The assessment of cognitive impairment would be a relevant addition to the criteria for diagnosing schizophrenia

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The paper by Keefe reviews in a comprehensive and balanced way the findings on cognitive disturbances in schizophrenia. These disturbances are prevalent years before the psychotic breakdown, are only partially associated with acute psychotic symptoms, are more or less stable or can even increase over the longitudinal course of schizophrenia. In cross-sectional assessments, they are closely associated with social functioning and are more pronounced in pa-

tients diagnosed with schizophrenia than in those with (non-psychotic) affective disorders. All these are good reasons for Keefe to suggest that cognitive impairment should be included in the diagnostic criteria for schizophrenia. I fully agree with this suggestion.

The inclusion of cognitive impairment would correspond very well to the traditional concept of dementia praecox/schizophrenia as proposed by Kraepelin and Bleuler. Kraepelin's term "dementia praecox" emphasized the importance of cognitive deterioration, although it alluded also to the change of personality in terms of negative symp-

toms. Similarly, Bleuler regarded cognitive alterations and negative symptoms as core symptoms of schizophrenia, while delusions and hallucinations were considered accessory symptoms. The predominance of positive symptoms in the concept of schizophrenia was established later on, especially with Schneider's concept of first-rank symptoms, and endorsed by our modern diagnostic systems, the DSM-IV and the ICD-10. The interest in the core symptoms of schizophrenia, including cognitive impairment, was revived by the introduction of second-generation antipsychotics, which are believed to have a

somewhat stronger impact than older antipsychotics on both negative symptoms and cognitive disturbances (1). The focus on these core dimensions of schizophrenia could result in the development of drugs mainly targeted at cognitive deficit, but also able to treat positive symptoms. It is also important to stress that, in the context of the neurodevelopmental theory, cognitive disturbances are interpreted as being a vulnerability marker indicative of subtle brain alterations, and that modern neurogenetics applies cognitive impairment as an endophenotype (2-4).

In the old days, the group of cognitive deficits consisted primarily of those disturbances which can be observed directly during psychiatric examination, such as deficits in attention and abstract thinking, thought blocking, incoherence, etc. These symptoms are still included in some schizophrenia rating scales, such as the Positive and Negative Syndrome Scale (PANSS). Nowadays, neurocognitive tests are able to assess cognitive impairment objectively and reliably and to describe the disturbances in verbal fluency, working memory, executive control, visual and verbal memory, and mental speed. There is no doubt that neurocognitive testing would be the proper way to diagnose cognitive deficits in schizophrenia. However, it should be kept in mind that, to my knowledge, thought disorders like thought blocking or incoherence are not covered by these tests.

The question whether neurocognitive

testing can be performed in the frame of routine care, as addressed by Keefe, is of course of great importance. Although several West European countries and the United States have a long tradition of psychological test assessments in the routine care of hospitalized patients, there are other regions of the world where this is not affordable. A categorical criterion, which is primarily based on clinical explorations of the patient and his relatives, might therefore be preferable. I think that a test battery specifically developed for the assessment of cognitive disturbances in schizophrenia, like the MATRICS (5), might complicate the test procedure in psychiatric hospitals or outpatient facilities. It seems more pragmatic to apply those neurocognitive test batteries which are used in the routine care of each facility. Of course, when it comes to research, an internationally standardized procedure like the MATRICS would be the best option.

I definitely support Keefe's view that the inclusion of cognitive impairment in the diagnostic criteria for schizophrenia would enrich the diagnostic concept and hopefully contribute towards a better definition of a "point of rarity" between schizophrenia and affective psychosis. If DSM-V and ICD-11 follow a dimensional approach, including negative and cognitive symptoms as separate dimensions beside positive symptoms, it may be possible to achieve both a better differential diagnosis and a more powerful prognostic differentiation.

I believe that such a dimensional approach, as an additional descriptive level to a categorical differentiation between schizophrenia and affective disorders or as a primarily syndromic classification of a broad psychosis category, could represent a fruitful improvement of our current diagnostic systems (6,7).

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