

Hurts so good -- neural clues to the calming effects of self-harm

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The notion that cutting or burning oneself could provide relief from emotional distress is difficult to understand for most people, but it is an experience reported commonly among people who compulsively hurt themselves.

Individuals with borderline personality disorder experience intense emotions and often show a deficiency of emotion regulation skills. This group of people also displays high prevalence rates of self-injurious behavior, which may help them to reduce negative emotional states.

Niedtfeld and colleagues studied the effects of emotional stimuli and a thermal stimulus in people either with or without borderline personality disorder. They conducted an imaging study using picture stimuli to induce negative, positive, or neutral affect and thermal stimuli to induce heat pain or warmth perception. The painful heat stimuli were administered at an individually-set temperature threshold for each subject.

In patients with borderline personality disorder, they found evidence of heightened activation of limbic circuitry in response to pictures evocative of positive and [negative emotions](#), consistent with their reported emotion regulation problems. Amygdala activation also correlated with self-reported deficits in emotion regulation. However, the thermal stimuli inhibited the activation of the amygdala in these patients and also in healthy controls, presumably suppressing emotional reactivity.

Dr. John Krystal, Editor of [Biological Psychiatry](#), commented, "These data are consistent with the hypothesis that physically painful stimuli provide some relief from emotional distress for some patients with borderline personality disorder because they paradoxically inhibit [brain regions](#) involved in emotion. This process may help them to compensate for deficient emotional regulation mechanisms."

The authors note that these results are in line with previous findings on emotional [hyperactivity](#) in [borderline personality disorder](#) and suggest that these individuals process pain stimuli differently depending on their arousal status.

More information: The article is "Affect Regulation and Pain in Borderline Personality Disorder: A Possible Link to the Understanding of Self-Injury" by Inga Niedtfeld, et al. The article appears in *Biological Psychiatry*, Volume 68, Issue 4 (August 15, 2010).

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