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Augmenting Exposure Therapy for Social Anxiety with tDCS

Cynthia L. Lancaster , *University of Nevada, Reno*

Samantha J. Meckes , *University of Nevada, Reno*

Mollie A. McDonald , *University of Nevada, Reno*

See next page for additional authors

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Abstract

Purpose/Background: Exposure therapy is one of the most potent techniques available to treat social anxiety. However, studies suggest that exposure therapy only produces full remission in 20-50% of patients. Furthermore, laboratory conditioning and extinction studies suggest that fear responses toward individuals who differ from one's own ethnicity/race may be more resistant to extinction. Because activation of the medial prefrontal cortex has been associated with facilitating fear reduction during exposure therapy, we expect that targeting activation of this region with a stimulation technique called transcranial direct current stimulation (tDCS) may improve outcomes from exposure therapy for social anxiety. The present study will therefore test the hypotheses that (1) fear responding at baseline will be greater toward an audience that does not match (vs matches) the participant's own ethnicity, (2) pairing exposure therapy with active (vs sham) tDCS will facilitate alleviation of social anxiety symptoms, and (3) pairing exposure therapy with active (vs sham) tDCS facilitates extinction of fear response toward individuals who differ from the participant's own ethnicity.

Materials & Methods: We are recruiting Latino and non-Latino/Caucasian undergraduates with a fear of public speaking, the most commonly feared situation among individuals with social anxiety. Participants (N = 128) will receive either active/anodal (n = 64) or sham (n = 64) tDCS stimulation targeting the mPFC during an exposure therapy session delivered through virtual reality (VR). During exposure therapy, participants will complete six, 3-minute public speaking trials, alternating in a randomized order between audiences that are 75% matched to the participant's ethnicity and 75% unmatched to the participant's ethnicity. At one-month follow up, participants will complete two behavioral avoidance tests (BATs) parallel to therapy procedures, with one ethnic-matched trial and one ethnic-unmatched trial. Fear response during each BAT will be assessed behaviorally (duration of speech), physiologically (heart rate variability and electrodermal response), and subjectively (peak fear rating, on a 0 to 100 scale). At baseline and one-month follow-up, participants will also complete a battery of social anxiety questionnaires.

Results: We will present methods and preliminary findings from the study. Results will include a preliminary examination of whether fear responding is greater toward individuals who differ from (vs match) the participant's own ethnicity, whether pairing exposure therapy with active (vs sham) tDCS facilitates alleviation of social anxiety symptoms overall, and whether pairing exposure therapy with active (vs sham) tDCS facilitates alleviation of social anxiety responding toward individuals who differ from (vs match) the participant's own ethnicity.

Discussion/Conclusion: Findings point to key strategies to improve outcomes from exposure therapy for social anxiety, and could also have implications for improving response to exposure-based therapies for other anxiety disorders. Furthermore, if tDCS facilitates reductions in fear response toward ethnic/racial out-groups, minority/Latino individuals may experience better generalization of treatment effects for daily-life scenarios (in which they are surrounded by outgroup members), and ethnic/racial majority individuals will be better able to contribute to an inclusive social environment.

Authors
Cynthia L. Lancaster, Samantha J. Meckes, Mollie A. McDonald, and Marian E. Berryhill

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Samantha J. Meckes, University of Nevada, Reno
Mollie A. McDonald, University of Nevada, Reno
Marian E. Berryhill, University of Nevada, Reno
   Corresponding Author: Cynthia L. Lancaster, cynthialancaster@unr.edu

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