

# A remote, computerized training program eases anxiety in children

March 9 2021

---



Credit: CC0 Public Domain

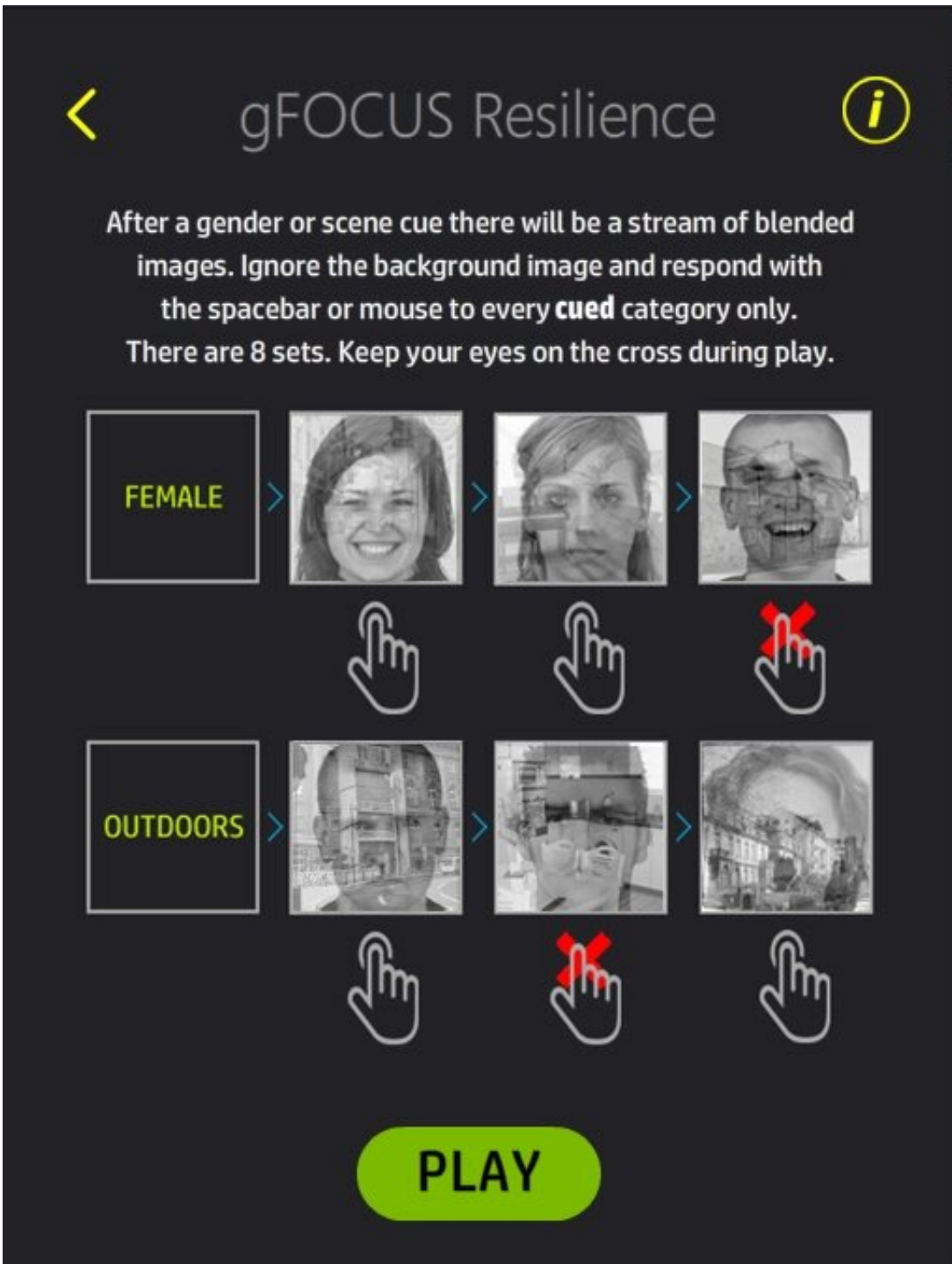
Anxiety levels in the United States are rising sharply and have especially intensified in younger populations. According to the Anxiety and Depression Association of America, anxiety disorders affect 31.9

percent of children ages 13 to 18 years old. Because of the COVID-19 pandemic, children and adolescents have experienced unprecedented interruptions to their daily lives and it is expected that these disruptions may precipitate mental illness, including anxiety, depression, and/or stress related symptoms.

Traditional anxiety and depression treatments include [cognitive behavioral therapy](#) and psychiatric medications, which are somewhat successful in alleviating symptoms in adults. However, they have yielded some mixed results in [children](#). Therefore, discovering appropriate means for reducing childhood anxiety and depression that are both affordable and accessible is paramount.

Using a computerized and completely remote [training](#) program, researchers from Florida Atlantic University's Charles E. Schmidt College of Science have found a way to alleviate negative emotions in preadolescent children. They examined the relationship between anxiety, inhibitory control, and resting-state electroencephalography (EEG) in a critical age-range for social and [emotional development](#) (ages 8 to 12 years old). Inhibitory control is the ability to willfully withhold or suppress a thought, action or feeling. Without it, people would act purely on impulses or on old habits of action and thought.

Results of the study published in the journal, *Applied Neuropsychology: Child*, reveal that computerized inhibitory training helps to mitigate negative emotions in preadolescent children. EEG results also provide evidence of frontal alpha asymmetry shifting to the left after children completed an emotional version of the training. At the baseline time point, there was further indication to support the link between inhibitory control dysfunction and anxiety/depression. Decreased inhibitory control performance predicted higher levels of anxiety and depression, signifying that inhibitory impairments could be a risk factor for the development of these conditions in children.



The image displays the instructional screen of the gFocus Resilience, which is the version of the game that trains inhibitory control in the context of emotional facial expressions and was the experimental condition in the study. The application was created by IQ Mindware (Mark Ashton Smith, Ph.D.). Credit:

Mark Ashton Smith, Ph.D., IQ Mindware

Prior research has focused on adults and has only used self-report measures to operationalize anxiety and depressive symptoms. This novel study expands upon research investigating cognitive and neurological mechanisms involved in childhood anxiety and depression. In addition, it includes an objective outcome measure (resting-state EEG) to enable more succinct conclusions about training efficacy.

"In the current social climate of the world, internalizing conditions like anxiety and depression are becoming increasingly common in children and adolescents. Meanwhile, the availability and accessibility of computer and tablet technology also has rapidly increased," said Nathaniel Shanok, lead author and a recent Ph.D. graduate of FAU's Department of Psychology, who received an award from the American Psychological Society in 2020 for this research. "Providing computerized cognitive training programs to children can be a highly beneficial use of this technology for improving not only academic performance, but as seen in our study, psychological and emotional functioning during a challenging time period of development."

Participants in the study were assigned to four weeks of either an emotional inhibitory control training program, a neutral inhibitory control training program, or a waitlisted control, and were tested using cognitive, emotional and EEG measures. Researchers evaluated the effects of the four-week, 16-session computerized inhibitory control training program using three tasks (go/no-go, flanker, and Stroop). The training program utilized for the study is gFocus from IQ Mindware and was created by Mark Ashton Smith, Ph.D.

Researchers found that inhibitory control accuracy was significantly and

negatively related to anxiety as well as depression. Emotional and neutral training conditions led to significant reductions in anxiety, [depression](#), and negative affect relative to the waitlist group, with the emotional training condition showing the largest reductions in anxiety and negative affect. These two conditions showed comparable improvements in [inhibitory control](#) accuracy relative to the waitlist, with greater increases observed in the neutral training condition.

"Given the predominately adverse influence of anxiety on social, psychological and cognitive functioning; early prevention, management and quality treatment plans are critical research areas to explore," said Nancy Aaron Jones, Ph.D., co-author, an associate professor, and director of the FAU WAVES Emotion Laboratory in the Department of Psychology, Charles E. Schmidt College of Science, and a member of the FAU Brain Institute. "Advancements in technology have made it possible to train certain cognitive abilities using child-friendly applications or games that can be easily accessed from a home computer. Devising computerized training programs, which target underlying cognitive characteristics related to [anxiety](#) is a promising method for attenuating symptoms and risk in children."

**More information:** Nathaniel A. Shanok et al, Computerized inhibitory control training reduces anxiety in preadolescent students, *Applied Neuropsychology: Child* (2021). [DOI: 10.1080/21622965.2021.1884984](#)

Provided by Florida Atlantic University

Citation: A remote, computerized training program eases anxiety in children (2021, March 9) retrieved 9 May 2024 from <https://medicalxpress.com/news/2021-03-remote-computerized-eases-anxiety-children.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.