Diagnostic Differences in Patterns of Threat-Related Attention Bias

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INTRODUCTION

- Threat-related attention bias (AB), or selective and exaggerated attention towards threat-relevant stimuli, is a core feature of trait anxiety and has been well-documented in a range of anxiety and mood disorders [1,2].
- Anxiety and mood disorders can be grouped together as distress related-disorders, but few researchers have examined differences in AB across these diagnoses.
- Clark and Watson, for example, argue that both generalized anxiety disorder (GAD) and major depressive disorder (MDD) are primarily distress-related disorders due to shared factors of negative emotionality [3].
- This approach highlights the high comorbidity between GAD and MDD, and can allow better investigation of cognitive mechanism underlying both diagnoses, such as AB [3].
- Some studies show that both GAD and MDD can be associated with different patterns of AB (e.g. AB towards threat, vigilance, disengagement). For example, MDD may be uniquely associated with difficulty disengaging from threat [1,2].
- AB variability, a relatively new metric, captures trial-level fluctuations in AB, and may be a better way to capture subtle differences across disorders [4].
- In the current study, we measured AB in four different ways (e.g. AB towards threat, vigilance, disengagement, variability) in a large sample of adults who met criteria for either GAD, MDD, or healthy controls to explore differences in AB between anxiety and mood disorders.

HYPOTHESES

- We predicted that, compared to healthy controls:

1. those with a primary diagnosis of GAD will evidence greater AB towards threat and greater AB variability
2. those with a primary diagnosis of MDD will evidence greater difficulty disengaging from threat

METHODS

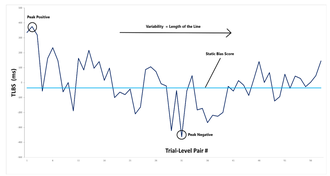
Participants

- A community sample of 64 adults (44 females) ages 18-39 (*M* = 25.185, *SD* = 6.254).
- Participants met criteria for either a primary GAD (*n* = 21), MDD (*n* = 23) or no diagnosis (*n* = 20) based on the Mini International Neuropsychiatric Interview (Version 6.0), which is a structured clinical interview for DSM-IV-TR psychiatric disorders [5].

Attention Bias Assessment

- AB was assessed using the reaction-timed (RT) dot probe task (Figure 1) [6].

- Four measures of AB were generated:
  1. **Attention bias** was calculated as average RT for neutral probes minus average RT for threat probes. Positive scores indicate an AB towards threat.
  2. **Vigilance** was calculated as average RT for neutral probes following neutral-neutral pairs minus average RT for threat probes following threat-neutral probes. Positive scores indicate vigilance towards threat.
  3. **Disengagement** was calculated as average RT for neutral probes following threat-neutral pairs minus average RT for neutral probes following neutral-neutral pairs. Positive scores indicate difficulty disengaging from threat.
  4. **Variability** was calculated as the sum of the distance between each sequential peak divided by the number of peaks. Positive scores indicate greater AB variability.



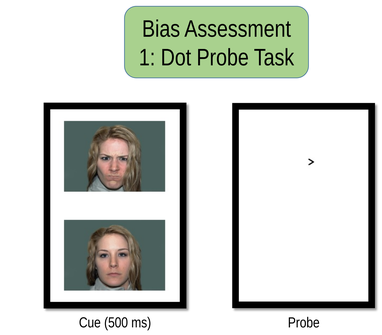
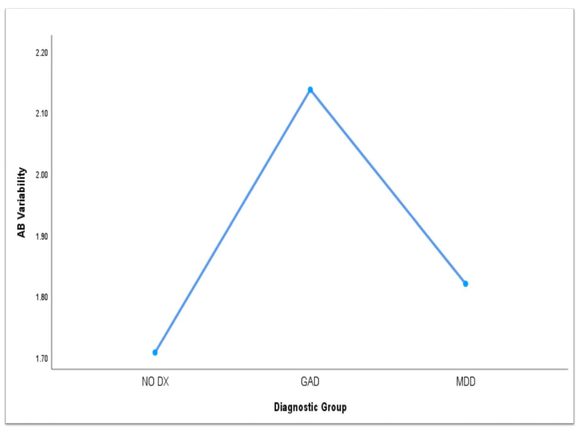


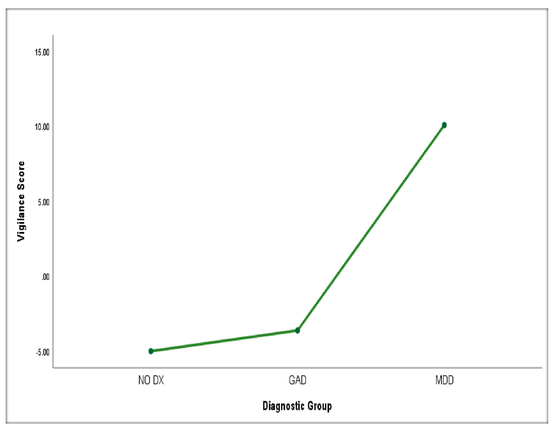
Figure 1. An example of a threat cued trial.

Each interview took approximately 30-60 minutes, on average, and interviews were conducted by trained research personnel. The interview was used to diagnose and categorize participants in clinical subgroups for research purposes.

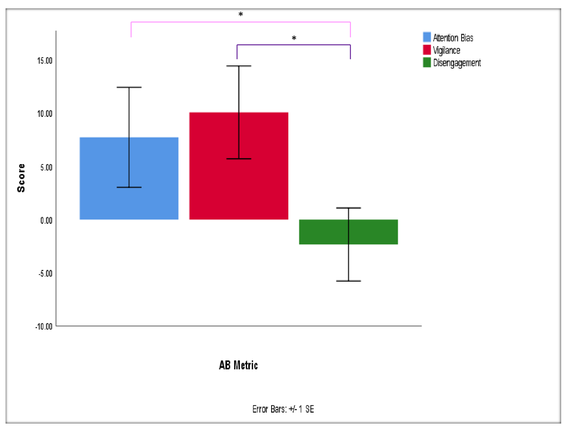
RESULTS



A univariate ANOVA revealed individuals with GAD had significantly greater AB variability (*M* = 2.138, *SD* = 0.809) than healthy controls (*M* = 1.709, *SD* = 0.552), *p* = .034.



Individuals with MDD had significantly greater vigilance (*M* = 10.087, *SD* = 20.956) score than GAD (*M* = -3.619, *SD* = 20.670), *p* = .030 and healthy controls (*M* = -5.000, *SD* = 19.407), *p* = .019.



Within the MDD group, vigilance (*M* = 10.087, *SD* = 20.956) score was greater relative to disengagement (*M* = -2.348, *SD* = 16.483), *p* = .021. In addition, AB (*M* = 7.739, *SD* = 22.573) score was greater relative to disengagement at a trend level, *p* = .082. No significance was found with variability.

DISCUSSION

- This study utilized a clinical interview in place of self-report questionnaires to categorize participants into diagnostic groups of primary GAD, MDD, and healthy controls in order to compare the distinct patterns in the expression of AB.
- Results show that GAD and MDD exhibited unique patterns of AB.
- Individuals with GAD diagnosis showed significantly greater AB variability compared to healthy controls.
- Individuals with MDD showed significantly greater vigilance towards threat compared to GAD and healthy controls.
- This suggests that dynamic, temporal elements of AB are important to examine.
- Future studies should assess whether co-morbidity of GAD and MDD impact expression of AB.

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