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COMMENTARY ON "QUANTITATIVE ELECTROENCEPHALOGRAPHY IN SCHIZOPHRENIA AND DEPRESSION"

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Dear Editor,

Over-focus on relatively static measures of brain structure, even when combined with biomedical and neuropsychological, functional methodologies, have proven slow to generate risk factors for serious mental illness. Dynamic methodologies, such as the quantitative electroencephalography employed by Begić et al. (2011) show much diagnostic promise. Their differentiation of schizophrenia from depression should surely lead to the differentiation of schizophrenia from mania, and bipolar affective disorder. It would also help clarify the diagnostic confusion surrounding schizoaffective disorder. In most occidental populations, the functional psychoses are frequently complicated by substance abuse. This factor will have to be taken into serious account.

Begić et al.'s study would be enriched by Bullmore & Sporns' (2009) application of graph theory to qualitative and quantitative analysis of neural networks. A graph is a mathematical representation of a network (Stam 2013). Neural networks can be graphed, from the level of the whole brain, down to the level of the neuron, in terms of small-world topology, highly connected hubs and modularity. Graph methodology centers on structural and functional MRI, diffusion tensor imaging, electroencephalography and, potentially most fruitfully, magneto-encephalography. The latter is just beginning to be applied to aspects of the connectome and metabolome in schizophrenia (Brown 2011, Schoen et al. 2011), and depression (Shaw et al. 2014) and to depression comorbid with BPD (Díaz-Marsá et al. 2011).

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