Genetic insights into bipolar affective disorder using a Black South African Cohort.

Bipolar affective disorder is a mental disorder characterised by sudden extreme and often inappropriate mood changes. Not much progress has been made in unravelling the pathology, pathophysiology, and etiology of the disorder. The hypothesis put forward is that, it is a complex genetic disorder involving several regulatory genes in different pathways. Linkage studies of 9 candidate loci in Caucasian cohort of Afrikaner and British origin identified significant evidence for linkage at 1q31-32, 10q23.3, and 16p13.3 with maximum NPL scores of 2.52, 2.01, and 1.84, respectively (1). So far no linkage studies have been done on a Black South African population according to the author’s knowledge.

In this project, a genome wide scan of 800 Black South African sib-pairs would be carried out using non-parametric linkage analysis of candidate loci: 4p15-16, 12q23, 13q32, 18p11.2, 18q12, 18q22, 21q22, 22q11-q12, 1q31-32, 10q23.3, and 16p13.3. A number of polymorphic markers would be typed in the population to identify statistically significant loci. To increase the probability of identifying susceptible genes, robust statistical algorithm is being designed based on the logarithm of the odds ratio (LOD) scores. This algorithm would minimise the incident of false positive and negative scores; and improve reproducibility in empirical genomic linkage analysis. The algorithm would allow easy detection of single nucleotide polymorphisms (SNPs) for effective genome-wide screening. The aim of this research is to gain genetic insight into bipolar affective disorder for easy diagnosis and treatment.