

# Social constraint and romantic partner support predict salivary cortisol & α-amylase trajectories during an acute stressor

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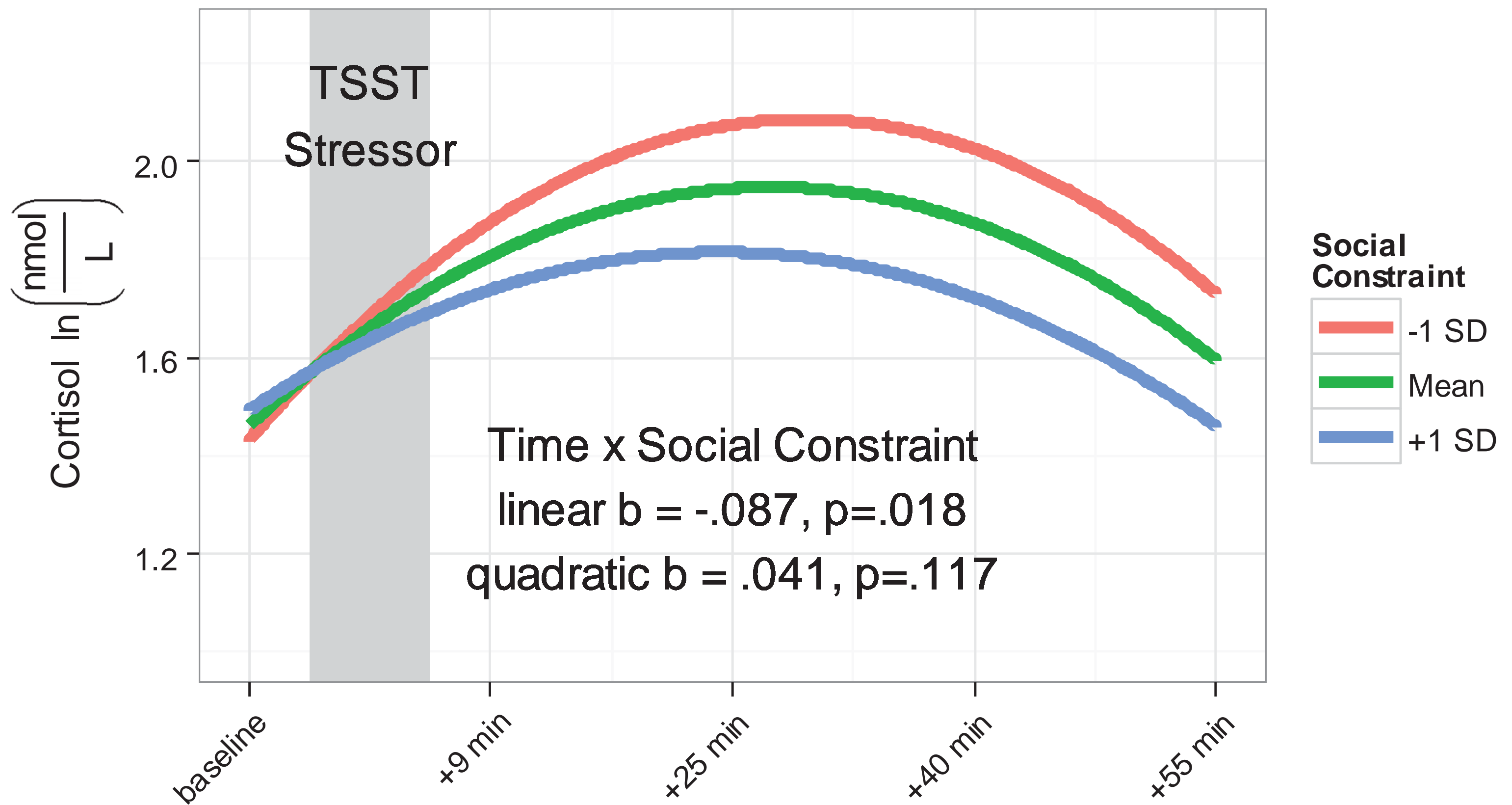
## Background

### Primary Aim

- Examine whether self-esteem, optimism, social constraint, and perceived partner support in times of need moderate salivary cortisol and α-amylase (sAA) trajectories in response to an acute social stressor.

The hypothalamic-pituitary-adrenal axis (HPA) and sympathetic nervous system (SNS) are responsive to stress. Cortisol and sAA are biomarkers for the HPA and SNS, respectively.

Significant variability in cortisol and sAA trajectories in reaction to stress indicates individual differences are important. We examined four psychological factors that may moderate the experience and physiological response to an acute social stressor.



Above. Graph of the interaction of social constraint and the linear and quadratic time effects for salivary cortisol.

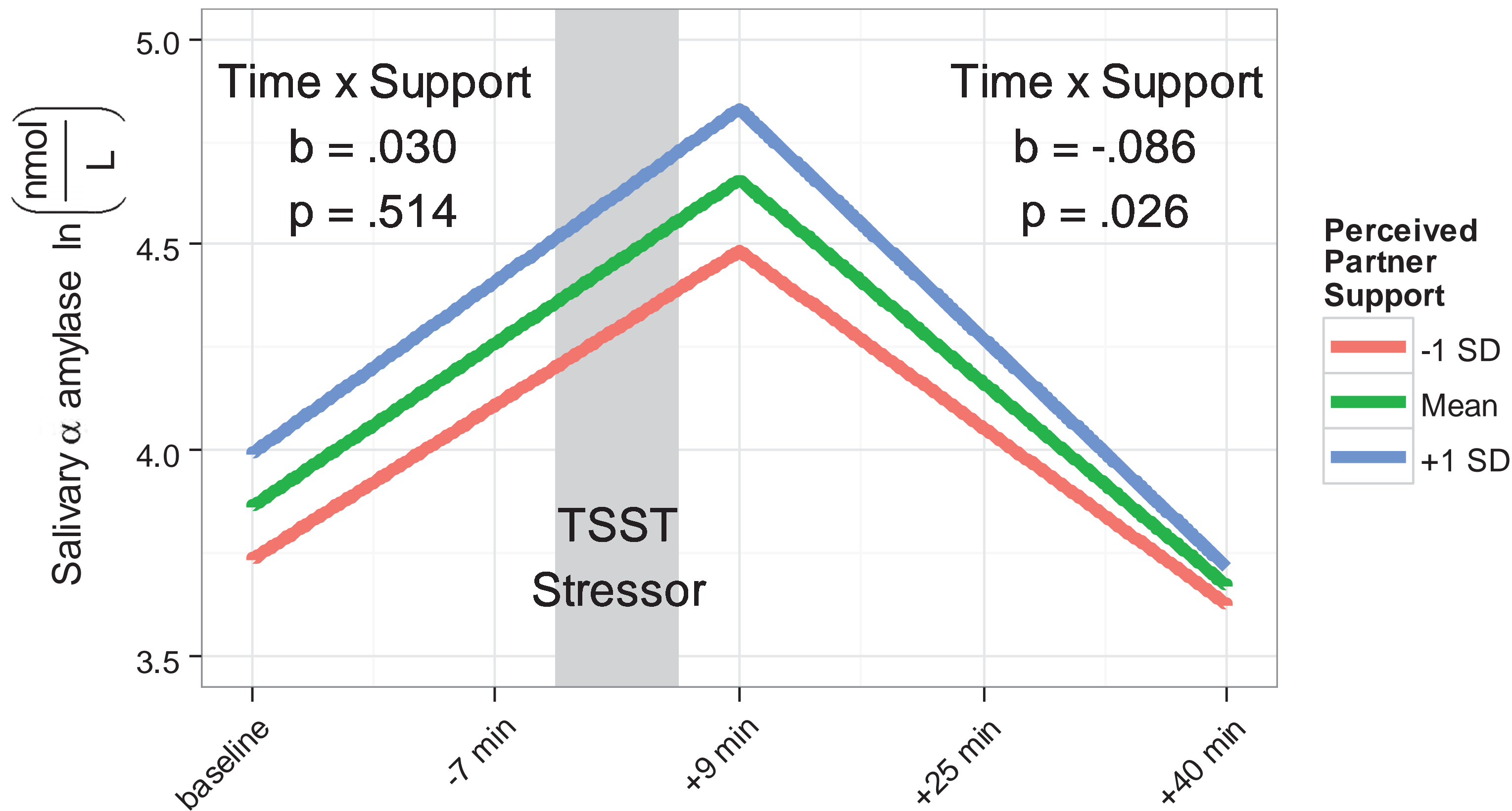
## Methods

Couples (N = 142) were recruited from the UCLA community; one member was randomly assigned to the Trier Social Stress Test (TSST), which involves performing a public speech and math task to an unsupportive audience

Salivary cortisol and sAA were assessed five times during the TSST

- Optimism**<sup>1</sup> – 6 items e.g., “In uncertain times, I usually expect the best”  
**Self Esteem**<sup>2</sup> – 10 items e.g., “I take a positive attitude toward myself”  
**Social Constraint**<sup>3</sup> – 11 items e.g., “in the past month has your partner minimized your problems/feelings?”  
**Partner Support**<sup>4</sup> – 8 items e.g., “To what extent can you turn to your partner for advice about problems?”

Data were analyzed using Bayesian multilevel models with informative priors and controlled for respondent sex, age, caffeine use, alcohol consumption in the previous 24 hours, and prescription or oral contraceptive use



Above. Graph of the interaction of perceived partner support and the piecewise reactivity and recovery time effect for salivary α-amylase.

## Results

Optimism and self esteem did not significantly moderate the cortisol nor sAA trajectories.. Due to participants not following instructions, missing data and outliers, 124 people (n=618) were included for the social constraint and cortisol model and 125 (n=617) for the support and sAA model.

Cortisol increased significantly in response to the TSST holding social constraint at its mean (at baseline simple slope b = .24, at 25 min b = .03), and the effect was moderated by social constraint, such that people who were higher in social constraint had a blunted cortisol response.

At the mean support, both the sAA reactivity (b = .40) and recovery (b = -.49) slopes were statistically significant. sAA reactivity but not recovery was moderated by perceiving a high amount of partner support in times of need.

## Conclusion

- As expected cortisol and salivary α-amylase significantly changed in response to the TSST.
- Individuals high in social constraint have a blunted cortisol responses, whereas those low in constraint have a stronger reaction and recovery
- Perceived partner support has no effect on sAA reactivity but is associated with a faster recovery

Social stress encountered in daily life can activate the HPA axis and SNS. Our work suggests individual differences in social constraint and perceived partner support may moderate these physiological responses, which over time may have implications for long term health. Although salivary cortisol has been extensively studied, there comparatively little research on sAA. sAA is easy and noninvasive to collect, and our work furthers the evidence that it is responsive to social stressors and can be predicted by psychosocial factors.

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