

Is your pain my pain? Effects of localized placebo analgesia on empathy for everyday painful situations

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Introduction

- First-hand experience and empathy for pain rely on similar neural functions: shared representations account¹
- Placebo analgesia reduces both one's own pain as well as empathy for pain^{2,3}

Research Gap

- Reduction of empathy by placebo found in affective, but not somatosensory areas^{2,3}
- Mismatch might be due to specifics of previous experimental paradigms⁴⁻⁶
- Previous study in the same project: no evidence for somatosensory sharing⁷

Research Question

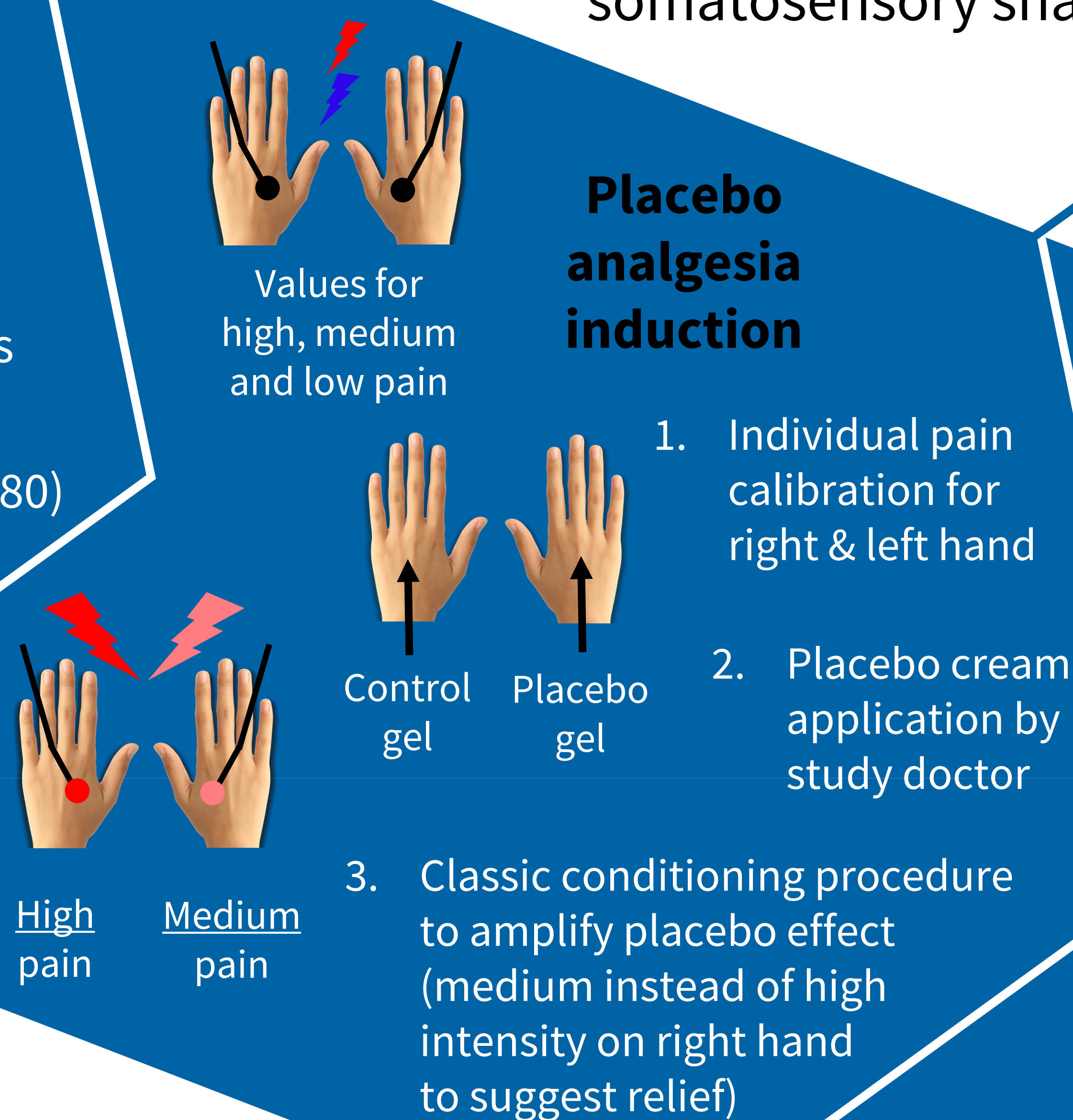
Does placebo analgesia modulate empathy for naturalistic depictions of others' pain in a somatotopically matched way?



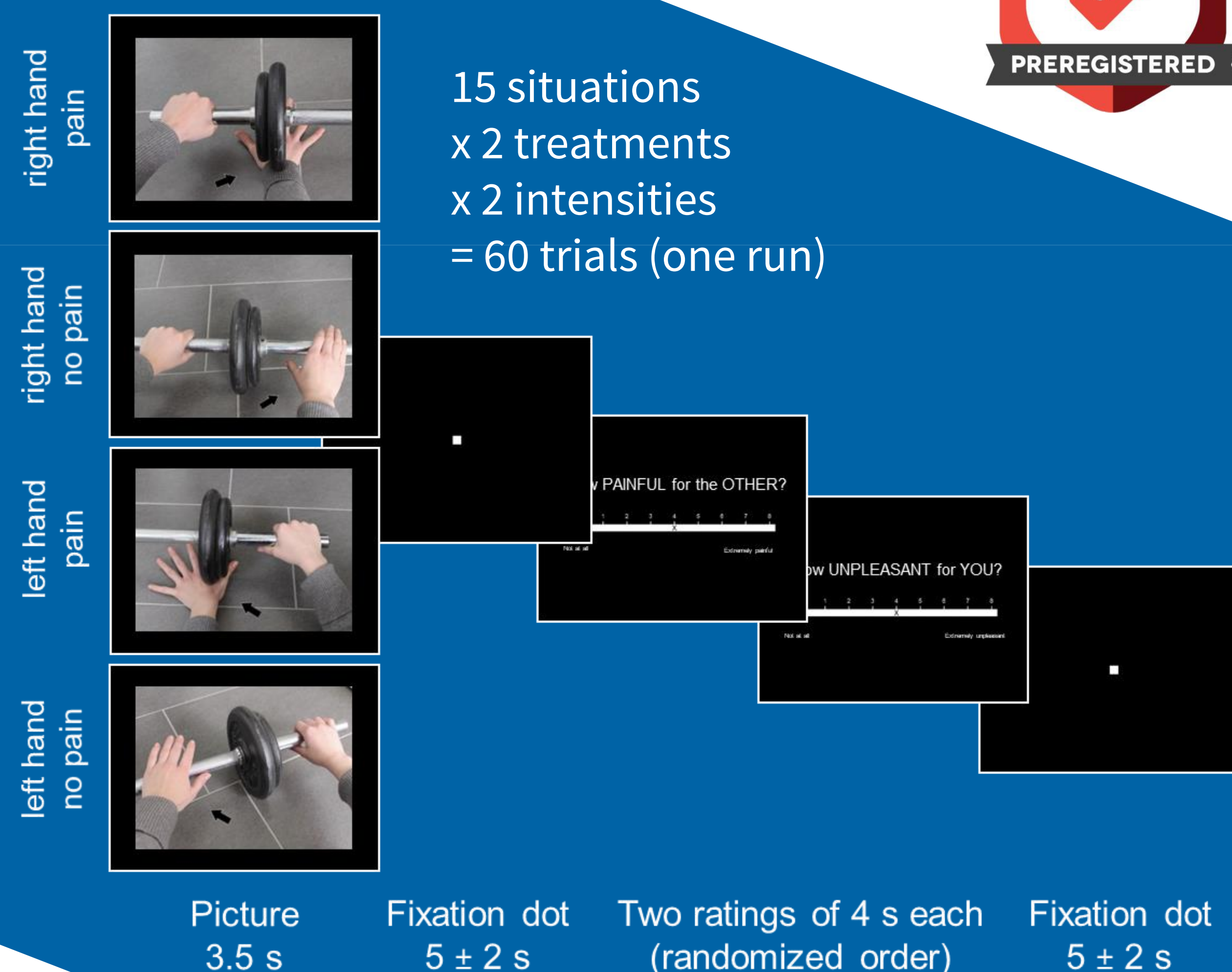
Methods

Sample

- N = 45 (23 f) placebo analgesia responders (26% nonresponders)
- M(SD)_{age} = 23.8(2.9), age range = 19-31 years
- Strongly right-handed (Laterality Quotient⁸ > 80)
- No doubts about study setup



Empathy task & fMRI

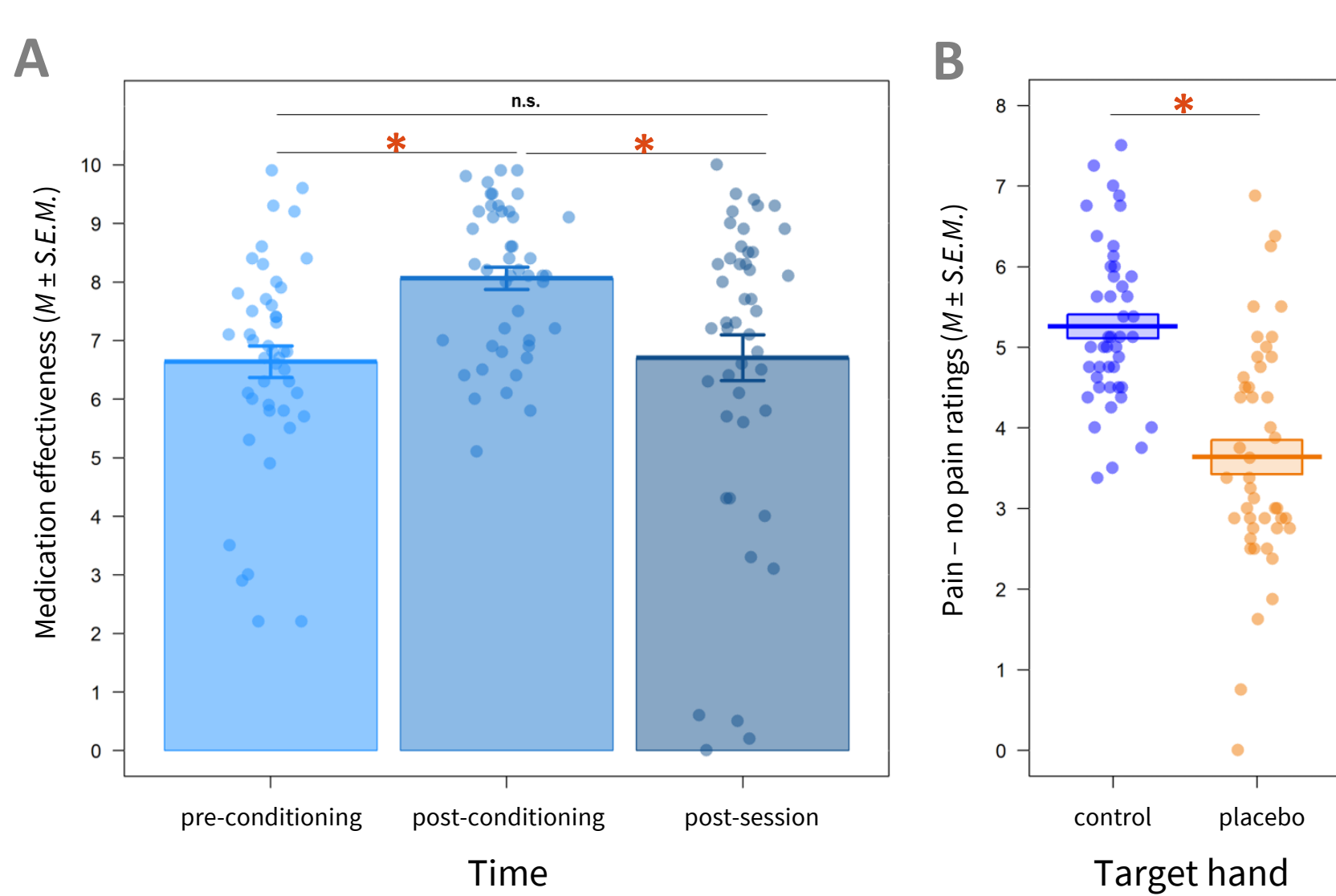


Results

Behavior

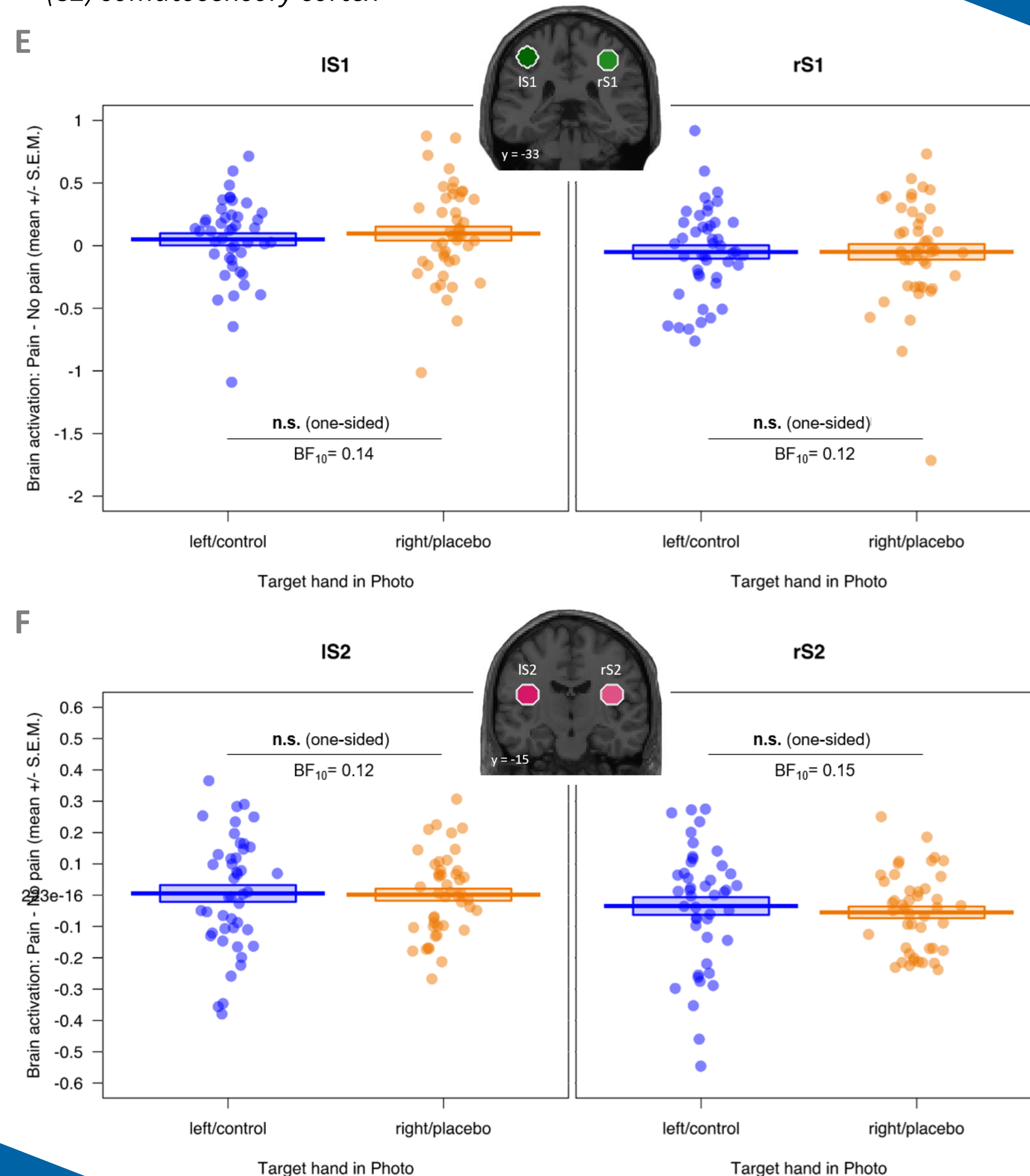
Strong belief in 'medication' effectiveness over the session

Self-reported difference in average pain in a first-hand electrical pain task

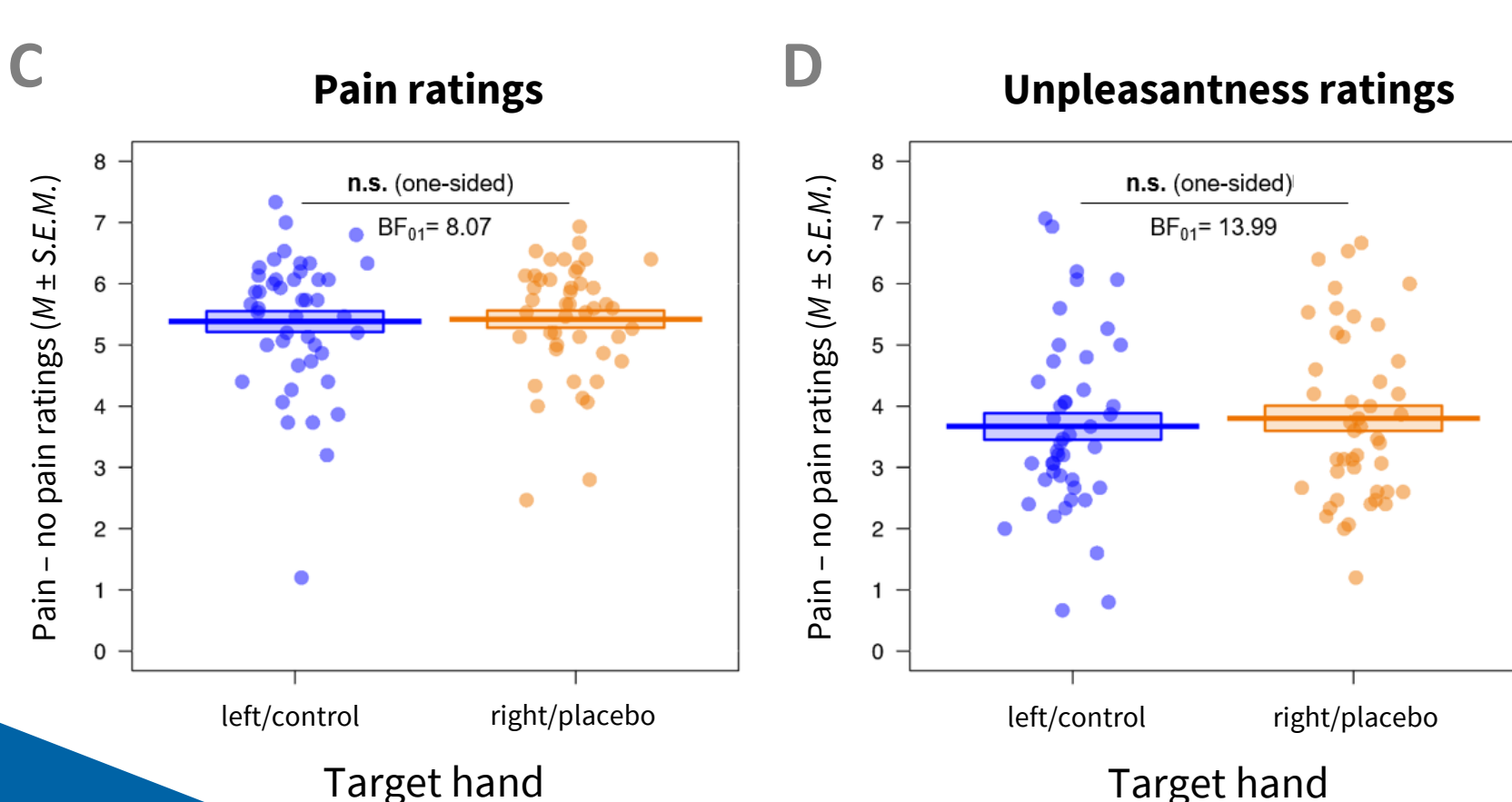


Brain

No somatotopically matched modulation of somatosensory responses during empathy for pain in bilateral primary (S1) or secondary (S2) somatosensory cortex



No localized transfer of placebo effect to empathy for naturalistic depictions of others' pain



- First-hand placebo analgesia effect
- No transfer of this effect to somatosensory responses related to empathy for pain
- Matching results in behavioral and brain data

Conclusion

No evidence for somatosensory specific matching during empathy for naturalistic depictions of others' pain

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