

Cardiac concomitants of feedback processing during a competence-based social status manipulation.

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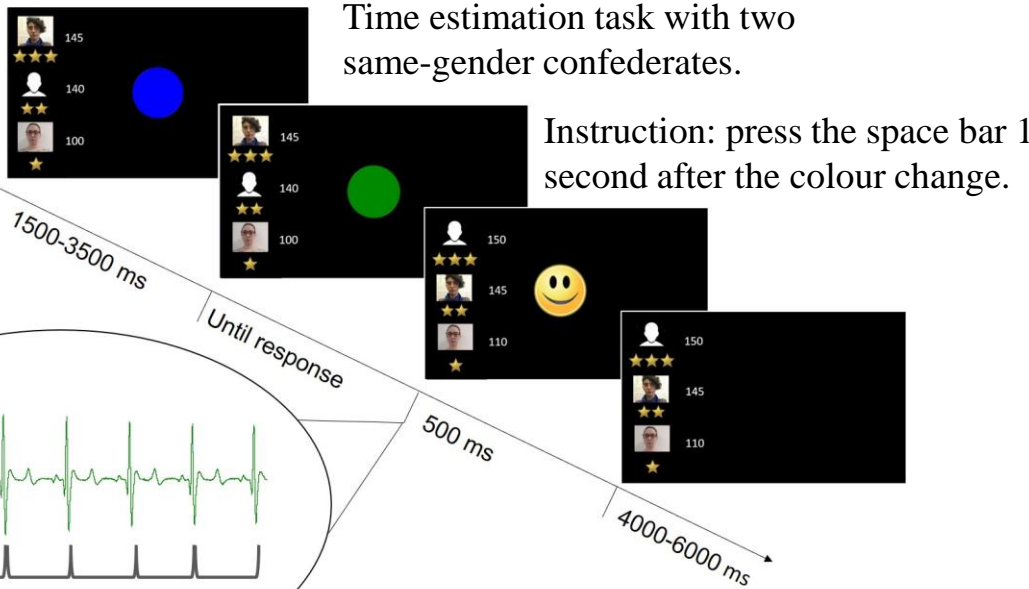
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Introduction: Social status, the relative position occupied by an individual in a hierarchy, can modulate cognitive and affective processing [1] Previous studies reported an increase in neural responses to negative feedback when participants were experiencing a low status condition [2] Since error and feedback processing are accompanied by autonomic changes (i.e. cardiac deceleration) [3] here, we tested the hypothesis that contextual social status within a cooperative setting will modulate the strength of cardiac reactivity to negative and positive feedback. We measured changes in HR following feedback presentation in different status conditions.

Methods

N= 24
(6 males)

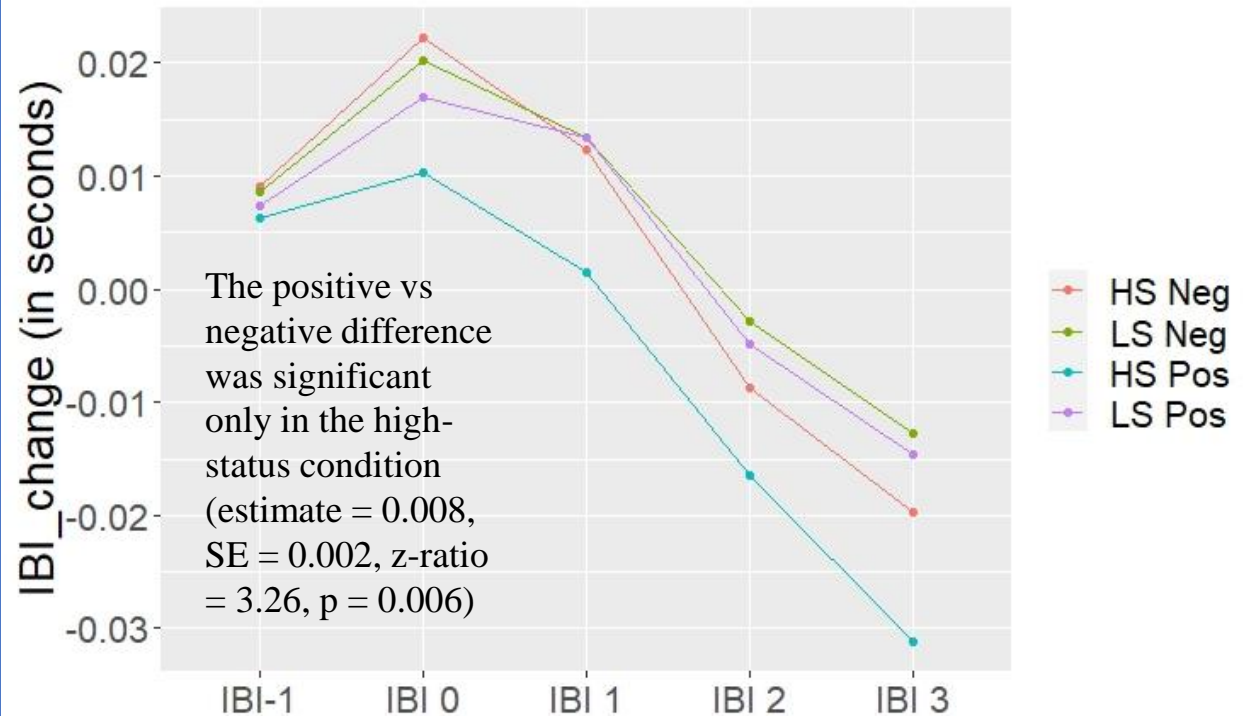


HR changes were time-locked to feedback presentation.

Throughout the task, participants achieved high, low and middle (not included in the analyses) social status.

Results

The Status x Feedback x IBI linear mixed model (LMM) revealed a Status x Feedback interaction ($F(1,10616) = 6.54, p = 0.011$)



Discussion: We interpret this result as an increased activation of the performance monitoring system elicited by the desire to maintain a high-status position in an unstable hierarchy. In this vein, negative feedback might be processed as an aversive stimulus signalling a potential threat to the acquired status.

References: [1] Boukarras et al. 2021, Scientific Reports; [2] Boksem et al., 2011, Social Cognitive Affective Neuroscience; [3] Critchley et al., 2005, NeuroImage