

## Clinicians' Concepts of the Cognitive Deficits of Schizophrenia

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**Several compounds to improve cognition in schizophrenia are being studied in clinical trials, but little is known about how clinicians conceptualize the cognitive deficits of schizophrenia. In a pilot study, the author asked 40 psychiatrists 3 brief questions about the clinical presentation of cognitive deficits. Descriptions of cognitive deficits show high variability. Informants describe phenomenology like follow-through, attention, and emptiness as indicative of cognitive impairment. Informants' concepts of cognitive deficits overlap substantially with positive, negative, and thought disorder symptoms. Clinicians' concepts are complex and contextualized, in contrast to the discrete skills measured by neuropsychological tests. Results suggest that appropriate prescribing of cognition-enhancing medications may be challenging.**

*Key words:* neurocognition/schizophrenia/prescribing

### Introduction

Clinicians treating schizophrenia may soon be able to prescribe medications that target a subtle and complex aspect of the illness: cognition. Assessed by neuropsychological tests, the cognitive deficits seen to be at the core of schizophrenia include problems with working memory, executive functioning, and attention.<sup>1</sup> Several institutions have placed a high priority on the development of cognitive enhancers for schizophrenia,<sup>2,3</sup> and dozens of compounds to improve cognition are under study. Yet, how cognitive deficits are measured in clinical trials and the neuropsychological laboratory may have little to do with how clinicians think about or evaluate cognitive deficits in their patients.

In fact, several studies show that clinicians' assessments are poor predictors of how well patients will per-

form on neurocognitive tests.<sup>4,5</sup> Neither do patients' cognitive complaints match objective test scores.<sup>6</sup> Reliable and brief rating scales are available,<sup>7,8</sup> but clinicians tend not to use rating scales in day-to-day practice.<sup>9</sup> In addition, cognitive deficits have a complex relationship to clinical symptoms of schizophrenia like thought disorder,<sup>10</sup> impaired insight,<sup>11</sup> and disability.<sup>12</sup> If clinicians' concepts diverge significantly from research constructs, appropriate prescribing of cognition-enhancing medications may pose challenges.<sup>13</sup> The author collected pilot data in the form of 40 brief interviews to explore how psychiatrists conceptualize and evaluate cognitive deficits in patients with schizophrenia.

### Methods

The author elicited responses from a convenience sample of psychiatrists ( $n = 40$ ) attending the 2006 American Psychiatric Association annual conference. Attendees were approached individually and informed of the study. No one declined participation. Individuals were included if they self-identified as psychiatrists and treated patients with schizophrenia. Interviews were conducted immediately in meeting hallways and audio recorded. No identifiers were gathered. Informants varied widely by years of experience, specialization, and practice setting.

The author asked 3 open-ended questions only: (1) "What have you heard about the cognitive deficits of schizophrenia?"; (2) "What do the cognitive deficits of schizophrenia look like?" (When you see a patient, what kinds of things do you think suggest cognitive impairment?); and (3) "If you had a drug to treat cognitive deficits, what would you look for to see if it was working?"

Data were analyzed using systematic thematic analysis techniques.<sup>14</sup> Themes were checked against the data in 3 iterative stages. First, the author searched for themes in the data and clustered themes by content. Second, boundaries of themes were clarified with word counts and cross-case analysis; ie, separate occurrences of the same word or phrase (eg, planning) were compared across informants to verify that content was clustered consistently across the data set. Third, informants' descriptions of each theme were compared with one another to verify the coherence of each theme. This analytic process yielded themes that are here discussed as separable "concepts" of cognitive deficits.

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**Table 1.** Clinical Concepts of Cognitive Deficits ( $n = 40$ )

Concept	No. of Informants Endorsing	Representative Quote
Follow-through	20	"What are you going to do with yourself today and what are your plans for the future?"
Attention and concentration	13	"The ability to attend"
Emptiness	10	"They're kind of in a fog"
Functioning	8	"Self-care;" "can't manage finances"
Learning and remembering	7	"Can't feed it back to you"
Negative symptoms	Overlaps with: 3 Equals: 4	"It's like affect" "Negative symptoms, initiative"
Psychosis	Overlaps with: 5 Equals: 1	"Overlaps with delusions" "Distortion of reality"
Thought disorder	6	"Word salad"

## Results

All informants were familiar with the cognitive deficits of schizophrenia, and most named domains reported in the literature. Ten mentioned executive functioning; 13, "memory;" and 5, "frontal lobe" functions. When informants elaborated on the manifestations of cognitive deficits, responses varied. Only 1 described discrete skills (eg, set shifting as measured in the Wisconsin Card Sorting Test) and putative biological deficits.

Despite their familiarity, informants struggled to adequately describe cognitive deficits. Descriptions show high intra- and interinformant variability (Table 1). Almost all described more than 1 type of clinical phenomenon as cognitive. That is, "learning information," "initiative," and "follow-through" might be mentioned by a single informant.

Certain clusters of clinical phenomena were mentioned by a large number of informants as manifestations of cognitive deficits. These clinical concepts of cognitive deficits are described below. The most common concept is an inability to *follow-through on the big picture*. Twenty informants described knowing that patients have cognitive deficits when they cannot see things through, "keep up" with life, and perceive their actions in context. Informants specified that these phenomena are *like* insight and judgment, but not reducible to them. Cognitive deficits are seen in "generally poor judgment," difficulties "planning ahead," and an "inability to think beyond the immediate." Patients with cognitive deficits "have no ... direction in their life" or "lose ... planning and future orientation." Informants cited impairments in "following

through with instructions" or "tasks," "planning what to do for the day," and "cop[ing] in a high-demand environment." Patients lack the ability to grasp "how the other person would be impacted by what they're doing" or the "insight ... to stand outside of yourself and reflect." The concept suggests an inability to reason but also that cognitive deficits leave patients disconnected from the broader context in which reasoning matters.

The second most common concept of cognitive deficits is *attention and concentration*. Informants said that patients have difficulty paying attention and avoiding distractions during interviews.

The third most common concept of cognitive deficits is *emptiness*. Informants described that patients lack a grasp of social life or a substantive identity. One patient's cognitive deficits left her "like an egg they took everything out of." Patients "usually [have] no idea about what's going on ... what they're supposed to be doing," are in a "fog," and have "trouble spontaneously ... interacting with you" or contributing to a conversation. This "something not there" is difficult to describe but can be readily grasped "just sitting with them."

The fourth concept is problems with daily *functioning*.

The fifth concept is *learning and remembering*. Thirteen informants mentioned the word "memory" to describe cognition, but only 7 described forgetfulness or an inability to learn, remember, and feed back new information.

Seven informants described cognitive deficits as either equal to or substantially overlapping with negative symptoms, such as amotivation or flat affect.

Six informants described cognitive deficits as either equal to or overlapping with positive symptoms including delusions and distortions of reality.

Six informants equated cognitive deficits to thought disorders (eg, loose associations).

When asked how they would monitor for improvement in cognitive deficits, 31 informants mentioned changes in clinical phenomena like those described above, 12 mentioned ratings scales, and 6 mentioned patient report. Ten of the 12 who mentioned rating scales would also use a second source of information like clinical phenomena or patient report. Five informants did not know how they would monitor patients for improvement.

## Discussion

This is an exploratory pilot study with several limitations. Data reflect the views of a small convenience sample of psychiatrists interviewed very briefly on 1 occasion. Interviews were unstructured and informal. Data were examined by a single analyst. No data were gathered on clinician demographics, practice settings, and learning habits, though all factors likely shape how clinicians conceptualize cognitive deficits. Finally, interviewees were encouraged to speculate about the phenomenology of cognitive deficits (eg, "what do cognitive deficits look

like?"); results may underestimate clinicians' knowledge of neuropsychological constructs of cognitive deficits (eg, working memory) that may not be considered visible.

Despite these limitations, the variability in clinicians' descriptions of the "cognitive" piece of schizophrenia is notable. Developments in neuropsychopharmacology mean clinicians may soon be able to treat the cognitive deficits associated with schizophrenia, but only if they can select patients who will benefit from treatment and can reliably monitor treatment response.<sup>15</sup> However, in this sample, separate informants give distinct descriptions of cognition or a single informant might mention a range of phenomena as cognitive (eg, keeping up, attending, and planning). Many informants describe *emptiness* and *lack of follow-through* as indicative of cognitive deficits. These clinical concepts differ in form and substance from neurocognitive or neurobiological concepts, which emphasize discrete and measurable cognitive skills.

Second, many informants' concepts of cognitive deficits overlap with other symptom domains like psychosis or negative symptoms. Complex concepts such as *follow-through* include insight and judgment and are depicted as emergent within a social and psychological context. In contrast, neuropsychological batteries are designed to assess a separate domain of psychopathology.<sup>16</sup> In addition, these clinical concepts have no known relationship to the neurocognitive measures used in clinical trials.<sup>17</sup> Even clinically notable inattention may not correspond to the domain of attention/vigilance measured in neuropsychological assessments.<sup>4</sup> Cognition researchers could consider how their data might help clinicians differentiate domains of symptomatology (positive, negative, and cognitive) in schizophrenia. In partnership with clinicians, cognitive researchers could work to clarify how complex behaviors seen in the clinic correlate with neurocognitive measures.

Finally, these clinicians intend to use their "clinical eye" to detect and monitor cognitive deficits.<sup>18</sup> Many express confidence in their ability to "see" cognitive problems in patients, despite evidence that unstructured clinical assessments of cognition do not reliably match neuropsychological test scores.<sup>4</sup> Clinician-friendly rating scales and access to neuropsychologists will help, but only if clinicians recognize the need to supplement clinical impressions with structured instruments. Clinician education may need to emphasize that prescribing decisions should be based on valid and reliable assessments rather than clinical presentations. Clinician education could also address the role for caregivers' and family members' reports of patients' cognitive functioning.<sup>8</sup> Given the remarkable progress in research on the cognitive deficits of schizophrenia, the research community may want to attend to clinicians' perspectives in an ongoing way. Appropriate use of a cognition-enhancing drug will require that researchers, clinicians, family members, and patients

agree about the phenomenology of cognitive impairment and the most reliable ways to assess whether it is improving.

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