Stability of the Diagnosis of Deficit Syndrome in Schizophrenia

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Objective: Primary, enduring negative symptoms have been distinguished from negative symptoms more generally and are used to define the deficit syndrome of schizophrenia. Although the validity of the deficit syndrome has been demonstrated by using brain imaging, neuropsychological, illness outcome, and developmental history data, the stability of this diagnostic category has not been tested prospectively by using direct patient assessments. **Method:** Forty-three outpatients with schizophrenia and schizoaffective disorder were categorized into deficit and nondeficit groups an average of 3.8 years after having been previously categorized. **Results:** There was 83% agreement between initial and blind follow-up designations of deficit status and 88% agreement on the nondeficit categorization. **Conclusions:** These results provide evidence for the long-term stability of the deficit syndrome in patients with schizophrenia and the reliability of the deficit/nondeficit categorization when diagnosed by those with appropriate training. Furthermore, they validate the method of categorizing deficit patients by using cross-sectional and retrospective data.

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Many patients with schizophrenia have enduring negative symptoms that have been understood as being primary to the disorder—that is, not due to such associated factors as medication side effects, depression, and psychotic confusion. A deficit syndrome has been described that is characterized by the presence of such negative symptoms (1). Recent reports show that patients with the deficit syndrome differ from nondeficit patients on measures of premorbid adjustment, illness outcome, depression, and brain structure and function.

The deficit syndrome is diagnosed by using longitudinally based criteria. To make a diagnosis, at least two of the following negative symptoms must be rated as primary and stable: restricted affect, diminished emotional range, poverty of speech, curbing of interests, diminished sense of purpose, and diminished social drive. A strength of this nosological approach is that trait-related negative symptoms are identified. Some have argued that such assessments are difficult to accomplish reliably, for the clinician and researcher alike. Although longitudinal studies of patients who have received a deficit syndrome diagnosis have been published (2, 3), no prospective studies of the deficit syndrome diagnosis, as defined and assessed by the Schedule for the Deficit Syndrome (4), have been reported. And no studies have examined the test-retest reliability of the deficit syndrome categorization by using the same assessment methodology both times.

Rather than assessing patients prospectively, all previous studies of the deficit syndrome involving direct patient interviews relied on cross-sectional and retrospective data to make the diagnosis. One could argue that a valid assessment of the deficit syndrome should require the direct assessment of negative symptoms prospectively. However, if cross-sectional and retrospective assessment procedures can be validated with prospective data, then such a requirement would be unnecessary.

The present article reports a test of the long-term stability and, ultimately, the construct validity of a deficit syndrome categorization procedure based on cross-sectional and retrospective data. Schizophrenia patients originally diagnosed as deficit and nondeficit subtypes were studied prospectively to see if independent raters, blind to their initial deficit categorizations, would arrive at the same diagnoses given by the original diagnosticians.

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METHOD

Subjects were 43 outpatients from the Maryland Psychiatric Research Center's clinic. All subjects gave written informed consent to participate in this study. Deficit and nondeficit patients did not differ significantly as far as sex (83.3% and 88.0% male, respectively), ethnicity, handedness, age (mean=41.28 years, SD=7.7; mean=36.92, SD=6.5, respectively), education (mean=11.33 years, SD=2.1; mean=12.92, SD=2.5, respectively), and total Brief Psychiatric Rating Scale (BPRS) score (mean=29.72, SD=5.0; mean=30.52, SD=9.7, respectively). All patients studied were diagnosed with DSM-III-R criteria by using a best-estimate procedure. Specifically, two psychiatrists arrived at a consensus diagnosis following an assessment procedure that included administration of the semistructured interview of the Schedule for the Deficit Syndrome and consideration of information from treating clinicians, medical records, and family information, as needed. Of the 43 patients, 41 received a diagnosis of schizophrenia (28 undifferentiated, two disorganized, one catatonic, and 10 paranoid), and two were diagnosed as having schizoaffective disorder, depressed type.

The Schedule for the Deficit Syndrome was also used to categorize patients into deficit and nondeficit status at the follow-up diagnosis. This schedule provides a checklist of symptoms for making a diagnosis on the basis of the criteria described in the introduction. Two raters from the National Institute of Mental Health Developing Schizophrenia Clinical Research Center in New York (S.A.Y. and L.M.) were trained by a research psychiatrist (B.K.) from the Maryland Psychiatric Research Center. The training consisted of reading the Schedule for the Deficit Syndrome manual, attending a lecture, viewing videotaped Schedule for the Deficit Syndrome interviews of three Maryland Psychiatric Research Center subjects, and co-rating (B.K.) seven Developing Schizophrenia Clinical Research Center patients during live interviews. The three raters agreed 100% on the deficit and nondeficit status of these 10 patients; five were classified as having the deficit syndrome.

After completing the training, the two Developing Schizophrenia Clinical Research Center raters interviewed the study subjects at the Maryland Psychiatric Research Center over a 3-day period. These 43 patients were judged to be clinically stable by their treating clinicians and were representative of the clinic's population. The patients had been seen for treatment on a weekly basis by the Maryland Psychiatric Research Center clinic for a minimum of 4 months; the clinic's assessment included a review of hospital admission records and interviews with family members. The majority of the Schedule for the Deficit Syndrome interviews were conducted by one of the two New York raters; two others were also interviewed by the second New York rater because of initial uncertainty as to ultimate diagnosis. The two raters then arrived at a consensus diagnosis for these two subjects. BPRS ratings were completed by the Maryland Psychiatric Research Center clinicians.

RESULTS

The original Schedule for the Deficit Syndrome ratings done by Maryland Psychiatric Research Center raters were completed an average of 3.80 years (SD=2.24, range=0.03–7.13) before the follow-up interviews. Of the 43 patients, 37 were recategorized from 1 to 7 years after the initial diagnoses were recorded. Of the remaining six patients with briefer periods between diagnoses, two had a gap of 10 days and four had a gap of approximately 3 months between diagnoses.

At the initial diagnosis, the Maryland Psychiatric Research Center raters diagnosed 18 patients as having the deficit syndrome and 25 as not having the syndrome. At the follow-up interviews, Developing Schizophrenia Clinical Research Center raters rediagnosed three of these deficit patients as nondeficit and three nondeficit patients as deficit. The rate of agreement between the two groups of raters was 83.3% on the diagnosis of the deficit syndrome (N=15 out of 18) and 88.0% on the diagnosis of nondeficit status (N=22 out of 25) (kappa=0.71).

Because four of the patients studied had retest intervals of less than 3 months, and it could be argued that these relatively much shorter periods are not as meaningful, we decided to exclude these four patients from a second analysis of diagnostic stability. The results were essentially identical.

Of the subgroup of 39 patients with test-retest intervals of 3 months or longer, at the initial diagnosis, Maryland Psychiatric Research Center raters diagnosed 16 patients as having the deficit syndrome and 23 as not having the syndrome. At the follow-up interviews, Developing Schizophrenia Clinical Research Center raters rediagnosed three of these deficit patients as nondeficit and three nondeficit patients as deficit. The rate of agreement between the two groups of raters was 81.3% on the diagnosis of the deficit syndrome (N=13 out of 16) and 87.0% on the diagnosis of nondeficit status (N=20 out of 23) (kappa=0.68).

Of the 43 patients interviewed, there were only three false positives and three false negatives. Review of the raw data from the three patients diagnosed as having the deficit syndrome by the Developing Schizophrenia Clinical Research Center raters but not the Maryland Psychiatric Research Center raters (false positives) and from the three patients not diagnosed as having the deficit syndrome (false negatives) revealed no obvious differences between these six patients and the rest of the patient group with respect to the retest interview interval or BPRS scores.

Mean total BPRS scores did not differ between the deficit and nondeficit groups (mean=30.0, SD=5.1; mean=30.5, SD=10.1, respectively). On individual negative symptoms, relative to the nondeficit group, deficit patients had more severe motor retardation and flat affect. Because of a homogeneity-of-variance problem on these two items, nonparametric tests were used. Mann-Whitney U tests on mean ranks revealed that the deficit patients had worse motor retardation ($z=-2.04$, N=43, $p=0.005$) and flat affect ($z=-4.08$, N=43, $p<0.0001$) than the nondeficit patients. No other differences were found between the deficit and nondeficit groups on any other BPRS item except suspiciousness and mood. As a group, the deficit patients were significantly less suspicious (deficit mean=1.2, SD=0.5; nondeficit mean=2.1, SD=1.4) ($t=2.6$, df=41, $p=0.01$), less anxious (deficit mean=1.6, SD=0.9; nondeficit mean=2.5, SD=1.3) ($t=2.7$, df=41, $p=0.01$), and less depressed (deficit mean=1.2, SD=0.5; nondeficit mean=1.9, SD=1.0) ($t=2.6$, df=41, $p=0.01$) than the nondeficit patients.

DISCUSSION

These results provide strong evidence for the long-term stability and for one aspect of the construct validity of the deficit syndrome of schizophrenia. The overwhelming majority of patients in this study group who were initially diagnosed as having this syndrome continued to evidence the syndrome years later. Just as noteworthy was the high rate of agreement regarding classification of nondeficit patients. These findings suggest that the deficit syndrome can persist over long periods of time and that patients not meeting diagnostic criteria within the first several years of illness are not likely to develop the deficit syndrome later.

The deficit syndrome diagnoses were made reliably after only minimal training, and the follow-up diagnoses were in high agreement with the initial categorizations made by independent raters. The test-retest reliability found in this study was essentially equivalent to the results of previous studies that assessed interrater rather than test-retest reliability. These findings suggest that it is primarily rater variance, rather than any inherent weaknesses in the retrospective method of categorization or the deficit syndrome criteria, that accounts for any lack of reliability found when using the Schedule for the Deficit Syndrome.

The results reported here add to the growing body of literature indicating that the deficit syndrome categorization is a distinct subcategory of schizophrenia that is characterized by longitudinally stable signs and symptoms. The results offer further support for the utility of this method of categorizing deficit patients, despite the fact that the Schedule for the Deficit Syndrome relies on cross-sectional and retrospective data.

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