Social Networks and Health
Spreading of depressive symptoms over adolescent friendship networks.

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Background

- Depression affects 350 million people worldwide.
- It is characterised by a set of symptoms which could be affected by social networks.
- We explore this possibility using a range of statistical methods.

Parametric Inference

- Considered total CES-D score and 7 component symptoms - anhedonia, poor appetite, poor concentration, dysphoria, helplessness, tiredness, and worthlessness.
- $p_k$ - probability of worsening (increasing in score).
- $q_k$ - probability of improving (decreasing in score).
- $k$ - number of better off (lower scoring) or worse off (higher scoring) friends.
- Transmission forms:
  - Both transmit
  - Neither transmit
  - Worsening transmits only
  - Improving transmits only

Data

- Respondents form a friendship network.
- Respondents answered the Centre for Epidemiologic Depression (CES-D) scale questions, gaining a score rating their level of symptoms.

Empirical Data Analysis

- For most symptoms, the emotional state of friends can have both a positive or negative effect on the state of an individual.
- This effect only occurs for smaller numbers of friends.
- The score changes appear to follow an exponential distribution.

Conclusions

- Empirical data shows an effect from higher and lower scoring friends on the change in CES-D score.
- The score changes appear to follow an exponential distribution.

References