In schizophrenia and bipolar disorder, life is not black and white

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Schizophrenia and bipolar disorder affect tens of millions of individuals around the world. These disorders have a typical onset in the early twenties and in most cases have a chronic or recurring course. Neither disorder has an objective biological marker than can be used to make diagnoses or to guide treatment.

Findings in Biological Psychiatry, published by Elsevier suggest that electroretinography (ERG), a specialized measure of retinal function might be a useful biomarker of risk for these disorders, and retinal deficits may contribute to the perceptual problems associated with schizophrenia and bipolar disorder.

Over the past several years, research has suggested that cognitive impairments in schizophrenia might be linked to early stages of visual perception. This work is now drawing attention to the function of the retina, the component of the eye that detects light. Within the retina, rods are light sensors that respond to black and white, but not to color. Rods are particularly important for maintaining vision under conditions of low light and for detecting stimuli at the periphery of vision. Cones are light sensors that detect color and perceive stimuli at the center of vision.

Using ERG, Canadian researchers Marc Hébert, Michel Maziade and their colleagues observed that the ability of light to activate rods was significantly reduced in currently healthy individuals who descended from multigenerational families that had members diagnosed with either

schizophrenia or bipolar disorder. In contrast, the response of their cones to light was normal.

"We take for granted that other people experience the world in the same way that we do. It is important to appreciate that for schizophrenia and bipolar disorder, as for colorblindness or selective hearing loss, people who appear to perceive the world normally may actually have subtle but important problems with perception, which may contribute to other adaptive impairments," comments Dr. John Krystal, Editor of Biological Psychiatry.

Scientists are still searching for a valid biomarker for the heritable risk for schizophrenia and bipolar disorder. Although the current data are interesting, extensive testing is still needed before the utility of this measure as a risk biomarker can be evaluated.

More information: The article is "Retinal Response to Light in Young Nonaffected Offspring at High Genetic Risk of Neuropsychiatric Brain Disorders" by Marc Hébert, Anne-Marie Gagné, Marie-Eve Paradis, Valérie Jomphe, Marc-André Roy, Chantal Mérette, and Michel Maziade. All authors are affiliated with Centre de recherche Université Laval Robert-Giffard, Québec, Canada. The article appears in Biological Psychiatry, Volume 67, Issue 3 (February 1, 2010).

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