

# Emotional Temporal Distortions: Exploring Pupil Dilation as a Gateway to Temporal Processing

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The subjective perception of time is known to be influenced by our emotional states, yet the precise mechanisms governing this relationship remain elusive. This exploratory study aims to shed light on the intricate relationship between emotionally induced physiological arousal and our temporal perception, focusing specifically on pupil dilation as a physiological indicator.

Through a randomized experimental design targeting participants aged 18 to 25, we aimed to investigate whether variations in arousal levels in response to negative stimuli correlated with observable changes in pupil dilation. Additionally, we aimed at determining whether these fluctuations can serve as reliable predictors of the extent of temporal distortion experienced during emotionally charged events.

Participants were presented with stimuli from the International Affective Picture System and performed a time reproduction task while their pupil dilation was tracked using an EyeLink 1000 plus system. The data were analyzed using generalized linear mixed models, aiming to uncover whether exposure to negative stimuli correlated with increased pupil dilation and influenced temporal perception.

The results showed that a higher degree of constriction was associated with the negativity level of the images, whereby more negative stimuli resulted in greater constriction. Additionally, concerning time perception, we observed a greater overestimation of temporal duration for stimuli categorized as negative-high compared to neutral ones, and an underestimation for stimuli categorized as negative-low compared to neutral ones.

This study sought to deepen our understanding of how emotions, physiological responses, and our subjective perception of time intertwine.

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No

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