

Is There an Association Between Anxiety and Response Confidence?

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This project investigates the neuro-behavioral relationship between anxiety, error monitoring, and decision confidence. Individuals with heightened anxiety have larger neurobiological action monitoring signals, such as the Error Response Negativity (ERN) or Correct-Response Negativity (CRN): negative deflections in the trial-averaged EEG that occur when participants commit an erroneous or correct choice, respectively. Anxiety is associated with larger ERN amplitudes and lower decision confidence. Yet, response confidence is associated with both higher CRN amplitude as well as faster response time. It remains unknown how anxiety is related to these neural systems underlying decision confidence. The current study investigated ERN and CRN amplitudes in a sample of 69 individuals with varying levels of self-reported anxiety. Response times and ERN and CRN signals were investigated as participants completed a probabilistic learning task. We found that individuals with higher anxiety levels did not have any difference in post-error response slowing or post-correct response speeding. While there was no significant association between anxiety levels and CRN amplitude, there was a larger ERN signal in those with higher anxiety levels. Together, these findings indicate that anxiety affects internal error monitoring, but not reactive behaviors following errors. Together, these findings suggest that anxiety affects the experience but not the external expression of error monitoring.