Stony Brook University
The Graduate School

Doctoral Defense Announcement

Abstract

Gradients of Fear Potentiated Startle During Generalization, Extinction, and Extinction Recall, and Their Relations with Worry

By

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It is well established that fear conditioning plays a major role in the development and maintenance of anxiety disorders. Recent work as also begun to determine that abnormalities in fear generalization, extinction learning, and extinction recall may also be associated with anxiety. Studies examining human fear generalization find potentiated startle magnitudes to a CS+ and reduced startle magnitudes to stimuli as they decrease in perceptual similarity to the CS+. These gradients of startle response could potentially serve as individual differences and/or risk markers for anxiety. However, no study to date has examined extinction learning or extinction recall using a generalization task. Hence, in the present study, participants were shocked following a CS+ and were also presented with stimuli that ranged in perceptual similarity to the CS+ (i.e., 20, 40, or 60% smaller or larger than the CS+) during a fear generalization phase. Participants were also presented with the same stimuli during an extinction learning phase, and an extinction recall phase one week later; no shocks were presented during extinction learning or recall. Lastly, participants completed self-report measures of anxiety and worry. Results indicated that fear potentiated startle (FPS) to the CS+ and CS±20 shapes were present in generalization and extinction learning, suggesting that some fear generalization persisted into extinction. FPS to the CS+ was also evident one week later during extinction recall. Hence, fear may be more resistant to extinction in generalization paradigms, where there is ambiguity regarding the CS+. In addition, higher levels of self-reported worry were associated with greater FPS to the CS+ during generalization and extinction phases. Moreover, when examining the gradients of startle response, individuals high in worry had fear gradients that were steeper and more linear. This suggests that high levels of worry (characteristic of generalized anxiety disorder) are associated with greater FPS to the most threatening stimuli and greater fear generalization.

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