Daily Patterns of Threat Bias and Anxiety

An Ongoing Study

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Introduction

Previous research has shown a correlation between anxiety and attentional bias to threat. For anxious individuals, attentional bias to threat has been shown to activate areas in the brain such as the amygdala. The amygdala is (i) associated with fear and anxiety, (ii) involved in the link between anxiety and hypervigilance for threat, and (iii) exerts excitatory influence on the release of cortisol, the stress hormone, which follows a daily (diurnal) pattern.

Previous research has yet to study the diurnal patterns of attention bias to threat and its association with levels of anxiety. To address this gap, we examined whether attention biases to threat follows a similar pattern of daily fluctuations, and if the variation in that pattern relates to levels of anxiety. To assess this relationship, SUNY Geneseo students completed the Dot-Probe paradigm, which is a commonly used method to measure attention to threat, at five time periods in one day. Dot-Probe tasks were completed upon awakening, 11 am, 1 pm, 5 pm, and at bedtime.

Hypotheses

(1) Attentional biases will follow a similar diurnal pattern as seen with cortisol levels, and this pattern will be related to daily fluctuations in anxiety. (2) Individuals with higher levels of anxiety will have altered daily patterns of hypervigilance.

Materials & Methods

STAI Trait Anxiety questionnaire completed prior to study

STAI State Anxiety questionnaire and Dot-Probe paradigm sent at 5 time points in one day from awakening to bedtime

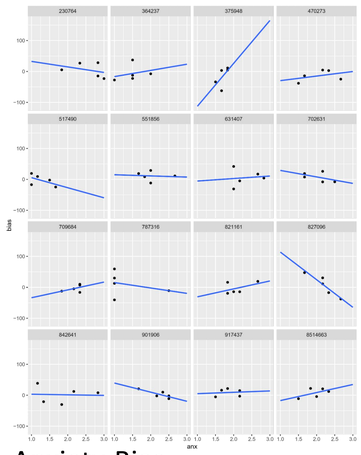
37 Participants, only

16 completed all 5 sessions.

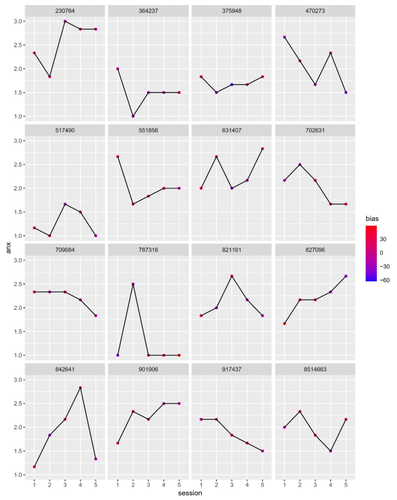
Disengage (incongruent) Stay (congruent)

Disengage - Stay = Threat Bias

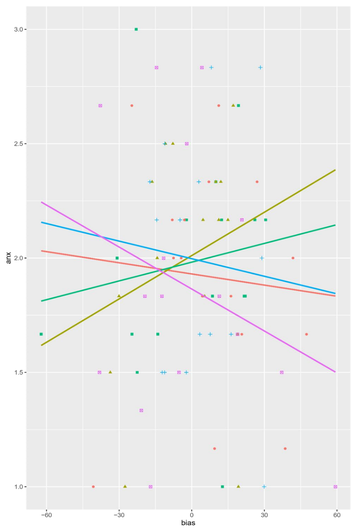
Results



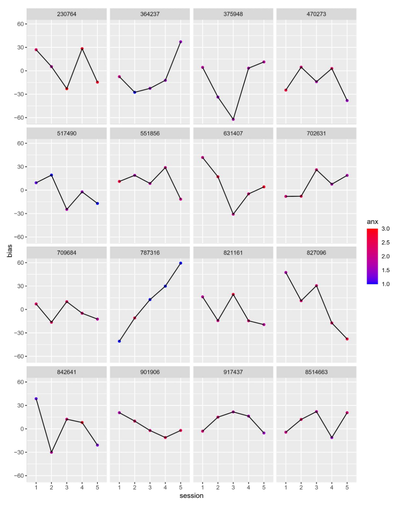
Anxiety-Bias



Anxiety by Session



Anxiety-Bias



Bias by Session

Conclusion

Past research results have shown some participants with higher levels of anxiety had a greater threat bias than that of participants with lower levels of anxiety. Therefore, it is surprising that the results of the current study fail to show a significant relationship between anxiety patterns and threat bias patterns throughout the day. Furthermore, threat bias patterns did not change throughout the day.

There were a number of limitations that should be addressed in future research. (1) This study only included data from 16 participants due to the pandemic. Thus, the non-significant results could be due to the small sample size. Future studies should expand to at least 40 participants. (2) Specific times of the Dot Probe Task were not recorded. Participants could have been completing the dot-probe task too early or too late. Therefore, future studies should record the time participants begin and complete each of the five sessions.

References

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MacLeod, C., Mathews, A., & Tata, P. (1986). Attentional bias in emotional disorders. *Journal of Abnormal Psychology, 95*(1), 15-20.

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