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Emotion dysregulation in borderline personality disorder: A problem of too much drive and too little control?

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Borderline personality disorder (BPD) is a diagnostic label applied to people who have problems regulating emotional mood swings. This emotional instability leaves such individuals vulnerable to emotional upheaval that puts them at risk for problem behaviors, including self-destructive acts and impulsive aggression.

A new study in Biological Psychiatry provides a quantitative summary of the brain abnormalities that may be underlying the emotional upheaval patients with BPD experience daily.

Dr. Lars Schulze at Freie Universität Berlin and his colleagues at Heidelberg University focused on emotional processing in this meta-analysis to investigate the related functional and structural abnormalities in patients with borderline personality disorder.

They pooled functional data from 19 published studies, providing a total of 281 patients with BPD and 293 healthy control subjects. Structural data was available for 10 studies, with a total of 263 patients with BPD and 278 healthy subjects.

Their analyses revealed that during the processing of negative emotions, BPD patients show enhanced activations of the left amygdala along with blunted responses of the dorsolateral prefrontal cortex compared to healthy controls. These brain regions were also found to overlap with

abnormalities in gray matter volume.

"Our results highlight brain abnormalities in the amygdala and the dorsolateral prefrontal cortex," said Schulze. "The amygdala is known to process emotional arousal and is hyperactive in BPD. The dorsolateral prefrontal cortex, which has a key role in the regulation of emotions, is less active during the processing of negative emotional stimuli in BPD."

"In order to understand these findings, it might be useful to imagine that the brain was a like a car," explains Dr. John Krystal, Editor of Biological Psychiatry. "The gas pedal for emotion might be the amygdala and the emotional brake might be the dorsolateral prefrontal cortex. The current findings seem to suggest that, in borderline personality disorder, the brain steps on the gas yet does not as effectively brake emotion."

Together, these findings support the concept of borderline personality disorder as a disorder of emotion dysregulation. Treatment options that can help fine-tune the brain's 'motor' may help alleviate some of the distressing clinical symptoms that individuals with BPD experience and grapple with on a daily basis.

Schulze added, "It is my hope that these findings will give an impetus to future neuroimaging studies evaluating different treatment options in BPD, such as psycho- or pharmacotherapy."

More information: Lars Schulze et al. Neural Correlates of Disturbed Emotion Processing in Borderline Personality Disorder: A Multimodal Meta-Analysis, *Biological Psychiatry* (2016). DOI: 10.1016/j.biopsych.2015.03.027

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