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Eye movement consistency in global-local perceptual processing predicts schizotypy

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Abstract

Here we examined whether eye movement measures in global-local perceptual processing tasks, where abnormalities were typically found in individuals with schizophrenia, could be used to predict schizotypy through Eye Movement analysis with Hidden Markov Models (EMHMM). Using both multiple regression analysis and Gaussian process classifier to predict schizotypy, we found that in addition to longer response times in contour integration, a less consistent eye fixation to locate a stimulus and a more consistent subsequent fixation to start engaging local processing in the embedded figures task predicted high schizotypy. These effects may be related to reduced top-down attention control due to deficient global processing and enhanced local processing bias respectively. In addition, performance in embedded figures could further enhance classification accuracy when being used in conjunction with the above predictors, suggesting the multifactorial nature of the identification problem. These predictors may be important endophenotype markers for schizotypal personality.