

THE EFFECTS OF EMOTIONAL WORKING MEMORY TRAINING ON TRAIT ANXIETY

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Abstract

Trait anxiety is a pervasive tendency to attend to and experience fears and worries to a disproportionate degree, across various situations. This study sought to determine if participants who undergo emotional working memory training will have significantly lower scores on the trait anxiety scales post-intervention. The study also sought to determine if emotional regulation mediated the relationship between working memory training and trait anxiety. Trait anxiety was measured using the form Y2 of the Spielberger State-Trait Anxiety Inventory (STAI-Y2). Emotion regulation was measured using the Emotional Regulation Questionnaire (ERQ). Forty-nine participants underwent 20 days of computerized emotional working memory training called Emotional Dual n-back, which involves viewing a continuous stream of emotional content on a 3x3 grid, and then remembering the location and color of items presented on the grid. The control group consisted of fifty-one participants. Participants of the treatment group had significantly lower trait anxiety compared to controls post-intervention. Mediation analysis determined that working memory training was significantly related to trait anxiety reduction as measured by the STAI-Y2. Emotion regulation was found not to mediate between working memory training and trait anxiety reduction. Results suggest that working memory training may be useful in reducing psychoemotional symptoms of trait anxiety. Moreover, it proposes for future research to further look into the mediating role of emotion regulation via neuroimaging and the development of more comprehensive measures of emotion regulation.

Keywords: Trait anxiety, working memory, intervention, training, emotion regulation.

1. Introduction

Trait anxiety is a pervasive tendency to attend to and experience fears and worries to a disproportionate degree, across various situations. Decreased vulnerability to trait anxiety has been linked to having higher working memory capacity and better emotion regulation; however, the relationship between these factors has not been well-established.

2. Objective

This study sought to determine if participants who undergo emotional working memory training will have significantly lower trait anxiety post-training. The study also sought to determine if emotion regulation mediated the relationship between working memory training and trait anxiety.

3. Method

An experimental group comprising of 49 participants underwent 20 days of computerized emotional working memory training, which involved viewing a continuous stream of emotionally-charged content on a 3x3 grid, and then remembering the location and color of items presented on the grid. The control group comprised of 51 participants.

4. Results

Participants of the experimental group had significantly lower trait anxiety compared to controls, post-training. Subsequent mediation analysis determined that working memory training capacity gains were significantly related to anxiety reduction as measured by form Y2 of the Spielberger State-Trait Anxiety Inventory (STAI-Y2). Emotion regulation, as measured by the Emotional Regulation

Questionnaire (ERQ), was found not to mediate between working memory capacity gains and trait anxiety reduction.

5. Conclusion

Working memory capacity gains and reductions in levels of trait anxiety were observed following emotional working memory training. The study may therefore be useful in informing interventions targeted at improving working memory capacity, and reducing levels of trait anxiety. Moreover, it proposes for future research to further look into the mediating role of emotion regulation via the development or utilization of more comprehensive measures of emotion regulation

Table 1. Measure of Effect of Mediator Variable

Model	R Squared	R Squared Change	%
Model with Working Memory Capacity Gains	0.0923	-	-
Model with Working Memory Capacity Gains + Emotion Regulation Gains	0.2524	0.1601	16.01

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