

## **You can't play with us: the effects of social exclusion on infants' neural processing of emotional faces**

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Social exclusion is an aversive experience that threatens important psychological needs, such as self-esteem and belongingness (Williams & Nida, 2011). Research on adults revealed that social exclusion often induces physiological, cognitive and behavioral changes and modulates the processing of social information (Bass et al., 2014). Yet, only few studies investigated children and infants' cognitive abilities and behavior after being exposed to third party social exclusion (Marinovic & Trauble, 2018), and even less is known about their response to self-experienced ostracism. Since preverbal infants rely particularly on non-linguistic cues such as emotional faces during social interactions, the current study aims at investigating 13-month-olds' behavioral reactions to self-experienced social inclusion and exclusion and their impact on the neural processing of emotional faces. Specifically, infants first participated in a live ball-tossing game (i.e., Cyberball) with two experimenters, during which they were either included or excluded in the game. In the inclusion condition infants received the ball a third of the time during the whole game, while infants in the exclusion condition only received the ball twice at the beginning and were then ignored for the rest of the game. The Cyberball phase was videorecorded to quantify infants' behavioral reactions to inclusion or exclusion and verify whether they were affected by the experimental manipulation. After exposure to the Cyberball game, event-related potentials were recorded while infants observed dynamic faces expressing anger, fear, and happiness. Analyses conducted to explore behavioral reactions during the Cyberball game revealed that excluded participants showed less positive emotionality behaviors (e.g., smiles and happy vocalizations) and exhibited more signals of distress (e.g., crying and angry vocalizations) compared to included infants. Preliminary analyses performed on latency and amplitude values of attentional (Negative central, Nc) and perceptual (P1, N290, P400) components revealed that included infants, differently from excluded ones, showed faster perceptual processing of negative compared to positive emotional faces. While data collection is still ongoing, preliminary data suggest that the Cyberball is a powerful paradigm to investigate the nature and consequences of ostracism in infancy as it induces heightened feelings of distress and lower positive emotionality in the exclusion condition already at 13 months. Furthermore, current evidence indicates that self-experienced social exclusion modulates infants' neural processing of emotional expressions, and that this modulation varies according to the processed emotion. In conclusion, present findings demonstrate that social exclusion influences infants' involvement in social interactions and their subsequent neural processing of facial emotions.