Thalamic cortices mediate nostalgia-induced pain relief

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MRI paradigm (i.e., nostalgia vs. control cues when people were viewing pictures) was combined with heat-pain stimulation (i.e., low heat vs. high heat when people were feeling pain) to examine how brain responses elicited by pain stimulation were modulated after people experienced nostalgic emotion.

After observing triggers of childhood memories, participants reported experiencing weaker feelings of pain in response to the thermal stimuli, particularly at low stimulus intensities.

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Led by Dr. Kong Yazhuo from the Institute of Psychology of the Chinese Academy of Sciences, the research team found that the thalamus, a critical brain region for pain modulation, is also related to the analgesic effect associated with nostalgia.

Nostalgia, a sentimental longing for one's past, is a self-conscious, perhaps bittersweet but predominantly positive social emotion. Nostalgia helps us maintain a positive psychological status when counteracting the negative impact of difficult situations. The adaptive functions of nostalgia are many, with one effect being pain relief.

In the current study, a nostalgia-related functional MRI paradigm (i.e., nostalgia vs. control cues when people were viewing pictures) was combined with heat-pain stimulation (i.e., low heat vs. high heat when people were feeling pain) to examine how brain responses elicited by pain stimulation were modulated after people experienced nostalgic emotion.

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In the current study, a nostalgia-related functional
coupling between PAG and the dorsal-lateral prefrontal cortex predicted pain perception when people were feeling pain. This indicates that the **thalamus** modulates nociceptive inputs and plays a crucial role in triggering the brain-stem analgesic pathway.

Sometimes people experience mild clinical pain that's uncomfortable, but not enough to require medication. In these cases, non-drug analgesic pain relief methods can be helpful or even necessary.

This study sheds light on the neural mechanisms underlying nostalgia-induced pain relief, providing novel insights into the further development and improvement of non-drug, psychological analgesia.

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