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“Aversive Pavlovian Conditioning in Childhood Anxiety Disorders: Impaired Response Inhibition and Resistance to Extinction”

Learning is greatly reinforced by Pavlovian conditioning and those with anxiety disorders follow this same pattern. Many psychologists use learning-based models of anxiety disorders to emphasize a role of aversive Pavlovian conditioning in the maintenance of anxiety disorders (Waters, Henry, & Neumann, 2009). Drs. Allison Waters, Julie Henry, and David Neumann (2009), conducted a study examining extinction, aversive conditioning, and maintenance in anxious children versus control children. Anxiety disorders are among the most common of psychological disorders that children are diagnosed with (Waters, et al., 2009). As a result of this high occurrence and the incapacitating consequences that anxiety disorders cause children more research is needed to try and understand this disorder (Waters, et al., 2009). Unfortunately very few studies have been conducted to examine aversive conditioning, extinction and maintenance in children, even though anxiety disorders are so prevalent in children (Waters, et al., 2009). Waters, et al., wanted to focus on these topics to further the research on aversive conditioning and extinction in those children with anxiety disorders (2009). Waters, et al., hypothesized that “in the context of similar levels of acquired discriminative conditioning during acquisition, anxious children would show elevated responses to both of the conditioned stimulus’ of loud noises in all measures relative to control children, consistent with the impaired inhibition of fear response” (2009). Also, the researchers expected extinction of the conditioned responses to occur in all measures of the control children, but the anxious children were expected to be resistant to some aspects of the extinction (Waters, et al., 2009).

The study was conducted on 35 children, 17 of whom were defined as anxious children (Waters, et al., 2009). The anxious children were diagnosed with either a social phobia, generalized anxiety disorder, or a specific phobia using the *DSM-IV* criteria for Anxiety Disorders, but none of the children were considered to be depressed. The Spence’s Children’s Anxiety Scale was administered to both the children and the parents’ of the children included in the study because this scale helped show agreement for the symptoms reported by the *DSM-IV* (Waters, et al., 2009). The participants were asked to rank four geometric figures, two of which were the CS+ and CS-, either a trapezoid or a triangle, before the attainment phase and after the extinction phase (Waters, et al., 2009). After acquisition, they were asked if they had noticed if a tone was presented with a shape and if they answered “yes” and correctly identified when the shape was paired with a tone then they showed contingency awareness (Waters, et al., 2009). The US was identified as a 1000-hz pure tone and the CSs were a trapezoid and a triangle that were presented on either the right of left side of a central point (Waters, et al., 2009). The response was measured by putting electrodes on two fingers and the middle of the forehead of the participant (Waters, et al., 2009). The children were asked to complete the conditioning task first and then the Spence Children’s Anxiety Scale, but the anxious children were asked to complete the experimental task and them the cognitive-behavioral treatment for anxiety disorders (Waters, et al., 2009). During the laboratory sessions, the participants were first asked to rate their anxiety and the four shapes, and then to pay attention to a series of pictures while loud tones were given through headphones. While in the acquisition phase, the participants participated in 16 trials of the CSs, with the first two trials being a CS+ and CS- and the intertrial interval was mixed between 20, 25, and 30 seconds (Waters, et al., 2009). The participants were then asked to complete the contingency awareness questions and also rerated their anxiety levels and the four shapes. For the extinction phase, four CS+ trials without the US and four CS- trials were given, and then the anxiety levels and the four shapes were rated again.

The researchers performed t tests, chi square analyses, and between groups analyses (Waters, et al., 2009). As expected, the researchers found that the anxious children had significantly higher scores on the Spence’s Children Anxiety Scale than the control children and they were also correct in predicting that all of the anxious children would report the CS-US relationship and only one-half of the control children reported the correct contingency awareness (Waters, et al., 2009). There was no difference between the aware and unaware control children in their own reporting of their awareness and pleasantness ratings (Waters, et al., 2009). The ratings of the arousal response to the CSs showed the anxious children had ratings that were significantly higher than the control children after the acquisition and extinction phases. The children’s anxiety levels were greatly reduced after the extinction phase, but there were no significant effects between the groups (Waters, et al., 2009). The second interval responses were larger for the CS+ than for the CS- in both the anxious and control children. For the extinction phase, the anxious children had a larger significant response than the control children (Waters, et al., 2009). Overall, the researchers found that a conditioned response was established in the anxious and control children, but the anxious children showed a higher CS+ response during the acquisition phase and also, after the extinction phase, the anxious children higher arousal ratings significantly dropped, whereas there was no difference for the control children (Waters, et al., 2009). These findings support those of previous studies and show very important similarities to those previous studies. The limitations of this study include the fact that the data from this study does not give a clear picture of the learning mechanisms that allow acquisition and extinction of conditioned responses in children’s anxiety disorders, the sample sizes were small, they did not look at gender or the type of the anxiety disorder, and a mild US used for the children (Waters, et al., 2009).

The experiment was conducted in a way that the researchers believed was the best way possible. I would have tried to used more participants, focused on only one type of anxiety disorder and used specific US and CSs, so they could be defined when conducting the experiment. This would have made the results able to be generalized and would have showed stronger significant results for the data. The researchers gave full, insightful conclusions based on their results and were able to prove their hypotheses. I do not have any alternate explanations for the results because I feel the researchers covered all of the possible avenues for their results and explained them fully. They were able to support their hypotheses with their data and build on the research already in the field.

Pavlovian conditioning is in everyone’s lives. People are manipulated and conditioned to respond to events every day. Stimulus and responses are produced all the time, as our textbook stated. Animals and humans, alike, can be conditioned to respond to certain events using conditional and unconditional stimulus and responses. This study helps enhance how even children can be conditioned to respond to a stimulus. It also shows how reinforcement can strengthen a behavior, but it can also be extinguished over time. It proved that extinction can occur if a participant unlearns the behavior so they will no longer be affected by the stimulus. Waters, et al., showed that the optimal contiguity was mere seconds, 30 seconds at most; to reinforce a behavior or the reinforcement did not catch as easily (2009). This proves that the statement our book made about the contiguity of a stimulus and response has to be seconds for the reinforcement to actually work and make a person respond to the stimulus. Drs. Waters, et al., took the concepts in out textbook and applied them to shapes and loud noises to prove that anything can become a stimulus and a person will respond to it (2009). This shows me that the simplest objects in our lives can be turned into a stimulus and these stimulus’s, responses, and extinction can take place in our everyday lives.

**REFERENCES**

Waters, A., Henry, J. & Neumann, D. (2009). Aversive pavlovian conditioning in childhood anxiety disorders: Impaired response inhibition and resistance to extinction. *Journal of Abnormal Psychology, 118(2),* 311-321.