Feeling your emotions in my body?

The role of interoception and facial mimicry in emotion processing

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INTRODUCTION

- Bodily states inform emotional experiences via interoceptive pathways [1]
- **Embodying emotional expressions** of others might **facilitate emotion recognition**
  - Yet: Inconsistent link between facial mimicry and emotion recognition [2]
- **Higher interoceptive accuracy** was found to promote recognition of (some) emotional facial expresstions [3]

Individual differences in interoceptive abilities might moderate the integration of bodily signals in processing emotional expressions of others.

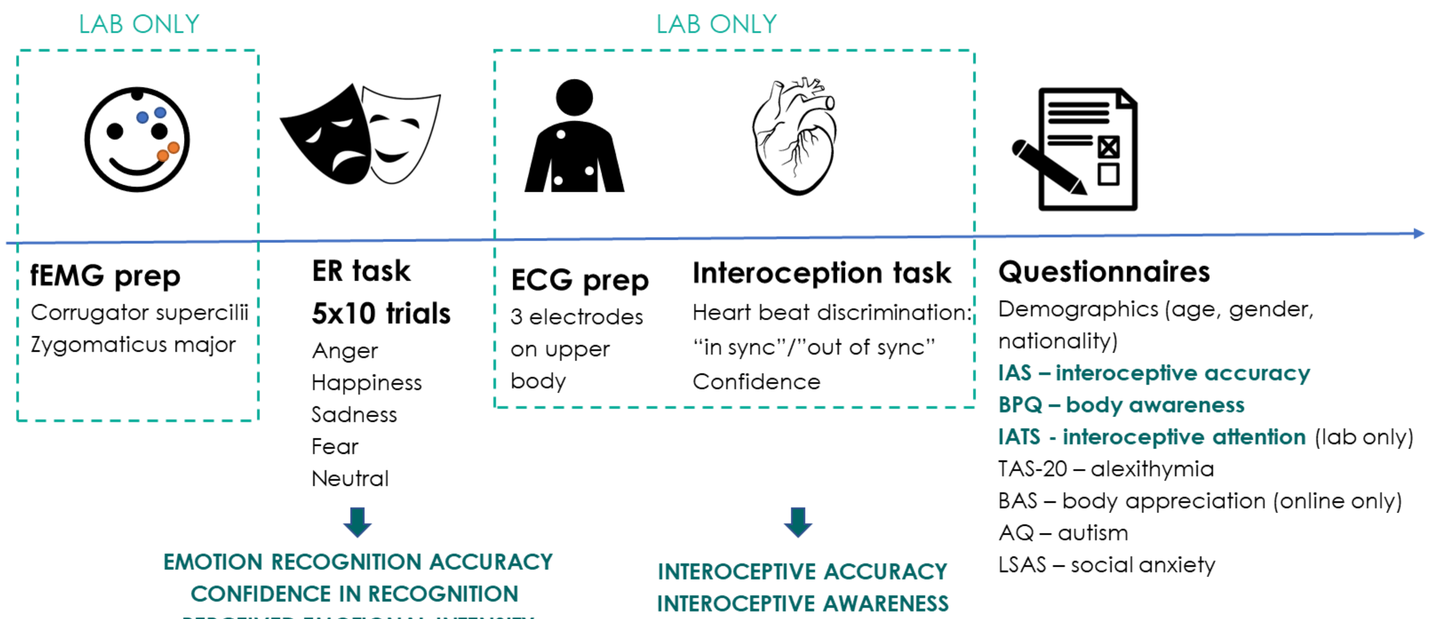
RESEARCH QUESTIONS

1. Can **self-reported measures of interoception** predict how **emotions of others** are perceived?
2. Is **cardiac interoceptive accuracy** linked to **emotion recognition accuracy**?
3. Is **facial mimicry more predictive of emotion recognition accuracy** in individuals with **high interoceptive accuracy**?

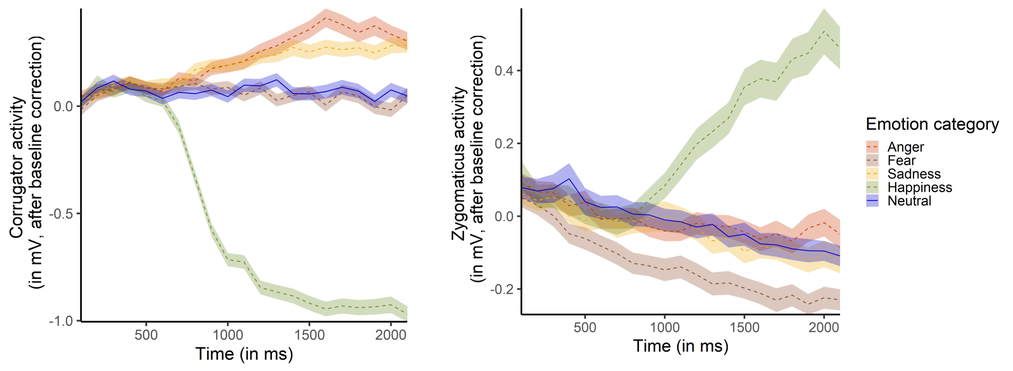
METHODS

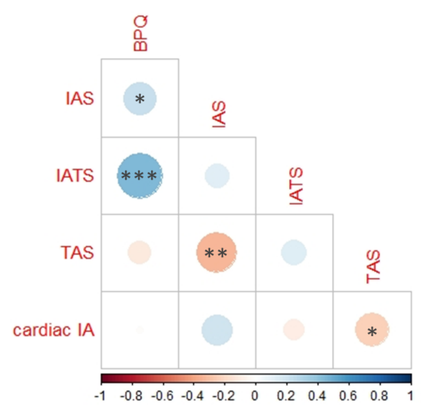
Online study: N = 100 (M_{age} = 21.60 [18-42]; 87 ♀)

Lab study: N = 84 (M_{age} = 20.08 [18-26]; 72 ♀);



DATA EXPLORATION (Lab study)





- Typical facial mimicry patterns
- Interoceptive accuracy and attention not correlated
- Relationship self-reported and cardiac interoceptive accuracy positive but n.s.
- Alexithymia negatively related to cardiac interoceptive accuracy

RESULTS

1 Outcome ~ Emotion*IAS+ Emotion*BPQ + (1 | ID) + (1 | Stimulus)

Accuracy: neither predicted by IAS nor BPQ (online + lab)

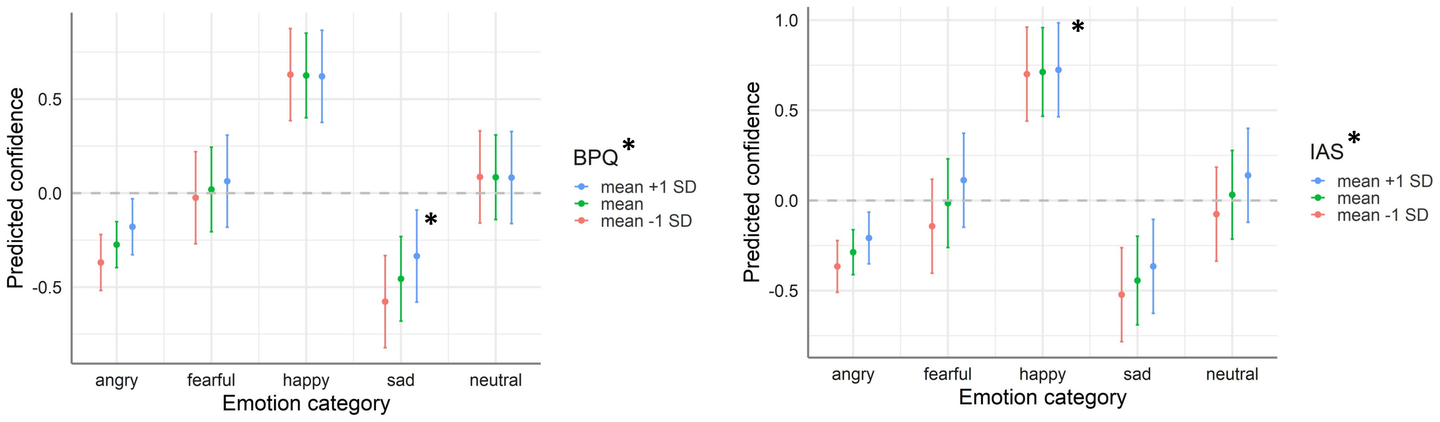
Confidence

Online: higher confidence with higher BPQ: specifically for sadness (1), less for happiness (2)

1. β = 0.07, t(4745) = 2.99, p = 0.003
2. β = -0.06, t(4745) = -2.34, p = 0.019

Lab: higher confidence with higher IAS for all emotions (1) apart from happiness (2)

1. β = 0.08, t(4132) = 2.22, p = 0.026
2. β = -0.07, t(4132) = -2.77, p = 0.006



Intensity

Online: higher intensity with higher BPQ for all emotions (1) apart from happiness (2)

1. β = 0.10, t(4745) = 2.15, p = 0.034
2. β = -0.06, t(4745) = -3,65, p < 0.001

Online + lab: higher intensity with lower IAS for happiness (1) + with higher IAS for neutral (2)

1. β = -0.06, t(4132) = -2.98, p = 0.003
2. β = 0.13, z = 5.98, p < 0.001

2 ER accuracy ~Emotion*cardiac IA + (1 | ID) + (1 | Stimulus)

- Cardiac interoceptive accuracy not predictive of emotion recognition accuracy

3 ER accuracy ~ Emotion *IAS* Corrugator + Emotion*BPQ* Corrugator + Emotion *IAS* Zygomaticus + Emotion *BPQ*Zygomaticus + (1 | ID) + (1 | Stimulus)

- Emotion recognition accuracy not significantly predicted by facial muscle activity
  - Also not moderated by (self-reported) interoception
- Exploratory: lower confidence when corrugator more activated (β = -0.04, t(3861) = -2.17, p = 0.03)

DISCUSSION

- Neither self-reported nor cardiac interoceptive accuracy predicts emotion recognition accuracy
- Only **self-reported measures of interoception** (both accuracy and body awareness) predict **confidence** in emotion recognition + **perceived emotional intensity**
  - Variablility in sensation ot **other physiological signals** (single or integrated) might be **more informative**
  - Feedback might not be indicative of specific emotion, but **integrated to varying degrees**
- Task-related vs. mimicry-related changes in facial muscle activity difficult to disentangle

Pre-registration Online study

Pre-registration Lab study

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REFERENCES

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