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# Neuroimaging Study for Finding Correlation Among Symptoms and Affected Brain Regions in Schizophrenia

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## Abstract

**Background:** Schizophrenia is a severe and persistent brain illness that impairs people's capacity to think, feel, and behave. Delusions, hallucinations, disordered speech, and aberrant motor activity are some of its symptoms. It is critical to employ functional magnetic resonance imaging (fMRI) to develop automated methods for diagnosing schizophrenia. It is a neuroimaging method that captures brain activity in small units of brain volume called voxels by measuring the change in blood-oxygen-level-dependent (BOLD) signals across time. Several machine learning-based algorithms for interpreting fMRI data to diagnose various illnesses have been developed.

**Aim:** In this study, we are aiming to analyze the different symptoms to identify differences in the functional activation in schizophrenia patients when compared with the healthy controls.

**Methodology:** In this study, we have used an fMRI dataset from the FBIRN data repository, which provides a detailed description of the data sets regarding the measures of individual's related symptoms and other ailments. We used fMRI data of 34 schizophrenia patients and an equal number of healthy controls with 1.5T intensity and 3T fMRI datasets consisting of 25 schizophrenia patients and 25 healthy subjects. Different symptoms were analyzed among subgroups of data using state-of-the-art machine learning techniques to analyze the present functional condition of the brain in terms of affected brain regions.

**Results and Discussion:** The present work is in progress. We hope to find distinct differences between brain regions in schizophrenia and healthy patients using binary classification. This research will open doors for new insights in the schizophrenia domain for understanding the illness.

