

# The study of frequency behaviour and effects of statistical memory of eeg-signals of a man with bipolar affective disorder

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## Abstract

© Research India Publications. The objective diagnostics of mental disorders at early developmental stages is obstructed due to absence of instrumental method of fixation, though relation of such disease to inevitable changes in the activity of separate areas of the brain cortex of a man seems evident, One of the limitations of instrumental diagnosis of psychiatric disturbances is a study of the signals of human brain activity: electroencephalogram (EEG), magnetoencephalogram (MEG), reflecting functional activity of different brain regions. Within the framework of formalism of memory functions (FMF) the present work analyses the spectral properties and effects of statistic memory of bioelectric activity of the cerebral cortex of healthy subjects and patients with bipolar affective disorder (BAD) for the purpose of determination of diagnostic criteria. FMF is a method that allows to bring in a complex of information measures for quantitative comparison of correlation fall time and existence of statistic memory in the dynamics under. In the course of FMF-analysis it has been discovered the characteristic forms of power spectra in the presence of BAD, and also the regions, for which the degree of manifestation of statistic memory in the dynamics of EEG-signals of healthy subjects and patients is cardinally discriminated. Substantial alterations of frequency behaviour of EEG-signals and effects of statistic memory for separate areas of human brain cortices can serve initial criteria for identification of BAD. The work observes the possibilities of using EEG-records in the development of objective methods of detection and identification of neuropsychopathy.

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## Keywords

Bipolar affective disorder, Diagnostic criteria, EEG-signals, Effects of statistic memory, Formalism of memory functions, Power spectra