



# The Relationship between Childhood Environment, Stress, and Immune Function

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## Background

- Low socioeconomic status (SES) in childhood is linked with exaggerated inflammatory responses to stress in adulthood (Pollitt et al., 2007).
- Elevated inflammation is thought to promote better immune function among people who developed in low SES environments, due to greater risk of injury and disease (Miller et al., 2009).
- However, adults who grew up low SES (vs. high SES) have worse health (Poulton et al., 2002).
- This suggests that stress does not promote better immune function for this population, but no research has experimentally examined this.

## Research Question

Does stress improve the immune function of people who grew up in low SES environments?

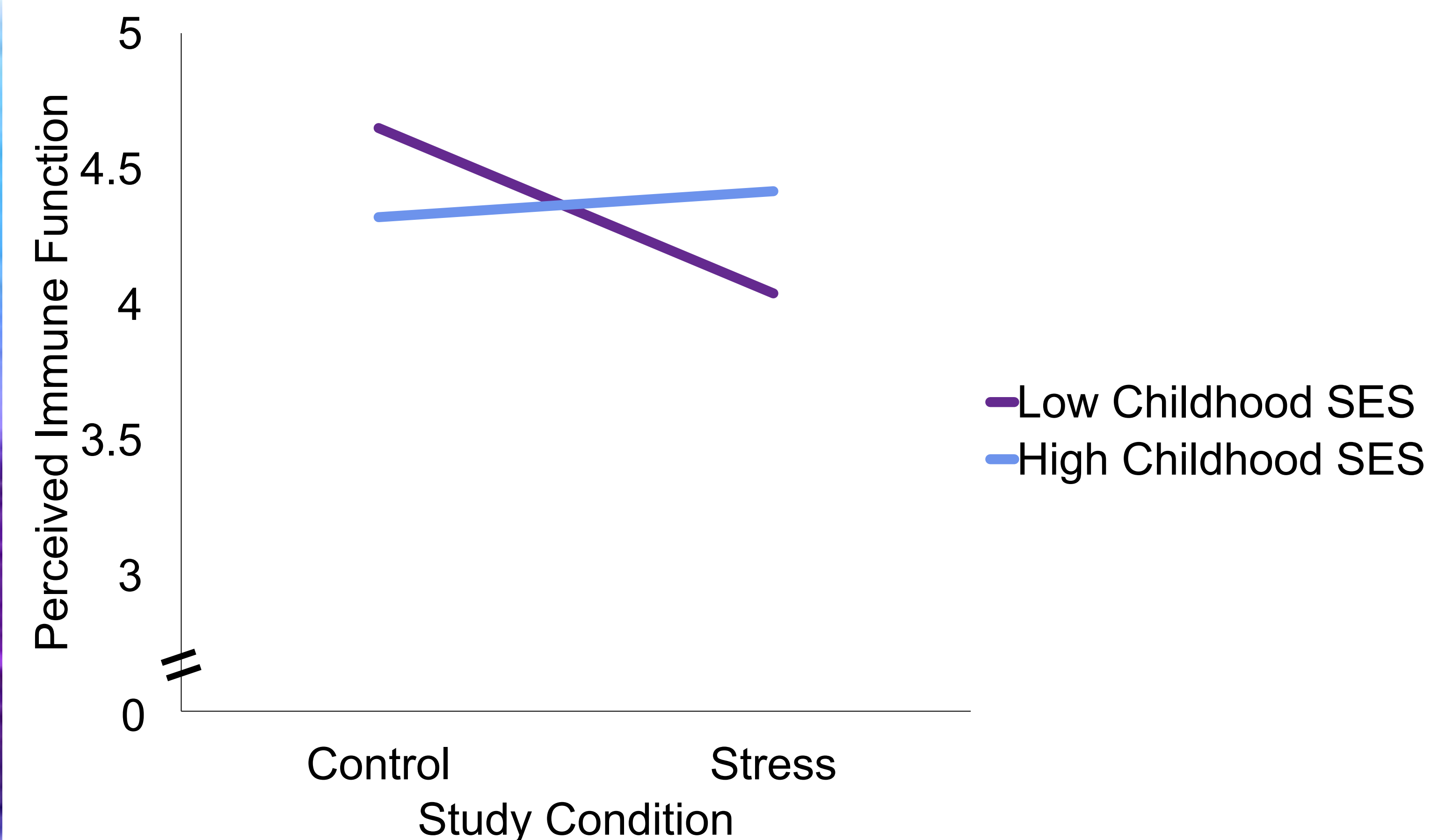
## Method

- 56 participants (Mage = 19.32) were randomly assigned to the stress or the control condition of the Trier Social Stress Test.
- Next, participants reported their perception of the quality of their immune function.
- Then, participants provided a blood sample.
- White blood cells were isolated in the lab and exposed to *e. coli* to measure participants' actual immune function.

## Hypothesis

- Stress → worse perceived and actual immune function, but only for people from low SES childhood environments.

## Perceived Immune Function

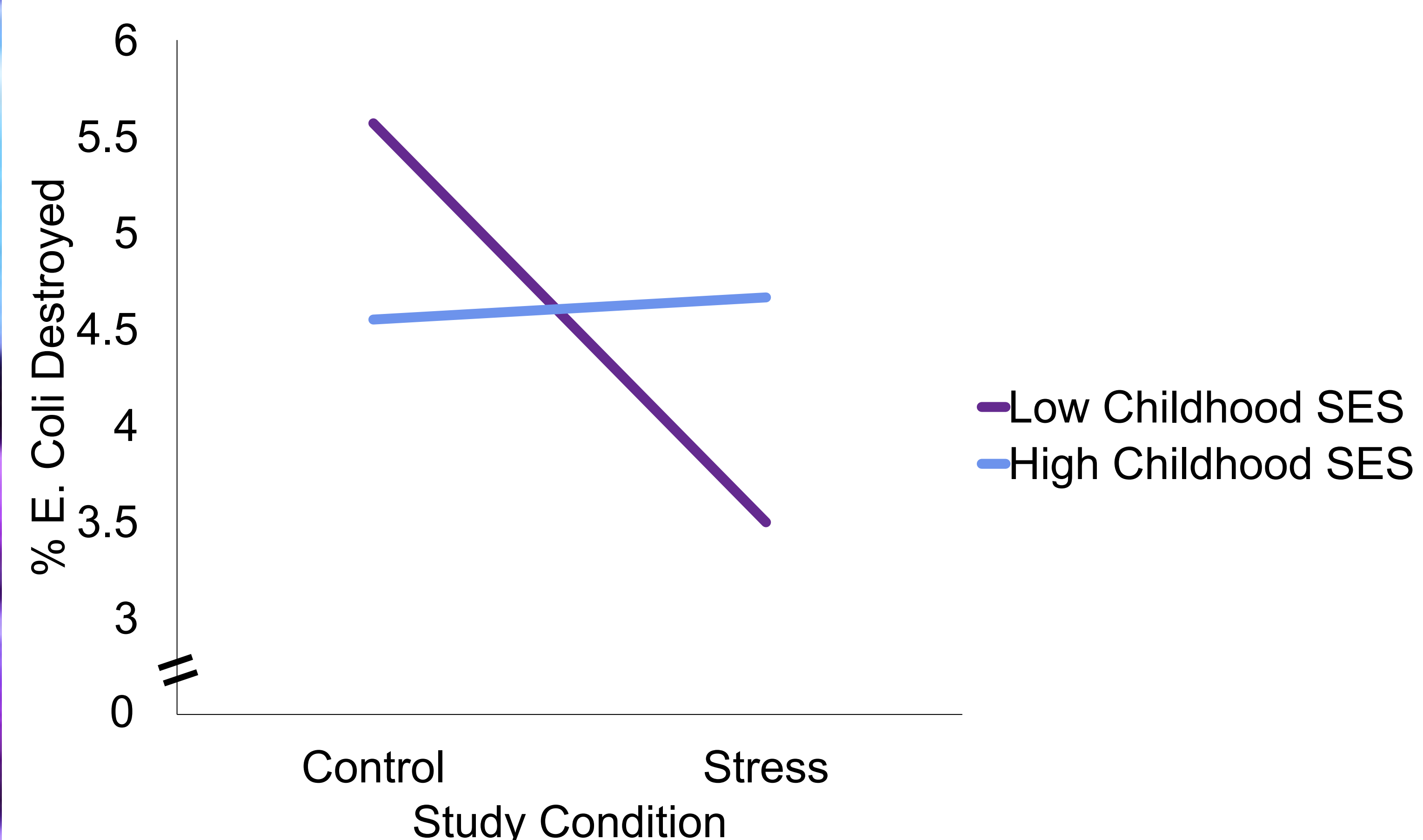


## Results

Results are preliminary as data collection is still ongoing. The results are trending in support of the hypotheses.

- Perceived immune function was not impacted by stress among those from high SES backgrounds.
- Those with low childhood SES perceived their immune function to be worse compared to control.
- Phagocytic ability was not impacted by stress among those from high SES backgrounds.
- Those with low childhood SES exhibited worse immune function (destroying less *e. coli*) compared to control.

## Actual Immune Function



## Conclusions

- Stress is not likely to impact the perceived or actual immune function of people from high SES childhood environments.
- Stress does not improve the immune function of people from low SES environments.
  - This population may be experiencing harmful inflammation due to immune dysregulation **NOT** because it is beneficial for their health.
- People exhibit accurate perceptions of their own immune function, which may guide behavior.

## References

Miller, G. E., Chen, E., Fok, A. K., Walker, H., Lim, A., Nicholls, E. F., Cole, S., & Kobor, M. S. (2009). Low early-life social class leaves a biological residue manifested by decreased glucocorticoid and increased proinflammatory signaling. *Proceedings of the National Academy of Sciences*, 106(34), 14716–14721.

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## Funding

