

Brain biology may dictate social networks

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(PhysOrg.com) -- A new study by a Northeastern University researcher and her colleagues indicates that the size of a certain part of the human brain plays a significant role in determining the breadth of social relationships. Scientists found that the amygdala, a small structure in the temporal lobe of the brain, appears to be important to a rich and varied social life among adult humans. Their finding, published in the journal *Nature Neuroscience*, provides insight into how abnormalities in regions

of the brain may affect social behavior in neurologic and psychiatric disorders.

The interdisciplinary study, led by Distinguished Professor of Psychology Lisa Feldman Barrett, advances Northeastern's research mission to solve societal issues with a focus on global challenges in health, security, and sustainability.

"We know that primates who live in larger social groups have a larger amygdala, even when controlling for overall [brain](#) size and body size," said Barrett. "We considered a single primate species, humans, and found that the amygdala volume positively correlated with the size and complexity of social networks in adult humans."

The researchers asked 58 participants to complete standard questionnaires that reported on the size and the intricacies of their social networks. They measured the number of regular contacts each participant maintained, as well the number of social groups to which these contacts belonged.

Participants also had a magnetic resonance imaging brain scan to gather information about various brain structures, including the volume of the amygdala. The authors found that individuals with larger amygdala reported larger and more complex social networks. This link was observed for both older and younger individuals, and for both men and women.

Barrett noted that the study findings are consistent with the "social brain hypothesis," which suggests that the human amygdala might have evolved partially to deal with an increasingly complex social life.

Exploratory analysis of other structures deep within the brain indicates that the amygdala is the only area with compelling evidence of affecting

social life in humans.

Barrett, who is also a research neuroscientist at the Massachusetts General Hospital (MGH) Psychiatric Neuroimaging Research Program and the Martinos Center for Biomedical Research, collaborated with Brad Dickerson of the MGH Department of Neurology and other colleagues. The researchers are continuing to investigate the correlation between regions of the brain and human [social behavior](#).

Provided by Northeastern University

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