://doi.org/10.1037/0033-295X.114.4.864>
2. Epley, N., Akalis, S., Waytz, A., & Cacioppo, J. T. (2008). Creating social connection through inferential reproduction: Loneliness and perceived agency in gadgets, Gods, and greyhounds. *Psychological Science*, 19, 114–120. <https://doi.org/10.1111/j.1467-9280.2008.02056.x>
3. Elsherif, M., Pomareda, C., Xiao, Q., Chu, H. Y., Tang, M. C., Wong, T. H., Wu, Y. & Feldman, G. (2024). Insufficient evidence of a positive association between chronic loneliness and anthropomorphism: Replication and extension Registered Report of Epley et al. (2008) [Stage 2]. Acceptance of Version 6 by Peer Community in Registered Reports. <https://osf.io/x96kn>

## **Reviews**

### **Evaluation round #1**

DOI or URL of the preprint: <https://osf.io/z95u6>

Version of the preprint: 5

## Authors' reply, 19 June 2024

Revised manuscript: <https://osf.io/x96kn>

All revised materials uploaded to: <https://osf.io/2sb7x/> , updated manuscript under sub-directory "PCIRR Stage 2\PCI-RR Stage 2 submission following R&R"

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## Decision by [Chris Chambers](#) , posted 06 June 2024, validated 06 June 2024

### Minor Revision

I have now obtained an evaluation from the one of the reviewers who assessed your Stage 1 submission, and I have decided that we can proceed based on this review and my own assessment. As expected from my own reading of the paper, the review is generally positive and there are few obstacles in the way to final Stage 2 acceptance. Within the comments you will find some interesting suggestions for clarifying the presentation of results and enhancing the discussion. I look forward to receiving your revision and response, which I will assess at desk before issuing a final recommendation.

## Reviewed by John Protzko, 30 April 2024

The authors did what they said they would do, so this work should be approved.

What I say below are merely suggestions to improve the reporting of the results.

I found myself making multiple notes throughout the paper, which were then answered shortly afterwards (happily!).

My biggest concern is the low anthropomorphism scores in this replication. As far as I can tell, however, the authors do not discuss if it is low *compared to the original*.

What would be best is to present *something like* a 2x2 grid of density plots of this data (Gadget anthropomorphism, pet anthropomorphism, belief in supernatural, supernatural anthropomorphism) with the mean and 95%CI of the mean indicated, as well as a line of the mean of the original Epley data (where available). That may help elucidate if and how much the scores differ from then and now (I assume the original Epley data is not available).

A minor point is I would like to see more discussion of the results, what do we know now that we did not know before this rstudy was conducted? What insights can be gleaned for future use?

The final (and related) point is on the original material used. The authors used the original gadgets. But the results did not replicate.

A hostile individual could say "well, we all know you can't use the original materials as times change".

BUT

If the authors had used updated materials and still found non-significant results, the hostile individual could similarly say "Well, they changed the materials so it is not a replication".

I know the authors know about this problem.

It is a trap, laid by researchers desperate to vilify any nonsignificant replication.

I would love to see the authos say this, explicitly, and loudly, in their discussion.

There needs to be continued conversation about this 'updating materials trap', and this is a good place to continue to point it out.

Protzko