

Computerized assessment of neuropsychological performance in schizophrenia

In clinical studies, intellectual performance is most often measured with standardized neuropsychological paper-and-pencil tasks. Such tasks can measure an individual's performance in different domains of intellectual performance such as speed of processing, attention/vigilance, working memory, verbal learning, visual learning, or reasoning/problem solving. To facilitate the development of treatments that can enhance intellectual performance in individuals with schizophrenia, the National Institutes of Mental Health (NIMH) funded an initiative to standardize the tests used to measure domains of intellectual performance. This initiative has yielded the Measurement and Treatment Research to Improve Cognition in Schizophrenia Consensus Cognitive Battery (MCCB), which predominantly includes paper-and-pencil tasks. The NIMH also funded an initiative to create computerized versions of standard paper-and-pencil task to make the collection and scoring of intellectual performance data more efficient. This initiative has yielded the Computerized Multiphasic Interactive Neurocognitive Dual Display System (CMINDS). The CMINDS includes computerized versions of tasks similar to the tasks part of the MCCB as well as other tasks.

This study measured performance on 6 intellectual domains in 175 patients with schizophrenia, a severe mental disorder, and 169 demographically similar healthy volunteers. The order of intellectual deficits, from most to least severe, observed in individuals with schizophrenia was Speed of Processing, Attention/Vigilance, Working Memory, Verbal Learning, Visual Learning, and Reasoning/Problem Solving. In terms of sex differences, women performed better than men in the domains of Attention/Vigilance, Verbal Learning, and Visual Learning, while men performed better than women in the domain of Reasoning/Problem Solving. This study concludes that the CMINDS can readily be employed in the assessment of cognitive deficits in neuropsychiatric disorders. The electronic data capture provided by the CMINDS may particularly make large-scale studies more efficient to conduct.

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[Neuropsychological profile in adult schizophrenia measured with the CMINDS.](#)

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