

# A new look at the influence of music practice on empathy and prosociality

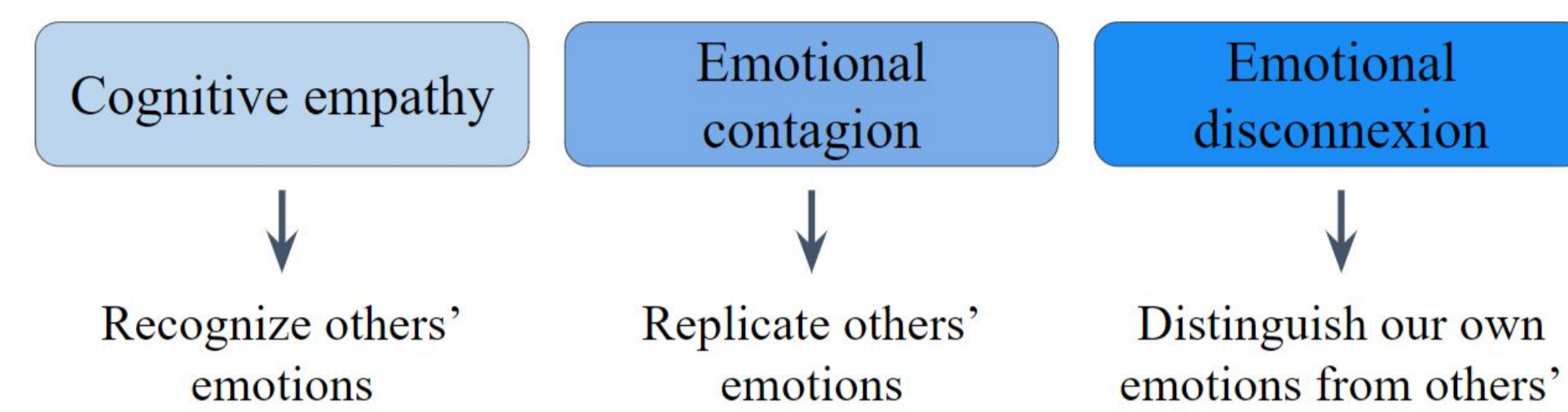
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## Introduction

**Empathy:** The ability to understand and be sensitive to the emotional states of others<sup>1</sup>

### Tridimensional model of empathy



- Music practice is often assumed to increase empathy and prosociality, but data are limited: previous studies found conflicting results, and use subjective measures and various models of empathy which are difficult to compare
- Moreover, the relationship between empathy and prosociality in music practice is unclear

**Objective:** Characterise the influence of music practice on empathy and prosociality

**Hypothesis 1:** Musicians will score higher on empathy and prosociality than non-musicians

**Hypothesis 2:** The more practice a musician has, the higher their empathic and prosocial scores will be

## Methodology

### Participants

Musicians ( $n=80$ , 49% female) and non-musicians ( $n=89$ , 69% female), 18 to 60 years old ( $M=29.69$ ,  $SD=9.26$ )

- ↳ At least 2 years of musical experience + 1 current practice/week

### Tasks and measures

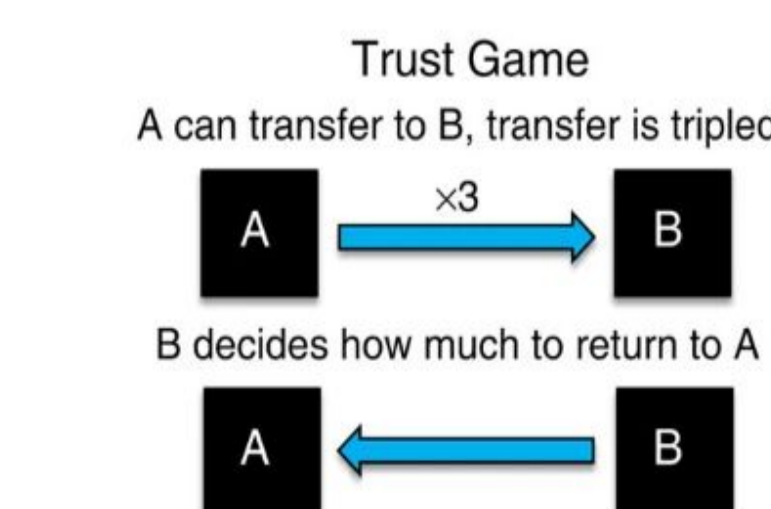
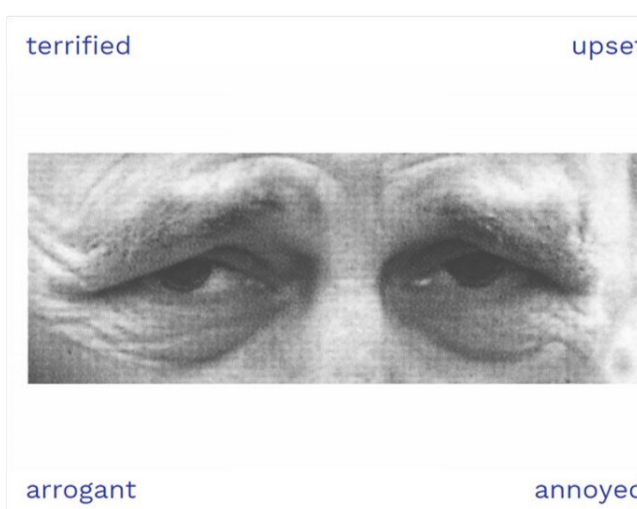
Online study (LimeSurvey platform)

#### Questionnaires:

- Ollen Musical Sophistication Index (OMSI)<sup>2</sup>
  - ↳ Measures musical characteristics (e.g., How many years of private musical lessons have you received?)
- Basic Empathy Scale in Adults (BES-A)<sup>3</sup>
  - ↳ Measures the 3 dimensions of empathy (e.g., my friends' emotions don't affect me much)

#### Behavioral tasks:

- Read the Mind in the Eyes Test (RMET)<sup>4</sup>
  - ↳ Measures cognitive empathy
- Multifaceted Empathy Test (MET)<sup>5</sup>
  - ↳ Measures a) cognitive empathy and b) emotional contagion
- Economic Games<sup>6</sup>
  - ↳ Measures prosociality



$$\text{Bayes factor (BF)} = \frac{\text{Evidence in favor of alternative hypothesis}}{\text{Evidence in favor of null hypothesis}}$$

### Analysis

\*controlling for gender

- **One-way ANOVAs (classical and Bayesian):** Group (musicians and non-musicians) x Empathy and prosociality measures
- **Spearman correlations (classical and Bayesian):** Number of hours of music practice x Empathy and prosociality measures

## Results

### Hypothesis 1

- **No effect of music practice on empathy**  
 $F_s < 2.25$ ;  $p_s > 0.14$ ;  $BFs < 0.61$
- **No effect of music practice on prosociality**  
 $F_s < 2.60$ ;  $p_s > 0.11$ ;  $BFs < 0.32$

### Exploratory finding

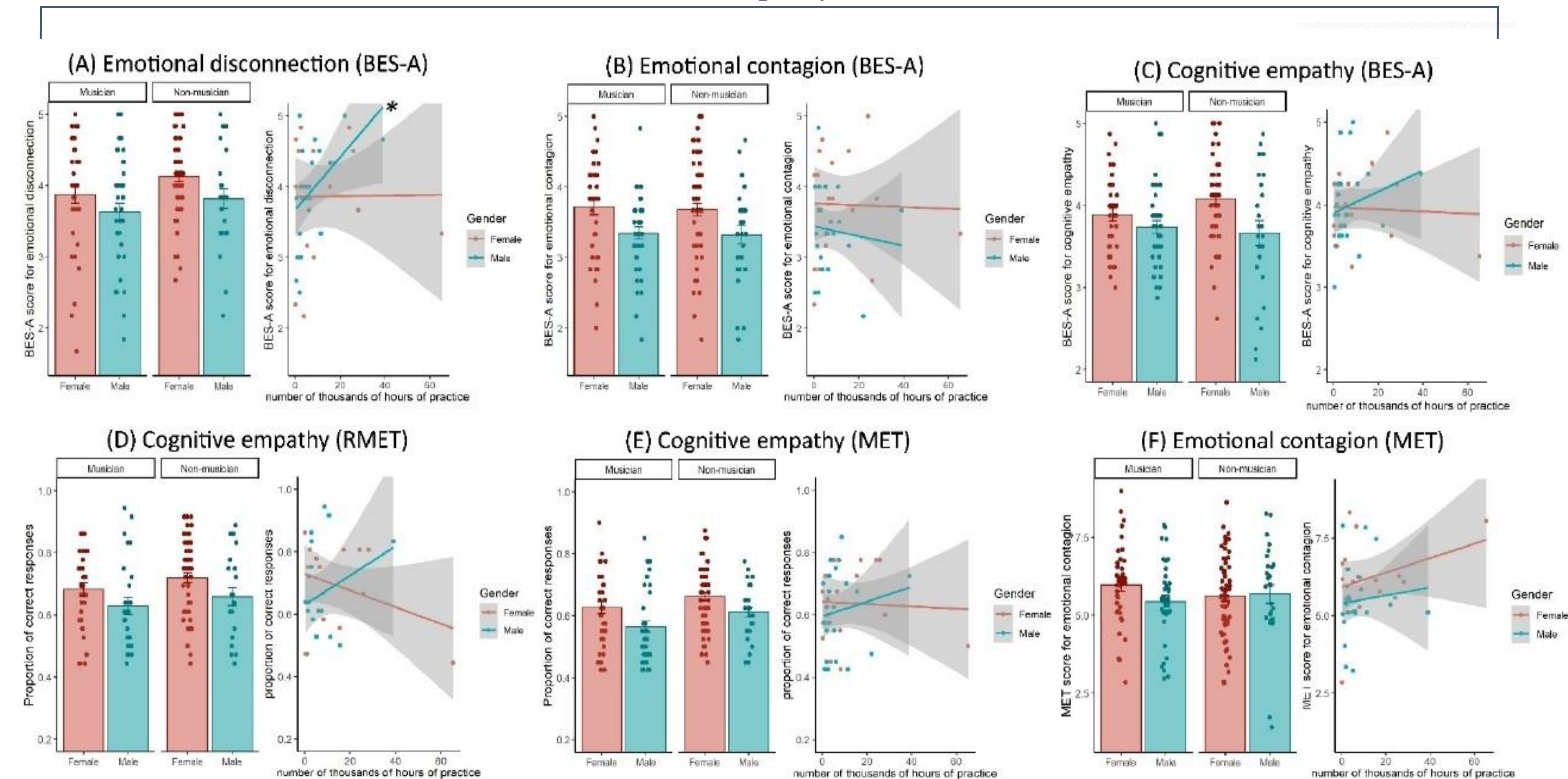
- **Correlation between the age at beginning of practice and empathy measures**  
 $r_s < -0.26$ ;  $p_s < 0.05$ ;  $BFs > 0.30$
- **No correlation between the age at beginning of practice and prosociality measures**  
 $p_s > 0.30$ ;  $BFs < 1.36$

### Hypothesis 2

- **No correlation between the number of hours of practice and empathy measures**  
 $p_s > 0.14$ ;  $BFs < 0.99$   
*Except emotional disconnection for males ( $r=0.5$ ,  $p=0.02$ ,  $BF=3.25$ )*
- **No correlation between the number of hours of practice and prosociality measures**  
 $p_s > 0.42$ ;  $BFs < 0.41$



### Main empathy results



## Conclusion

### Results diverge from literature: Why?

- Subjective (questionnaires) and objective (tasks) measures
- Bayesian analysis
- Continuous musicianship measures

### Limits

- Approximate measure of musical practice: number of hours is hard to recall
- Online study and self-reported measures: prone to social biases

### Future

- Compare the relationship for solo and group music practice
- Small effect?: More precise measures (EEG and HRV)
- Music → ↑Empathy vs. Empathy → ↑Music

We offer a new look at the influence of music practice on empathy and prosociality



References

