

Effects of environment and personality on cognitive judgement bias

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Introduction

In cognitive processes biases occur. These biases are, in humans, influenced by emotions. In animals the connection between cognitive bias and emotions can be used to study their state of mind. Which factors influence cognitive bias has not yet been thoroughly investigated. Here I investigate how environment and personality influence individual cognitive judgement bias.



Cognitive judgement bias test

Chicks were trained to associate one colour with a reward and another colour with the lack of a reward. Thereafter reactions towards intermediate colours, as well as to the previous known colours, were investigated.

Environmental enrichment influences judgement of stimuli

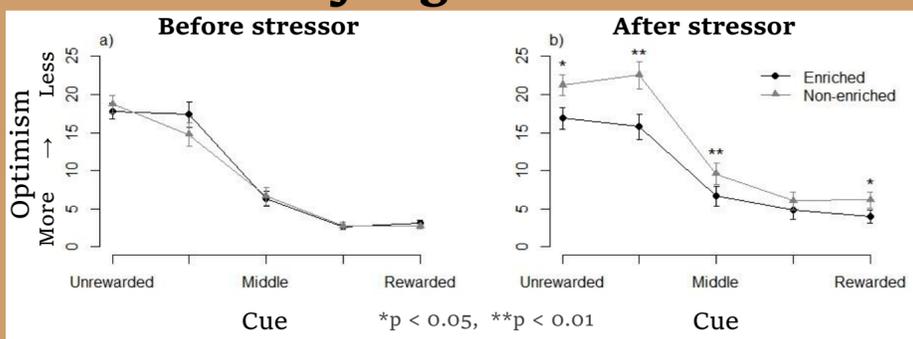


Fig. 1. Optimism of chicks (n=87) to known and ambiguous cues in a cognitive judgement bias test a) before and b) after an unpredictable stressor was introduced.

After an unpredictable stressor was introduced chicks living in non-enriched environments were more pessimistic towards the cues than chicks living in enriched environments ($\chi^2 = 5.07$, $df = 1$, $p = 0.02$, Fig. 1).

Nervousness affects judgement of ambiguous and negative stimuli

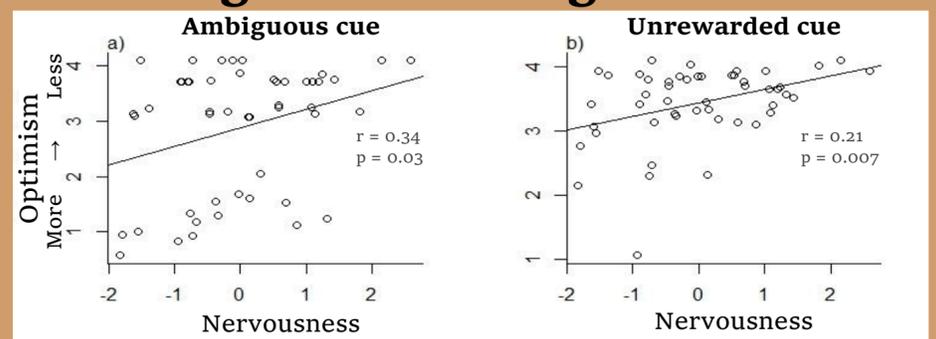


Fig. 2. Correlation between individual nervousness score and optimism towards a) ambiguous and b) unrewarded cue in a cognitive judgement bias test in chicks (n=49).

Nervous chicks were more pessimistic towards the unrewarded cue (Fig. 2b, $F = 7.95$, $df = 1$, $p = 0.03$) and the ambiguous cues close to it (Fig. 2a, $F = 4.95$, $df = 1$, $p = 0.007$) in comparison to less nervous chicks.

Conclusion

Environmental enrichment buffers the negative effect unpredictable stressors invoke on cognitive judgement bias. Further, nervous individuals are more pessimistic towards unrewarded cues and cues close to it.