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 account.
- Placebo analgesia reduces both one's own pain as well as empathy for pain.

Research Gap
- Reduction of empathy by placebo found in affective, but not somatosensory areas.
- Mismatch might be due to specifics of previous experimental paradigms.
- Previous study in the same project: no evidence for somatosensory sharing.

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 Quotient > 80)
- No doubts about study setup

Placebo analgesia induction
1. Individual pain calibration for right & left hand
2. Placebo cream application by study doctor
3. Classic conditioning procedure to amplify placebo effect (medium instead of high intensity on right hand to suggest relief)

Empathy task & fMRI
- 15 situations x 2 treatments x 2 intensities = 60 trials (one run)

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

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References
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Conclusion
No evidence for somatosensory specific matching during empathy for naturalistic depictions of others’ pain