

# Task measures of empathy and their relationship with trait emotion dysregulation

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## Introduction

- The ability to manage one's emotions (emotion regulation; ER) is related to the capacity to understand/resonate with others' emotions (cognitive & affective empathy, respectively)<sup>1</sup>.
- Greater cognitive empathy (CE) is associated with more adaptive ER. Mixed findings for affective empathy (AE) – current evidence suggests it could hinder some ER processes but facilitate others<sup>2</sup>.

## Aims & Hypotheses

- Empathy and emotion regulation are multidimensional constructs. The interrelationships between their various component processes are not currently well characterised<sup>1</sup>.
- Majority of previous studies have used only trait measures. This study examined how task-based measures of CE and AE are associated with trait emotion dysregulation (ED).
- Predicted: CE negatively related to ED; AE positively related to ED<sup>2</sup>.

## Methods

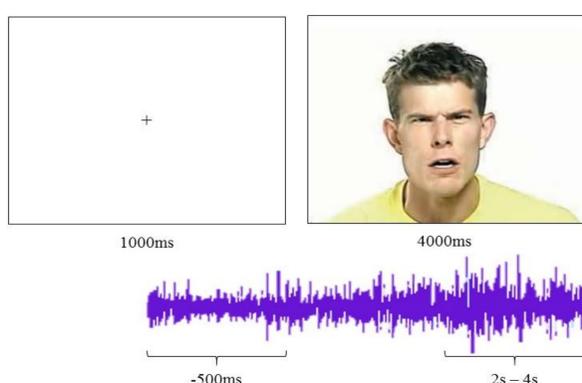
- N = 48 (31 female); 21.29 years (SD = 4.03)
- CE assessed using eye-tracking based perspective-taking task (Director Task)
- AE assessed using fEMG-based spontaneous facial mimicry (SFM) task.
- Trait emotion dysregulation assessed using the Difficulties in Emotion Regulation Scale, short-form<sup>3</sup> (DERS;  $\alpha = .89$ )

### CE – Director Task



- 48 trials (24 control/24 experimental)
- Relative gaze time target vs. foil

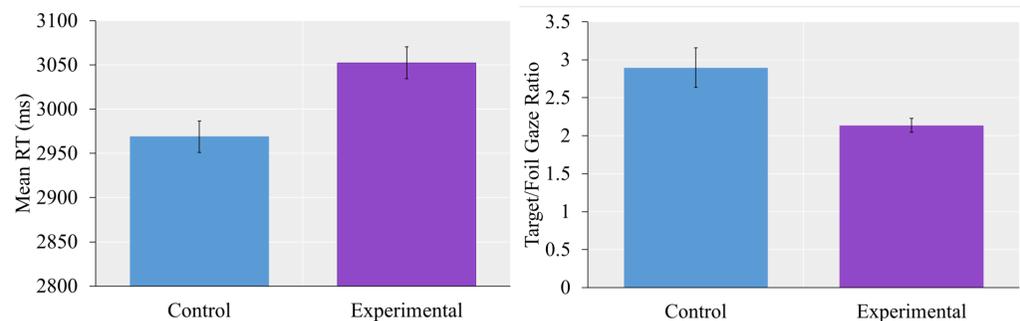
### AE – SFM Task



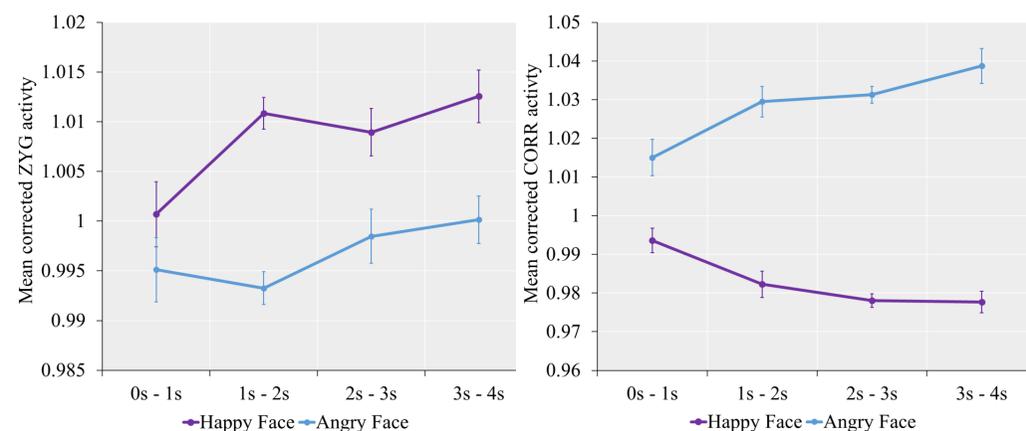
- 48 trials (24 happy face/24 angry face)
- Congruent muscle change (CS-Ang / ZM-Hap)

## Results

### Task Validation



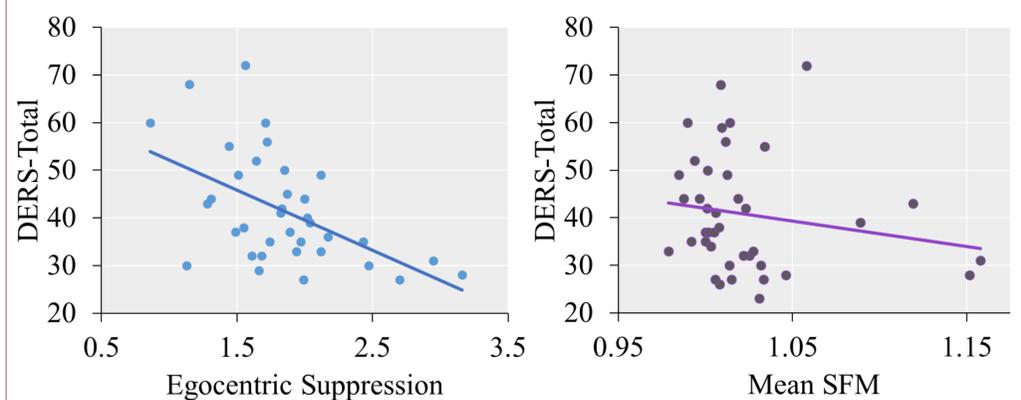
- DT: RT longer for exp vs. control trials ( $p = .02$ ).
- DT: Lower target/foil gaze ratio for exp vs. control trials ( $p = .002$ )



- SFM: ZM increase for happy ( $p = .03$ ) but not angry ( $p = .54$ )
- SFM: CS increase for angry ( $p < .001$ ), decrease for happy ( $p = .03$ )

### Relationship with Emotion Dysregulation

- DT shows negative relationship with DERS:  $\rho(36) = -.47, p = .003$
- Mean SFM not significantly related to DERS:  $\rho(38) = -.26, p = .11$



- No relationship for happy SFM ( $\rho(38) = -.03, p = .84$ ); angry SFM showed negative relationship with DERS ( $\rho(38) = -.47, p = .002$ ).

## Discussion

- Further evidence that CE is positively associated with adaptive ER. Relationship may reflect overlap in cognitive control processes.
- Increased SFM of angry, but not happy faces, is associated with adaptive ER. SFM of angry faces may capture socio-cognitive processes beyond state-matching/emotion contagion.

1. Thompson, N.M., Uusberg, A., Gross, J.J., & Chakrabarti, B. (2019). Empathy and Emotion Regulation: An Integrative Account. *Progress in Brain Research*, 247: 273–304.  
2. Thompson, N.M., van Reekum, C.M., & Chakrabarti, B. (2021). Cognitive and Affective Empathy Relate Differentially to Emotion Regulation. *Affective Science*.  
3. Kaufman, E.A., Xia, M., Fosco, G., Yaptangco, M., Skidmore, C.R., & Crowell, S. (2016). The Difficulties in Emotion Regulation Scale Short Form (DERS-SF): validation and replication in adolescent and adult samples. *Journal of Psychopathology and Behavioral Assessment*, 38(443).  
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