Optimizing Attention Bias Modification Training: The Role of Engagement and Anxiety

Qin Lin¹, Samantha Denefrio², Tracy A. Dennis-Tiwary¹,²

¹Hunter College, The City University of New York, ²The Graduate Center, The City University of New York

INTRODUCTION

- Anxiety disorders, the most prevalent class of mental disorders, have been associated with threat bias (TB), or hypervigilant attention towards threat in the absence of immediate danger (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & Van Ijzendoorn, 2007).
- Attention Bias Modification Training (ABMT), a novel treatment for anxiety, uses a modified version of the reaction time (RT) based dot probe task to train attention away from threat (Dennis, Egan, Babkirk, & Denefrio, 2016).
- Recent inconsistencies and null findings have highlighted the importance of individual factors, such as task engagement, or interest and motivation to complete a specific task (Matthews et al., 2002).

HYPOTHESES

1) Lower levels of anxiety would be associated with greater task engagement.
2) Greater task engagement would be associated with better ABMT efficacy, such that increased engagement will correspond to a reduction in threat bias, measured across three domains (attention bias, vigilance, and disengagement).

METHODS

Participants
- 109 undergraduate students (69 females) aged 18-37 (M = 20.30, SD = 3.39) participated in this study.

Self-Reported Anxiety Measures

Baseline (Table 1)
- The State Trait Anxiety Inventory (STAI; Spielberger, 1983) assessed levels of trait and state anxiety. Possible scores range from 20 to 80.
- The Positive and Negative-Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) assessed participants’ positive and negative affect in (1) General and (2) Today (day of the study). Possible scores range from 10 to 50.

Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th>STAI Trait</th>
<th>STAI State</th>
<th>PANAS General PA</th>
<th>PANAS General NA</th>
<th>PANAS Today PA</th>
<th>PANAS Today NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>22</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Max</td>
<td>74</td>
<td>61</td>
<td>50</td>
<td>49</td>
<td>28</td>
</tr>
<tr>
<td>M (SD)</td>
<td>42.50 (10.78)</td>
<td>38.25 (9.20)</td>
<td>30.63 (8.13)</td>
<td>27.31 (9.04)</td>
<td>15.49 (4.16)</td>
</tr>
</tbody>
</table>

Engagement Questionnaire (EQ)

- The Engagement Questionnaire (EQ) is a measure of task engagement. It consists of three questions (How engaged were you with this task?, How interested were you in this task?, and How motivated were you to complete this task?).
- Participants indicated their response on a 7-point scale ranging from not engaged at all (1) to extremely engaged (7).
- Task engagement was assessed at three timepoints: following pre- and post-training dot probe, and following ABMT.

Attention Bias Modification Training (ABMT)

- Participants underwent 160 trials of ABMT away from threat, where the probe is always cued by non-threat/threat paired trials (Figure 2).

RESULTS

Anxiety was Associated with Decreased Engagement

- Higher ratings of trait anxiety (M = 42.50, SD = 10.78) were associated with decreased engagement in all tasks, p’s < .02.

Positive Affect was Associated with Increased Engagement

- Higher ratings of state anxiety (M = 36.25, SD = 9.20) were associated with decreased engagement in all tasks, p’s < .002.

Higher Engagement was Associated with Post-Training Reductions in Threat Bias

- Higher ratings of general positive affect (M = 30.63, SD = 8.13) were associated with increased engagement in all tasks, p’s < .001.

DISCUSSION

- This study was among the first to systematically examine the impact of task engagement on ABMT efficacy in a large group of non-clinically anxious adults.
- The results implicate the importance of boosting engagement to optimize ABMT efficacy.
- Future research should focus on developing methods aimed at improving task engagement.

REFERENCES