"Brain connectivity dynamics during social interaction reflect social network structure"

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Simple description:

This research looks at the way the brain responds to social interaction. They find that when people are socially excluded, the brain connects depending on their social network. They look at the parts of the brain responsible for social pain and mentalization (thinking about other's thoughts and feelings). Participants had a lot more mentalization when they were excluded rather than included. Those with sparse friend groups showed greater connections in the mentalizing parts of their brain than those with dense friend groups. This might happen because people who don't have tight-knit friend groups are more likely to focus on people's intentions when they are socially excluded.

Data

- 80 sixteen/seventeen year-old boys
- Network of their Facebook friends who are friends with each other (ego network)
- fMRI scans of their brains while playing Cyberball
- Brain regions related to "social pain" and "mentalizing" from meta-analysis of Neurosynth, a website for automated synthesis of fMRI data of the brain. Cross-referenced with hand-annotated researcher data

Methods

Brain connections as Pearson correlation between areas that activate in fMRI timeseries
Compared of brain connections across people with more dense or sparse ego networks

Results

- People with denser ego networks mentalize differently than people in sparser ones
- This highlights the importance of mentalization in social exclusion
- It may be that mentalization connectivity increases when people consider the intentions behind the exclusion
- Previous research has focused on responses in social pain areas. This broadens the network context in explaining brain responses to social exclusion.
- The relationship between brain and social networks is likely bidirectional

Questions

Are there issues when generalizing from the data?

Does this really say anything about networks**?**

Does this suffer the issues presented in articles about biologists/neurologists studying electronics**?**

1 Presented by Vincent Wong, Course I501, October 4th, 2017