Estimates of the likelihood of threats are related to intolerance of uncertainty and learning performance

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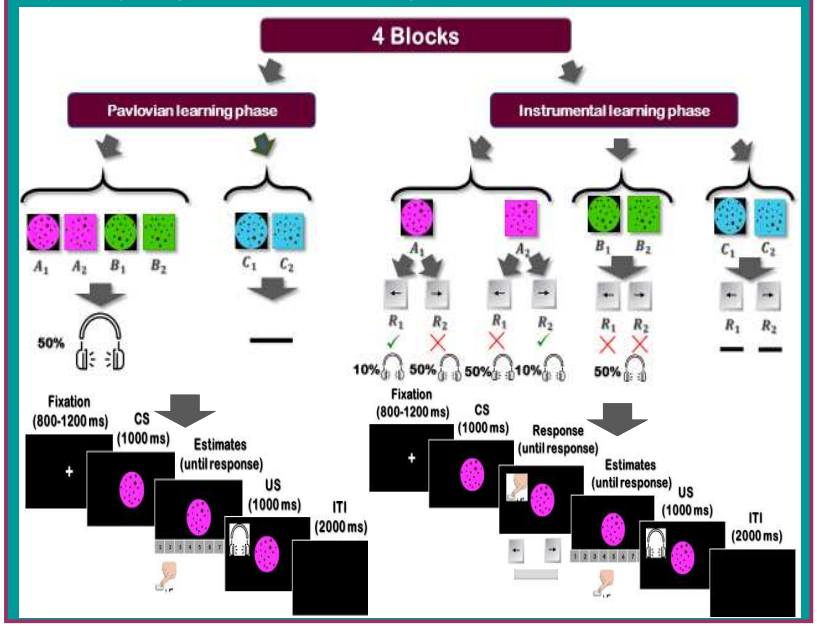
Introduction

Intolerance of uncertainty (IU)) is a transdiagnostic risk factor for the development and maintenance of anxiety disorders (Boswell, Thompson-Hollands, Farchione y Barlow, 2013; Carleton, 2012). Specifically, there are two relevant factors in anxiety disorders that have been related to intolerance of uncertainty: excessive avoidance behaviors and biased estimates of the probability and cost of uncertain threats. It has been proposed that excessive estimates of the likelihood of threats generate excessive avoidance behaviors motivated by a peremptory need to reduce uncertainty. This may create a negative feedback loop in which excessive estimates of threat are reinforced by avoidance behaviors that prevent high IU people from experiencing the objective contingency relationship between anxiogenic signals and threats (Bouton, Mineka y Barlow, 2001; Grupe y Nitschke, 2013; Lovibond, 2006). However, there is an absence of laboratory models that allow experimentally verify the relationship between intolerance of uncertainty and these processes. In this line, Flores, López, Vervliet y Cobos (2018) carried out a study in which they experimentally evaluated the relationship between intolerance of uncertainty and excessive avoidance behaviors. A positive correlation between prospective intolerance of uncertainty and the frequency and difficulty to adjust the avoidance response to changes in the probability and magnitude of the reinforcer was found. A possible explanation for these results is that individuals with high prospective intolerance of uncertainty tend to overestimate the likelihood and cost of aversive consequences. These exaggerated estimates could predispose them to develop excessive avoidance responses.

We conducted a PILOT EXPERIMENT aimed to evaluate the association between intolerance of uncertainty and expectancy ratings of threats in uncertain situations using an avoidance learning task.

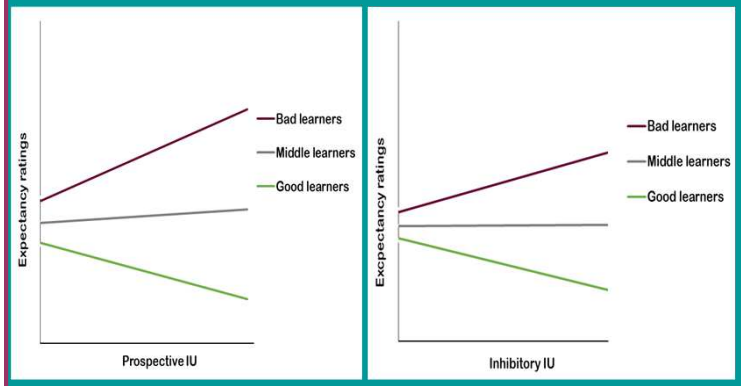
Method

Participants learned the relationship between several pictures (CSs) and an aversive sound (US), and learned to avoid the US by pressing two different keys through a procedure including alternating pavlovian and negative reinforcement training phases. Expectancy ratings were measured on every trial.



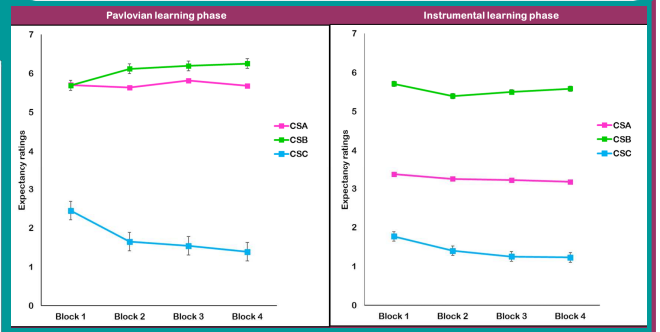
Results

Association between IU and expectancy ratings moderated by learning in instrumental learning phase

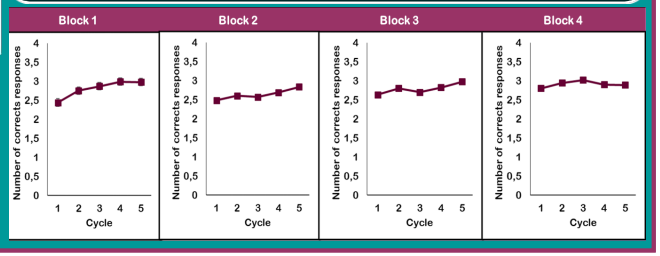


Our results only showed a significant association moderated by learning between prospective and inhibitory IU and expectancy ratings made after avoidance responses. This association was found only when the avoidance response was made in the presence of CSs signalling that the aversive sound was avoidable (CSAs).

Expectancy ratings



Correct responses in instrumental learning phase



Conclusion

The most relevant finding of our study was a significant association moderated by learning between IU and expectancy ratings about the occurrence of the aversive event in uncertain situations in which there is an avoidable threat. An increase in IU was related to lower expectancy ratings in good learners, and to higher expectancy ratings in bad learners. The fact that we only found a significant association between IU and expectancy ratings when the CSAs was presented in the instrumental phase may be due to the lower likelihood of the US appearing in this type of trial compared with trials in which the CSBs were presented. Therefore, there was less uncertainty in the face of CSAs than in the face of CSBs. Situations with low levels of uncertainty may be more sensitive to detect differences in estimates of threat between high and low IU people, since high IU people have a lower threshold to be affected by uncertainty. On the other hand, differences in the association between IU and expectancy ratings moderated by learning may be due to the fact that bad learners are exposed to a greater probability of occurrence of the US in the face of CSAs since they fail to avoid it in more trials than good learners. Another possibility, in line with the results of Chen and Lovibond (2016), is that good and bad learners are exposed to different types of uncertainty. Good learners are exposed to uncertain stimuli, since they have learned the CS-US contingency relationship and know the probability of occurrence of the US. However, bad learners are exposed to ambiguous stimuli, since they have not learned CS-US contingency relationships and do not know the probability of occurrence of the US. In future experiments, it would be interesting to assess the association between estimates of threat and IU in a task in which the probability of occurrence of the US and the possibility of avoiding it are orthogonally manipulated.