Morphological profiling of schizophrenia: Cluster analysis of MRI-based cortical thickness data

To explore the distinct patterns of altered cortical thickness and the nature of schizophrenia subtypes, authors used k-means clustering to identify individuals with similar patterns of brain structure based on cortical thickness.

Main results
1. 3 distinct morphological profiles are observed in schizophrenia
2. A large number of patients with schizophrenia have the cortical morphological profiles of apparently normal healthy controls
3. cortical thickness profiles do not map well to cognitive and symptomatic profiles in schizophrenia Interestingly, we observed a pattern of morphological preservation among patients with higher levels of delusion.

Cortical thickness based on Desikan-Kiliany Atlas

K-means clustering

GAP statistics to choose best number of clusters

Distinct patterns of cortical abnormality in schizophrenia

Cluster characteristics