Treating childhood anxiety with computers, not drugs

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According to the Anxiety and Depression Association of America, one in eight children suffers from an anxiety disorder. And because many anxious children turn into severely anxious adults, early intervention can have a major impact on a patient's life trajectory. The understandable reluctance to use psychiatric medications when it comes to children means child psychologists are always searching for viable therapeutic alternatives.

Now Prof. Yair Bar-Haim of Tel Aviv University's School of Psychological Sciences and his fellow researchers are pursuing a new method to address childhood anxiety. Based on a computer program, the treatment uses a technique called Attention Bias Modification (ABM) to reduce anxiety by drawing children away from their tendency to dwell on potential threats, ultimately changing their thought patterns. In its initial clinical trial, the program was as effective as medication and cognitive therapy for children — with several distinct advantages.

The results of the trial were reported in the *American Journal of Psychiatry*.

Computers instead of capsules

Children are comfortable with computers, explains Prof. Bar-Haim. And because of the potential side effects of medications or the difficulty in obtaining cognitive behavioral therapy, such as the need for highly

trained professionals, it is good to have an alternative treatment method. ABM treatments can be disseminated over the Internet or administered by personnel who don't have to be Ph.D.s. "This could be a game-changer for providing treatment," he says.

Anxious individuals have a heightened sensitivity towards threats that the average person would ignore, a sensitivity which creates and maintains anxiety, says Prof. Bar-Haim. One of the ways to measure a patient's threat-related attention patterns is called the dot-probe test. The patient is presented with two pictures or words, one threatening and one neutral. These words then disappear and a dot appears where one of the pictures or words had been, and the patient is asked to press a button to indicate the dot's location. A fast response time to a dot that appears in the place of the threatening picture or word indicates a bias towards threat.

To turn this test into a therapy, the location of the dot target is manipulated to appear more frequently beneath the neutral word or picture. Gradually, the patient begins to focus on that stimulus instead, predicting that this is where the dot will appear — helping to normalize the attention bias pattern and reduce anxiety.

Prof. Bar-Haim and his colleagues enlisted the participation of 40 pediatric patients with ongoing anxiety disorders and divided them into three groups. The first received the new ABM treatment; the second served as a placebo group where the dot appeared equally behind threatening and neutral images; and the third group was shown only neutral stimuli. Patients participated in one session a week for four weeks, completing 480 dot probe trials each session.

The children's anxiety levels were measured before and after the training sessions using interviews and questionnaires. In both the placebo group and neutral images group, researchers found no significant change in the patients' bias towards threatening stimuli. However, in the ABM group,

there were marked differences in the participants' threat bias. By the end of the trial, approximately 33 percent of the patients in this group no longer met the diagnostic criteria for anxiety disorder.

New methods for personalized treatment

These indications of the method's success in treating children warrant further investigation, says Prof. Bar-Haim. In collaboration with the National Institute of Mental Health in the US, a large international trial involving his computer program is now being carried out at more than 20 sites across five continents.

The more options that exist for patients, the better that clinicians can tailor treatment for their patient's individual needs, Prof. Bar-Haim observes. There are always patients for whom medication or cognitive therapy is not a viable option, he explains. "Psychological disorders are complex, and not every patient will respond well to every treatment. It's great to have new methods that have a basis in neuroscience and clinical evidence."

Provided by Tel Aviv University

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