

Neural responses to partner rejection predict adrenocortical reactivity in adolescent romantic couples

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Monitoring interpersonal cues that threaten relationship status is key to maintaining close relationships. The N2 ERP component reflects a preconscious process that monitors conflict between actual and desired outcomes, such as social threat (Thompson et al., 2013). It originates from the dorsal anterior cingulate cortex (dACC). After conflict detection, dACC areas engage CNS structures that regulate HPA activity. Studies on the co-variation between neurocognitive processing of social threat and regulation of HPA axis are limited. We investigated whether N2 responses to rejection from partners predicted cortisol reactivity, and if rejection sensitivity (RS) was a moderator. Forty adolescent romantic couples ($N = 80$; $M_{age} = 16.33$, $SD = .92$; 40.4% Latino) participated in an adapted Chatroom Interact task that manipulated partner rejection and acceptance, while simultaneously recording partners' EEG. This was followed by observed conflict and jealousy discussions. Eight salivary samples were taken over the course of the lab session (later assayed for cortisol). Cortisol area under the curve with respect to increase (AUCi) was calculated. To index neural responses to social threat a difference score between mean N2 amplitudes to partner acceptance and rejection was calculated from 190-240ms on electrode FCz. Regression analyses showed higher N2 reactivity to partner rejection related to higher AUCi, $F(1, 46) = 4.37$, $p = .042$. This effect was stronger for adolescents with higher RS, $F(1, 46) = 6.30$, $p = .016$. Findings may imply that biological sensitivity to social threat has the potential to undermine the quality of romantic relationships during adolescence