Fear conditioning in preadolescent children with and without anxiety disorders
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INTRODUCTION
- Impaired fear acquisition and extinction are key components in the maintenance of anxiety disorders (ADs).
- A feature of pathological anxiety is exaggerated fear of anticipated threats and aberrant threat learning.
- The current study compared physiological and subjective to a fear conditioning and extinction task, which was adapted the "screaming lady" paradigm, between preadolescent children with and without ADs to examine potential differences in fear conditioning, extinction, and generalization.

PARTICIPANTS
- 126 preadolescent (8 to 12 years) boys and girls with and without ADs. Data were collected from four sites: University of Wisconsin-Madison, Vanderbilt University, National Institute of Mental Health, University of Nebraska.
- Diagnoses were determined with the Kiddie Schedule for Affective Disorders and Schizophrenia (KSADS) semi-structured interview, which was administered by a trained study team member.
- AD participants met DSM-5 criteria for current generalized, separation, and/or social AD. Control participants had no current or past psychopathology.

OUTCOME MEASURES:
- morph of the CS+ and the CS-.
- The paradigm had three phases: preconditioning, conditioning, and extinction expression.
- The unconditioned stimulus (UCS), which occurred at the onset of the CS+.
- The second 85-dB female scream presented with the CS+ woman displaying a fearful expression.

METHODS
- Participants completed a differential threat learning paradigm.
- Images of two women with neutral expressions were used as the CS+ and the CS-.
- The unconditioned stimulus (UCS), which occurred at the onset of the CS+ was a 1-second 85-dB female scream presented with the CS+ woman displaying a fearful expression.
- The paradigm had three phases: preconditioning, conditioning, and extinction.
- During extinction, a generalization stimulus (GS) was introduced, which was a 50/50 morph of the CS+ and the CS-.
- Outcome measures:
  - Skin conductance response (SCR), a non-specific measure of physiological arousal, was collected continuously throughout the task using two electrodes on the participant's non-dominant hand. SCR to stimuli was quantified as the average SCR across a 7-second window after stimulus onset.
  - Self-reported fear (i.e. "How afraid are you of this woman?") was collected during preconditioning, after conditioning, and after extinction.

RESULTS
- Mean self-reported fear rating by group, stimuli, and phase

CONCLUSIONS
- Results demonstrate that ADs are not associated with higher physiological responses to threat or safety cues, or differential fear generalization.
- Conversely, AD youth reported higher self-reported fear levels to threat and safety cues after fear learning and extinction.
- Taken together, results suggest that youth with and without ADs have similar physiological responses to threat and safety cues, but they interpret these physiological responses differently, as shown by a significant difference in subjective responses.
- Youth with and without ADs have similar physiological responses to threats, and they also habituate to threats at a similar rate.

REFERENCES