Neural basis of mother-child relationship processes: Neural events, theta dynamics, and oxytocin

ABSTRACT:

The study was specifically focused on the theta and ERP EEG response to rejection events and reunion events in 8-13-year-old children and their mothers. In a yoked design, mothers played the Cyberball with their child and a stranger woman (fictitious), and children played Cyberball with their mother and a stranger child (fictitious). We saw 40 participants (half mothers, half children). At first participants are included, then excluded, not receiving throws, then included again (reunion). Questions were asked of participants about feelings after exclusion and after reunion (generic measure of ostracism). Children showed greater frontal midline theta responses to rejection by their mother. Mothers showed greater frontal midline theta responses for rejection events conducted by the stranger. These findings suggesting different priorities in mother-child Cyberball (attachment vs. child protection). Ostracism did not relate to brain response. We realized that we needed new questions other than ostracism. We developed measures of preoccupation with exclusion and dismissing ("I didn't care") that were asked about the mom and child respectively. We replaced the ostracism measure with these new measures and assessed an additional 46 participants, (half mothers, half children). We found that child preoccupation with mother exclusion was associated with greater rejection event by the mother (frontal slow wave). Mothers did not show ERP differentiation for rejection events by stranger or their child. On reunion, effects were evident for the mother only, showing greater theta intertrial coherence for rejection by child. The magnitude of this response was associated with greater dismissing of the effects of exclusion.

Keywords

Mother-child cyberball, EEG, Theta response

Published Work:

Baddam, S., Laws, H., Crawford, J. L., Wu, J., Bolling, D., Mayes, L., & Crowley, M. (2016). What they bring: baseline psychological distress differentially predicts neural response in social exclusion by children's friends and strangers in best friend dyads. *Social Cognitive and Affective Neuroscience, 11*(11), 1729-1740. doi: 10.1093/scan/nsw083

Researcher's Contacts:

Michael J. Crowley, PhD
Child Study Center
Yale School of Medicine
230 South Frontage Rd.
New Haven, CT 06473

Cell: 203-623-8891
Email: michael.crowley@yale.edu