Visually Stressed Brains Contribute to Adult ADHD

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Adjusting how visual information is sent to the brain reduces likelihood of ADHD diagnosis.

Researchers from David Yellin College of Education in Israel and the Irlen Institute in the United States release a new scientific study that suggests adults with untreated visual processing problems are more likely to receive an unnecessary ADHD diagnosis. The study expands understanding of adult ADHD to encompass overlap with visual processing difficulties, and identifies adjunctive treatment options.

According to the study titled, ?Evidence for Overlapping Visual Processing Difficulties in Adult ADHD and Visual Stress,? published in August in the Journal of Perceptual and Motor Skills, at least half of adults diagnosed with ADHD who also suffer from a visual processing problem known as Visual Stress can improve their attention issues by adjusting the color of visual signals sent to the brain.

?We?ve known for a long time that visual processing problems can cause attention issues,? says Dr. Aviva BarNir, lead author of the study. The authors wrote, ?Although attention problems in ADHD are associated with executive functions, such as staying on task and are not specific to vision, there is evidence that vision difficulties may be central to adult ADHD etiology,? suggesting to BarNir and her team the possibility of treating Visual Stress to address ADHD.

BarNir and her colleagues aren?t the first to suggest this, but their research is the first to examine whether correcting Visual Stress can impact ADHD diagnosis and treatment.

Senior author Dr. Sandra Tosta from the Irlen Institute in Long Beach, California, explains that ?people who suffer from Visual Stress have a hyper-reactive visual system, particularly to certain color wavelengths.? This can lead to a variety of difficulties, including physical symptoms such as headaches and fatigue, perceptual distortions, and issues with attention and concentration, among others. Visual Stress is successfully treated by wearing specialized colored lenses to adjust visual processing in the brain. In the study, BarNir and colleagues hypothesized that this might also reduce ADHD diagnosis among adults with Visual Stress.

To test their theory, BarNir and her team sampled fifty-nine adults, age 18-50, diagnosed with both ADHD and Visual Stress, dividing them into two groups. One group wore colored lenses to correct their visual processing difficulties and the other did not.

The research team examined attention performance, including susceptibility to distraction, after one hour and again after 3-6 months of lens use, using both a computer-based continuance performance test and a self-report questionnaire based on the DSM-5 ADHD criteria. Results showed immediate improvement in attention and concentration issues in roughly half of participants to the extent that they no longer qualified for an ADHD diagnosis. These improvements were not found in individuals who did not wear the lenses.

The improvement persisted over time, with 64% of participants no longer warranting an ADHD diagnosis after wearing the lenses for 3-6 months, according to the Diagnostic and Statisical Manual of Mental Disorders (DSM-5) of ADHD criteria.

?Color?s ability to impact brain function isn?t a new concept,? said Dr. Adam Anderson, neuroscientist and Professor of Psychology at Cornell University, and external advisor on the study. ?We know that different wavelengths of light have powerful effects on the brain from influencing biological rhythms to regulating pain and reward systems,? said Dr. Anderson. ?This research suggests different colors also have significant impact on brain networks supporting attention and concentration.?

Misdiagnosis of ADHD is a legitimate concern. This is especially true in adults where diagnosis is difficult due to the overlap of ADHD with other psychiatric disorders, and a tendency of clinicians to over-diagnose as a way of giving clients access to potential treatments. Recognizing the large overlap in attention issues between ADHD and Visual Stress allows for successful differential diagnosis and treatment.

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