Does Rejection Hurt? An fMRI Study of Social Exclusion

Written by: Eisenberger et al.
Presented by: Sang-Woo Park

Background

► People feel soothed in presence of others and distressed when left behind
► Language: physical pain words (e.g. hurt feelings)
► Activation of neural regions
  ▪ Physical pain = Pain of rejection
► Promotion of survival?
  ▪ Social attachment system onto physical pain system

The Study

► Purpose: to determine whether regions activated by social pain are similar to those activated by physical pain

Brain Regions and Physical Pain

► Anterior cingulate cortex (ACC)
  ▪ Neural alarm system
  ▪ Dorsal ACC – distressing component of pain
► Right ventral prefrontal cortex (RVPFC)
  ▪ Regulation/inhibition of pain distress
  ▪ Efferent connections to ACC (regulates?)
Methods

- 13 subjects
- fMRI scans while participants played virtual ball tossing game
- 2 other players (not real; preset computer programs)
- 2 types of social exclusion
  - Explicit
  - Implicit

Results – ACC (ESE)

- Felt ignored and excluded
- Dorsal ACC more active during ESE than inclusion
- Distress correlated with ACC activity
- Associated with emotional distress AND physical pain

Results – RVPFC (ESE)

- 2 regions more active during ESE than inclusion
- Negatively correlated with ACC activity
- Distress negatively correlated with activity
- Lowers distressing effects of social exclusion?
Results - ISE

- More activation in ACC compared to inclusion
- No RVPFC activity found
- ACC registered but did not seek to regulate

Discussion

- Activations found in studies of physical pain similar to activations found in social exclusion (common neuroanatomical basis?)
- Awareness of exclusion needed to regulate distress?

Discussion

- No control
- Same order (order effect possible?)
Opinions

► Very interesting topic
► More subjects?
► Vague details on gameplay

► Compare the differences between physical pain and social distress (ethical issues?)

Questions??

Questions may be REJECTED