

Neural signature of affiliative experience identified in human brain

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How would you respond if someone told you that you have a very dedicated son and that he got the scholarship he most wished? Or that the company you worked for made great profits and you will receive a good salary raise?

While the former situation represents a positive affiliative experience the latter is a non-affiliative one, and that, according to a paper published in tomorrow's issue of the *Journal of Neuroscience*, can make all the difference to the way your brain responds.

Affiliative experiences are inherent to humans and other mammals. It has been known for some time that [mammals](#) sustain [social bonds](#) by showing affiliative behavior, which promotes group cohesion and cooperation among members. Previous studies done in animals have pointed to specific regions in the brain involved in these behaviors.

In humans, the challenge has been to show how affiliative experience modulates [brain activity](#) and to distinguish these experiences from non-affiliative negative and positive emotions such as fear and sorrow or joy and pride.

In a paper entitled "A neural signature of affiliative emotion in the human septohypothalamic area" and published this week in the [Journal of Neuroscience](#), a group led by Dr Jorge Moll at the Cognitive and Behavioral Neuroscience Unit at D'Or Institute, in Rio de Janeiro, Brazil, compared [brain responses](#) to affiliative and non-affiliative social

scenarios associated with either positive or [negative emotions](#).

The group, which also includes Dr Roland Zahn at the University of Manchester and the Manchester Academic Health Sciences Center at the School of [Psychological Sciences](#) in the United Kingdom, and other researchers from the Federal University of Rio de Janeiro, the State University of [Rio de Janeiro](#) and the Federal University of ABC, in Brazil, succeeded in designing an experimental set up using functional MRI in which affiliative experiences could be differentiated from [emotional experiences](#) that did not involve affiliation.

By presenting each of the 27 healthy volunteers with 280 [social scenarios](#) of five different types (affiliative positive, affiliative negative, non-affiliative positive, non-affiliative negative, and neutral) consisting each of two short sentences, the group asked each participant to rate the amount of positive or negative emotional experience associated with each scenario. When faced with scenarios such as "You were distracted and lost your young child in the park" (affiliative negative) or "You were blamed for a problem that was not your fault and lost your job" (non-affiliative negative) each participant was asked to rate the scenario using a scale ranging from very unpleasant to neutral to very pleasant. In addition, participants evaluated each scenario according to its degree of affiliation by rating the level of care or tenderness involved.

"Our study shows that the septal/preoptic-anterior hypothalamic area is the key region engaged by affiliative stimuli," says Dr Moll. The study also shows that this response was irrespective of whether the stimuli were emotionally positive or negative.

"The septal/preoptic-anterior hypothalamic area has been previously indicated as involved in attachment-related behaviors in other species but only now have we been able to show the existence of a neural signature of human affiliative experience," says Dr Ricardo de Oliveira-

Souza, who also participated in the study.

The identification of the brain mechanisms associated with affiliative experiences is crucial for a deeper understanding of how our emotions are triggered, especially those that connect us to our loved ones. Additionally, these findings may bear direct implications for neuropsychiatric conditions in which affiliative experiences and behaviors are impaired, such as post-partum depression, psychopathy and attachment disorders.

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