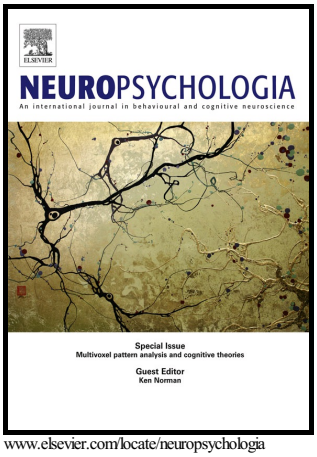


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# Psychopharmacological modulation of event-related potentials suggests that first-hand pain and empathy for pain rely on similar opioidergic processes

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## Abstract

Accumulating evidence suggests that empathy for pain recruits similar neural processes as the first-hand experience of pain. The pain-related P2, an event-related potential component, has been suggested as a reliable indicator of neural processes associated with first-hand pain. Recent evidence indicates that placebo analgesia modulates this component for both first-hand pain and empathy for pain. Moreover, a psychopharmacological study showed that administration of an opioid antagonist blocked the effects of placebo analgesia on self-report of both first-hand pain and empathy for pain. Together, these findings suggest that the opioid system plays a similar role during first-hand pain and empathy for pain. However, such a conclusion requires evidence showing that neural activity during both experiences is similarly affected by psychopharmacological blockage of opioid receptors. Here, we measured pain-related P2 amplitudes and self-report in a group of participants who first underwent a placebo analgesia induction procedure. Then, they received an opioid receptor antagonist known to block the previously induced analgesic effects. Self-report showed that blocking opioid receptors after the induction of