

# Cortisol Reactivity and Affective Attention Bias: The Intricacies of Social Problem-Solving in School-Aged Children

Marissa V. Hendrickson, Patrick T. Davies, Ph.D., & Vanessa T. Cao, B.S.  
Department of Psychology, College of Arts, Sciences, and Engineering, University of Rochester



## Introduction

- Children use social problem-solving (SPS) to effectively interact with others via recognizing the complexities of social situations, self-regulating, and tailoring responses in ways that help them maintain or gain social standing (D'Zurilla, Nezu, & Maydeu-Olivares, 2004).
- Little research has investigated how children's response to stress, such as cortisol reactivity, influences their social capabilities.
- Prior research regarding the association between cortisol reactivity and SPS are modest or inconsistent (Allwood et al., 2011; Blair, Granger, & Razza, 2005).
- Affective attention bias may help explain variations in this association.

## Methodology & Results

### Methods at Wave 1 & 2

#### Cortisol Reactivity to Cognitive Challenges

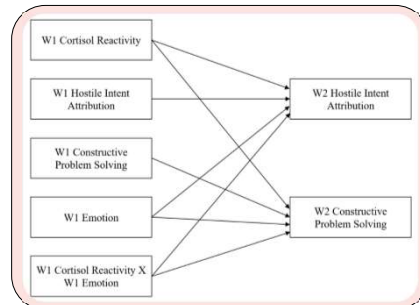
The residual of 2 salivatory samples: one taken prior to administration of cognitive tasks (i.e., timed puzzle and silly stroop) and another 20 minutes post task completion.

#### Quadrant

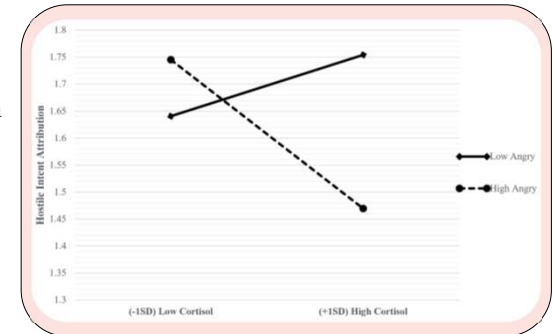
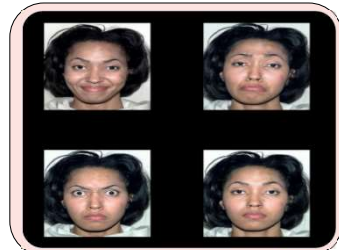
Passive viewing task capturing children's duration of looking time to emotional faces (i.e., happy, sad, angry, neutral) via eye tracking technology (see photo depiction).

#### STEP-P Provocation

Assesses children's SPS (i.e., CPS and HIA) through observer ratings of their open-ended responses to interview questions regarding 10 second vignettes depicting challenging peer interactions.



Conceptual depiction of cortisol reactivity predicting SPS and as moderated by affective attention bias; "Emotion" represents attention duration to happy, sad, angry, or neutral resulting in path models total



### Results

Higher cortisol reactivity consistently predicted higher CPS across all four paths,  $\beta_s > .19, p_s < 0.05$ .

Heightened cortisol reactivity in conjunction with greater attention bias toward anger predicted lower HIA (i.e., greater SPS),  $\beta = -0.19, p = 0.03$  (see above figure).

## Aims

- Examine whether higher cortisol reactivity is predictive of SPS characteristics including children's constructive problem-solving (CPS) abilities and their hostile intent attribution (HIA) one year later.
- Determine if affective attention bias moderates the association between cortisol reactivity and SPS.

## Participants

### Sample

- 238 children and their families
- 52% girls
- Age at Wave 1 = 4.4 years

### Ethnicity/Race

- 68% White
- 18% Black
- 14% Multiracial or Other
- 16% Latino

### Socioeconomic Status

- Median Income = \$73,000
- 36% receiving public assistance

## Conclusions

Understanding the impact children's stress response has on their ability to construct effective solutions to complex social situations offers insight into what aspects of development future interventions should be targeting.

- This is especially vital for children growing up in high stress environments who are more likely exhibit cortisol production impairment (Repetti et al., 2011).

Additionally, our research provides partial evidence for the moderating effects of affective attention bias on the association between cortisol reactivity and SPS.

## Acknowledgements

This research was conducted at the Mt. Hope Family Center and was supported by the Eunice Kennedy Shiver national Institute of Child Health fellowship R01 HD094829 awarded to Patrick T. Davies and Melissa L. Sturge-Apple. We are grateful to the families and staff who participated in this project.