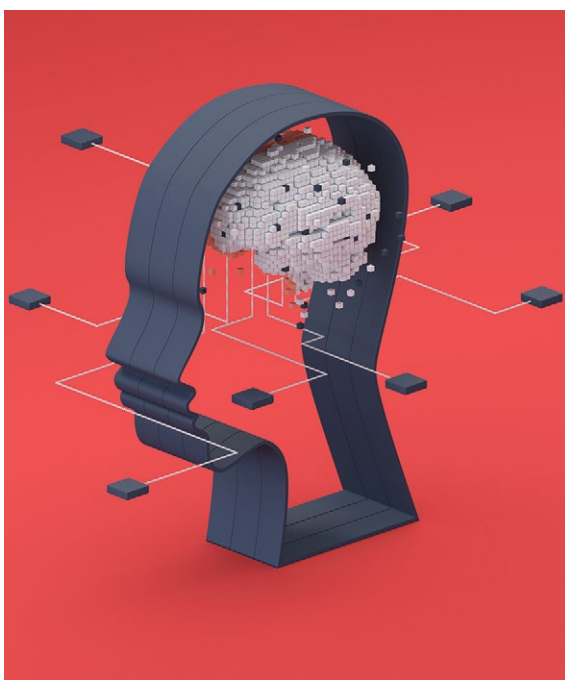


The Cognition Self-Assessment Rating Scale for patients with schizophrenia



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This new instrument facilitates routine cognitive assessment of patients with psychotic disorders

Cognition represents the most important function of the human brain and the essence of the mind. Cognitive functions such as memory, learning, comprehension, processing speed, attention, planning, and problem-solving are the best indicators of the status of brain health.

Many psychiatric brain disorders are associated with cognitive impairments. Decades of extensive research have documented that the most severe cognitive deficits occur in schizophrenia. No wonder Emil Kraepelin coined the term “dementia praecox,” which means premature dementia (in youth)¹ for this neuropsychiatric brain disorder. This condition was later renamed schizophrenia by Eugen Bleuler,² who regarded it primarily as a thought disorder, with splitting of associations (not split personality, as misinterpreted by many in the public). Interestingly, a century ago both of those early masters of psychiatry de-emphasized psychotic symptoms (delusions and hallucinations), regarding them as “supplemental symptoms.”³ Yet for the next 100 years, clinicians overemphasized psychotic symptoms in schizophrenia and overlooked the more disabling cognitive impairment and negative symptoms, referred to as Bleuler’s 4 A’s—Associations disruption, Ambivalence, Affect pathology, and Avolition—symptoms that persist even after the psychotic symptoms are successfully treated.³

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Most contemporary researchers regard cognitive impairment as the “core” feature of schizophrenia.⁴ The justification of this view is that cognitive deficits are detected in childhood and early adolescence (by age 13),⁵ long before the appearance of psychotic symptoms, and many studies have confirmed that cognitive deficits are the primary cause of functional disability and unemployment of patients with schizophrenia. Cognitive dysfunction is also found in milder forms in the parents and siblings of patients with schizophrenia,⁶ and is thus considered an “endophenotype” of the illness.

Because of its centrality, cognition has emerged as a major focus of schizophrenia research over the past 20 years. Multiple stakeholders (academic investigators, the National Institute of Mental Health, and the FDA) have collaborated to develop a standard measurement for cognition in schizophrenia. The project culminated in what was labeled MATRICS (Measurement and Treatment Research to Improve Cognition in Schizophrenia).⁷ The MATRICS settled on a battery of 7 major cognitive functions that are often impaired in individuals with schizophrenia (*Table 1*⁸). Most contemporary researchers have adopted MATRICS in their studies, which facilitates replication to confirm research findings.

Measuring cognition in patients with schizophrenia is extremely important, as critical as measuring fasting glucose in patients with diabetes or blood pressure in patients with hypertension. Measuring the extent of impairment or nonimpairment across various cognitive tests can help with vocational rehabilitation, to place a patient in a job consistent with their level of cognitive functioning. In addition, once medications are developed and approved for cognitive impairments in schizophrenia, measuring cognition will be necessary to gauge the degree of improvement.

Currently, few psychiatric practitioners measure cognition in their patients. This is perplexing because cognitive measurement is important for confirming the diagnosis of schizophrenia in first-episode psychosis, or distinguishing it from other psychotic disorders (such as drug-induced psychosis, brief reactive psychosis, or delusional disorders) that do not have severe cognitive deficits.

Table 1

Major cognitive dimensions of MATRICS

Speed of processing
Attention/vigilance
Working memory
Verbal learning and memory
Visual learning and memory
Reasoning and problem-solving
Verbal comprehension
MATRICS: Measurement and Treatment Research to Improve Cognition in Schizophrenia
Source: Reference 8

Table 2

Cognitive assessment batteries

Comprehensive cognitive performance batteries
MATRICS Consensus Cognitive Battery ¹⁰ (65 minutes)
Cambridge Neuropsychological Test Automated Battery ¹¹
CogState Schizophrenia Battery ¹²
Brief cognitive performance assessments
Brief Assessment of Cognition in Schizophrenia ¹³ (25 minutes)
Repeatable Battery for the Assessment of Neuropsychological Status ¹⁴ (30 minutes)
Brief Cognitive Assessment ¹⁵ (15 minutes)
Brief Cognitive Assessment Tool for Schizophrenia ¹⁶ (10 minutes)
Interview-based measures of cognition
Cognitive Assessment Interview ¹⁷ (15 minutes)
Schizophrenia Cognition Rating Scale ¹⁸ (15 minutes)
MATRICS: Measurement and Treatment Research to Improve Cognition in Schizophrenia

The scores of various cognitive functions in individuals with schizophrenia range from .75 to 2.0 SD below the performance of the general population (matched for age and gender).⁹ This translates to dismally low percentiles of 2% and 24%. It is essential that all clinicians measure cognition in every patient with psychotic symptoms. It can be argued that cognition should even be measured in other psychiatric patients because cognitive deficits have been well documented in bipolar disorder, major depressive disorder, attention-deficit/hyperactivity disorder, and other disorders, albeit not as severe as

Clinical Point

Measuring cognition in patients with schizophrenia is as critical as measuring fasting glucose in patients with diabetes



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Table 3

The Cognition Self-Assessment Rating Scale (C-SARS)^a

<p>1. I have difficulty staying focused on something I am reading or a TV program I am watching</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>	<p>7. I keep doing the same thing even though it does not work</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>
<p>2. I have difficulty remembering things that happened or what people told me</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>	<p>8. I do things without thinking</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>
<p>3. I forget what I am supposed to do</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>	<p>9. I have difficulty adjusting to changes</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>
<p>4. I forget where I put things</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>	<p>10. I tend to be slow in mental or physical tasks</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>
<p>5. When I am speaking I forget what I was going to say</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>	<p>11. I have trouble reading someone's facial expression or gestures</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>
<p>6. I have difficulty planning ahead or making decisions</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>	<p>12. I have difficulty understanding how another person feels</p> <p><i>How often:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p> <p><i>How much does it interfere with my life:</i> <input type="checkbox"/> Rarely <input type="checkbox"/> Sometimes <input type="checkbox"/> Often <input type="checkbox"/> All the time</p>
<p>Which cognitive functions are evaluated in the C-SARS</p> <ul style="list-style-type: none"> • Item 1: Attention • Items 2, 3, 4, and 5: Memory • Items 6, 7, 8, and 9: Executive functions (decision-making, planning ahead, self-control) • Item 10: Processing speed of thinking and physical reflexes • Items 11 and 12: Social cognition, including empathy, recognizing facial expressions 	<p>Scoring the C-SARS^b</p> <ul style="list-style-type: none"> • 0 points for statements rated as Rarely • 1 point for statements rated as Sometimes • 2 points for statements rated as Often • 3 points for statements rated as All the time <p>Add up the points for the 12 statements</p> <ul style="list-style-type: none"> • Total of 0 is normal cognition • Total of up to 12 is mild cognitive problems • Total of 13 to 22 is moderately severe cognitive deficits (get a full cognitive test) • Total of 23 to 33 is severe cognitive impairment (get a full cognitive test)

^aThe C-SARS was developed by Henry A. Nasrallah, MD, DLFAPA, Scientific Director of the CureSZ Foundation, Professor of Psychiatry, Neurology, and Neuroscience, and Director of the Schizophrenia Program, University of Cincinnati College Of Medicine

^bFamily members can also rate the patient and check if their scores are similar

in schizophrenia, and these deficits usually correlate with the patient's vocational and social functioning.

So how is cognition measured, and can clinicians incorporate cognitive batteries in their practices? The most logical answer is to refer the patient to a board-certified neuropsychologist. These specialists are well-trained in assessing cognitive functions, and their evaluations generally are covered by health insurance. They use various validated cognitive batteries. **Table 2**¹⁰⁻¹⁸ (**page 31**) lists the currently recognized cognitive assessments and how much time they require. Psychiatrists can have nurses or medical assistants administer a brief cognitive test.

C-SARS: A self-rated cognition scale

Patient self-rating can provide psychiatric clinicians with valuable information, and is a time-saver. The widely used Patient Health Questionnaire-9 (PHQ-9)¹⁹ is an excellent example of a self-rating scale for depression that enables patients to recognize and rate their depressive symptoms. It immediately informs the clinician how depressed their patient is and whether the severity of the depression has improved from the previous visit, which can indicate whether the prescribed medication is working. Based on the PHQ-9, which I regularly use—and recognizing that there is no cognition counterpart and that almost all clinicians could use a practical method of measuring their patients' cognitive function—I developed an instrument called the Cognition Self-Assessment Rating Scale (C-SARS) (**Table 3, page 32**). The C-SARS can be completed online at <https://curesz.org/csars/> and patients will be emailed the results within a minute. The C-SARS can be completed by the patient (with the help of their family or caregiver, if necessary, who observe the patient's daily functioning, which corresponds to their cognition). The main purpose of the C-SARS is to inform the clinician about serious cognitive dysfunction in their patients, which should instigate a referral for formal neurocognitive assessment by a neuropsychology expert.

The items on the C-SARS reflect how well the patient is performing routine daily functions, each of which correlates with one of the cognitive domains of the MATRICS battery. **Table 3** (**page 32**) shows the 12 items in the C-SARS, their scoring, and their clinical implications (ie, when the results require referral for formal neurocognitive testing). In the future, when the FDA approves medications for addressing cognitive impairment (and several molecules are currently undergoing clinical trials), clinicians will be able to gauge a patient's response to such treatments using the C-SARS and formal testing as needed. It may take several weeks to detect a significant reversal of cognitive deficits, but doing so would address a major unmet need in schizophrenia and may speed up vocational rehabilitation. The C-SARS also contains 2 items related to social cognition (items 11 and 12), which is also impaired in schizophrenia.²⁰ Future medications that improve social cognition in addition to neurocognition may also lead to improved social functioning among patients with schizophrenia.

In conclusion, the C-SARS, which needs to be validated in controlled studies, is the first cognition self-rating scale for schizophrenia and may be useful for other major psychiatric disorders. It will be a substantial time-saver for clinicians and will facilitate the routine incorporation of the cognitive assessment of patients with psychotic symptoms to help with the differential diagnosis of schizophrenia vs other psychotic disorders. Measuring cognitive functions is a vital step towards the valid diagnosis and treatment of this major clinical challenge in schizophrenia and improving patient outcomes in this serious psychiatric brain syndrome, in which up to 98% of patients have cognitive impairment across several domains.²¹

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Clinical Point

The purpose of the C-SARS is to inform the clinician about serious cognitive dysfunction in their patients, which should prompt referral for formal assessment



Cognition in schizophrenia

Clinical Point

The C-SARS also contains 2 items related to social cognition, which also is impaired in schizophrenia

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