Developmental Differences in Neural Responses to Ostracism

Unpacking Adolescent Sensitivity to Exclusion and Inclusion

Brain Research Across Development (B-RAD) Laboratory
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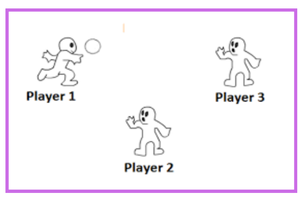
BACKGROUND

Ostracism can cause intense emotional reactions that detrimentally impact mental and physical health.[1]

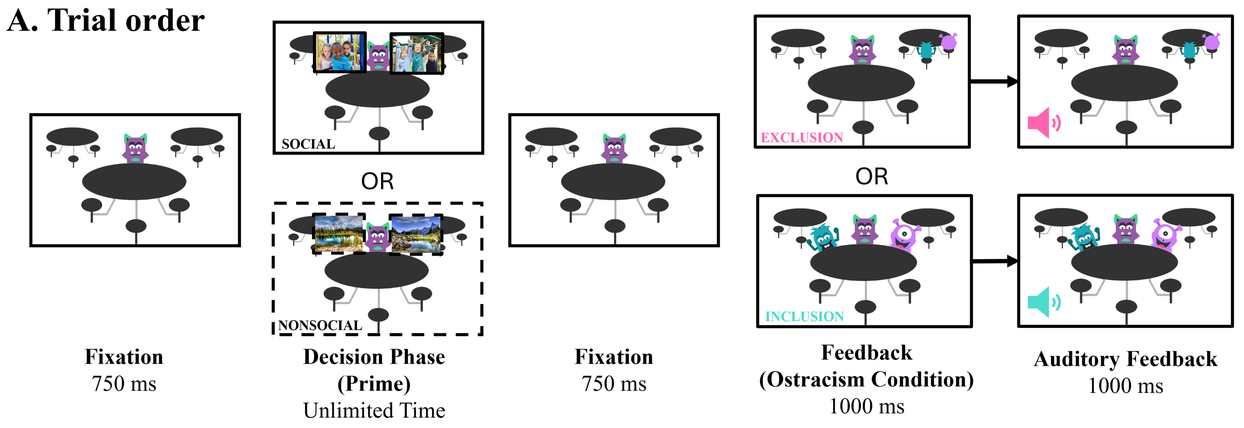
Adolescents may be particularly susceptible to negative consequences following ostracism but it is unclear how neural sensitivity to ostracism varies developmentally.[2-4]



Cyberball may not be the best way to measure responses to ostracism due to limited participant involvement.

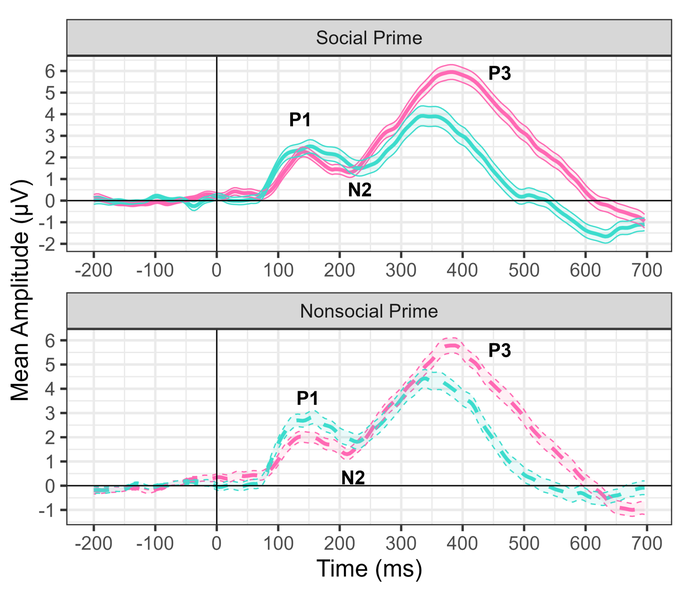
METHOD

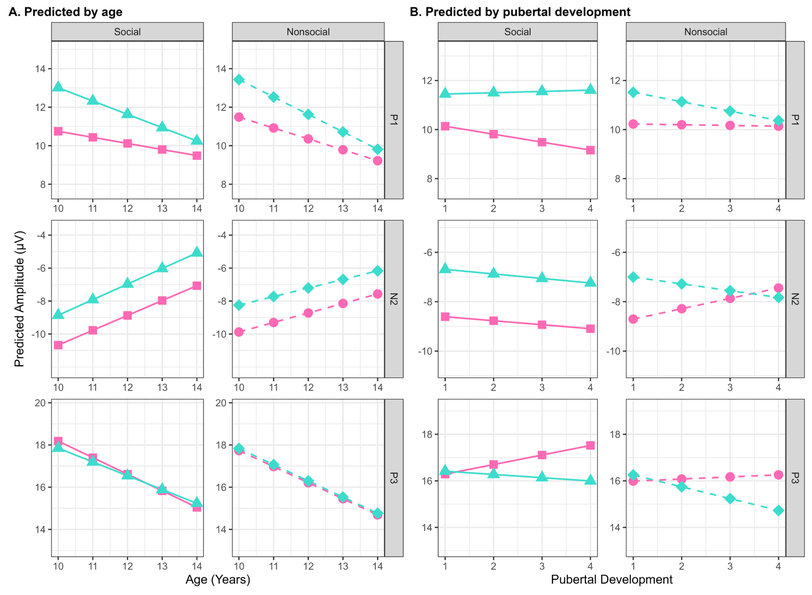
	Age Mean (SD)	PDS Score Mean (SD)	% Non-Male	% Non-White	% Hispanic/Latine
N = 84 10- 14 year-olds	12.2 (1.40)	1.36 (0.75)	45.24%	32.14%	8.33%

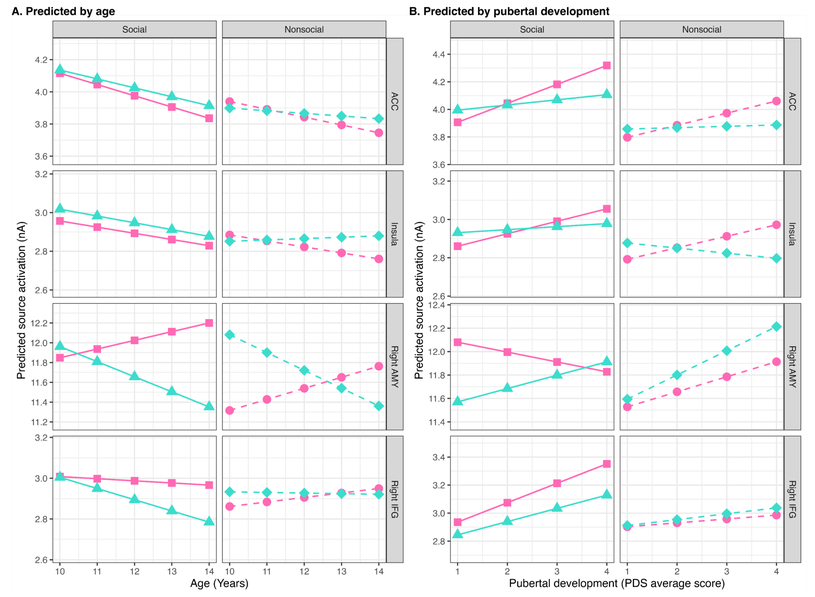


OBJECTIVES & RESULTS

1. **Investigate ostracism condition and social priming differences in common ostracism ERP components (N2, P3)**
2. **Explore how ostracism and social priming effects in the N2 and P3 components varied across development (age & puberty)**
3. **Evaluate source estimates underlying ostracism and social priming ERP effects across developmental factors**







Ostracism Condition Exclusion Inclusion **Prime** Social Nonsocial

Adolescents (age 10-14 years) were asked to make decisions that led to their friends either sitting with or without them in the lunchroom.

After **social exclusion**

After **social inclusion**

EEG/ERP correlates stronger to social exclusion

- N2 amplitude
- P3 amplitude#
- Source estimation of amygdala+, subcallosal gyrus (ventral striatum), inferior frontal gyrus+ (dorsolateral prefrontal cortex)

Increased with pubertal maturation
+ Increased with age

EEG/ERP correlates stronger to social inclusion

- P1 amplitude--
- Source estimation of anterior cingulate cortex#, cingulate gyrus, fusiform#, insula#, superior parietal lobule, and right superior temporal gyrus#

Decreased with pubertal maturation
-- Decreased with age

Early sensitivity to inclusion shifts to greater neural responses to exclusion across development and maturation.

References:

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