



CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

Name(s) Miribel X. Tran	Project Number 34916
Project Title Cognitive Performance in Schizophrenia and Bipolar Disorder and Their First-Degree Relatives	
Abstract Objectives/Goals To examine differences in cognitive performance among control, SZ & BD patient groups, & their first-degree relatives, and determine the degree of genetic liability of BD & SZ to their first-degree relatives. Methods/Materials All subjects in this study were recruited from the UCI Neuropsychiatric Center and/or from the local community. An onsite psychiatrist evaluated the SZ & BD patients for their diagnoses to be in this study. Patients and controls were given a series of standard clinical self-reporting scales that evaluate the patient's symptom severity and type. A computerized neurocognitive test battery, CMINDS (Computerized Multiphasic Interactive Neurocognitive Diagnostics System), was used to assess specific neuropsychological measures in controls and patients with SZ and BD. Results Post-hoc statistical comparisons showed significant differences between groups in the predicted direction. As expected, controls performed better than the patient groups (BD, SAD, SCPT) and their first-degree relatives in all of the cognitive tasks. Newman-Keuls post-hoc comparison and one-way analysis of variance (ANOVA) tests revealed significant differences for individual tests and cognitive domains. SAD performed substantially worse than SCPT, with BD performing the best out of all the patient groups. The degree of cognitive deficits in first-degree relatives and controls was also examined using ANOVA for individual assessments. Controls showed significant differences from first-degree relatives in specific individual assessments. Conclusions/Discussion Differences in cognitive performance among control, SZ & BD patient groups, and their first-degree relatives, are prevalent and can serve as a significant trait marker for genetic liability in first-degree relatives as well as help distinguish between bipolar disorder (BD) and schizophrenia (SZ). First-degree relatives are subject to the cognitive deficits that their affected relatives possess, and thus, an effective method of treatment and diagnosis for both SZ and BD is suggested for future research.	
Summary Statement The focus of this study is to determine whether cognitive performance can serve as a trait marker between SZ & BD patients and also, to study the degree of genetic liability in first degree relatives in relation to the patient groups.	
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