The Vermont Longitudinal Study of Persons With Severe Mental Illness, II: Long-Term Outcome of Subjects Who Retrospectively Met *DSM-III* Criteria for Schizophrenia

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The authors present the findings from a long-term follow-up study of 118 patients from Vermont State Hospital who, when rediagnosed retrospectively, met DSM-III *criteria for schizophrenia at their index hospitalization in the mid-1950s. The patients were studied with structured, reliable, multivariate instrument batteries by raters who were blind to information in their records. The rediagnostic process is described, and results of the follow-up are presented. Outcome varied widely, but one-half to two-thirds of the sample had achieved considerable improvement or recovered, in contrast to statements in* DSM-III *that predict a poor outcome for schizophrenic patients.*

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The third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-III*) of the American Psychiatric Association both reflects and shapes current American thinking about the course and outcome of schizophrenia. Heavily based on the Feighner criteria (1) and the Research Diagnostic Criteria (2), *DSM-III* pictures the schizophrenic patient as a person with increasing residual impairment.

> A complete return to premorbid functioning is unusual—so rare, in fact, that some clinicians would question the diagnosis. However, there is always the *possibility* of full remission or recovery, although its frequency is unknown. The most common course is one of acute exacerbations with increasing residual impairment between episodes. (*DSM-III*, p. 185)

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These impairments are said to include flattened affect, persisting delusions and hallucinations, and increasing inability to carry out everyday functions such as work, social relationships, or basic self-care. Such assumptions influence concepts of etiology (3) and course and outcome (4); in addition, they shape decisions about treatment (5), program implementation (6), economic planning (7), and social policy for mental health service delivery systems (8).

The advent of *DSM-III* has been seen by many clinicians and investigators as a major change in a field heretofore severely hampered in research and treatment relevant to schizophrenia by the lack of reliable definitions of diagnostic categories (9–11). With such a system in place (12), it is now possible to reaffirm or disconfirm the prevalent notions about the long-term course of schizophrenia.

This paper reports findings from the fifth very long-term follow-up study of schizophrenia conducted within the last decade (13–15) and the second such endeavor recently completed in the United States (16). It is the only study to date that has examined the long-term outcome of subjects rediagnosed as meeting the *DSM-III* criteria for schizophrenia.

The Vermont Longitudinal Research Project was a 32-year prospective follow-along study of a clinical research cohort (17–28). The prospectively gathered material has been combined with a systematic retrospective follow-back to document the lives of 97% (N=262) of the 269 original subjects.

In the mid-1950s, when they became subjects in the study, these patients were "middle-aged, poorly educated, lower-class individuals further impoverished by repeated and prolonged hospitalizations" (25, p. 29). Demographic, illness, and hospitalization characteristics of this cohort have been extensively described elsewhere (25–31).

The subjects were originally chosen for a rehabilitation program from the back wards of Vermont State Hospital because of their chronic disabilities and resistance to treatment. The chronicity criterion required subjects to have been disabled for 1 year before entry into the rehabilitation program. The term "disabled" was defined as inability to function in ordinary day-

to-day role capacities. Members of this cohort had been ill for an average of 16 years, totally disabled for an average of 10 years, and continuously hospitalized for 6 years. In addition, most patients had been given phenothiazines for 2½ years without enough improvement to warrant discharge. They were provided with a comprehensive rehabilitation program and released to the community during the mid-to-late 1950s in a planned deinstitutionalization effort (17–25, 31).

In the follow-up data collection period (1980–1982), 97% of the original cohort was extensively studied in a structured and reliable manner (30–31). The catamnestic period for these patients ranged from 22 to 62 years. More detailed descriptions of the methodology, the study sample, and the overall status of the cohort at follow-up may be found in our companion paper in this issue.

Initial results for these subjects, whose original diagnoses had been made according to *DSM-I* criteria, indicated that from one-half to two-thirds of the cohort had significantly improved or recovered (28, 30). These findings were at odds with the prevailing assumptions about the long-term course of schizophrenia. It was possible, however, that this discrepancy had been generated by the use of the loosely formulated *DSM-I* diagnostic guidelines. Therefore, with the publication of *DSM-III* while we were in the midst of our study, we undertook the task of giving a retrospective rediagnosis from case records for each of the 269 patients in order to determine what their *DSM-III* status would have been at the time they were selected for the study.

The present paper examines the process of rediagnosis and assesses the long-term outcome achieved by the group who met the *DSM-III* criteria for schizophrenia at selection. The two hypotheses involved in this aspect of the study were statements of common conceptions about schizophrenia: 1) Members of this cohort diagnosed as having met the *DSM-III* criteria for schizophrenia at index hospitalization would still have signs and symptoms of schizophrenia at follow-up. 2) Members of this cohort diagnosed as having met the *DSM-III* criteria for schizophrenia at index hospitalization would have uniformly poor outcomes in critical areas of functioning such as work, social relations, and self-care at follow-up. Confirmation of these hypotheses would lend support to the validity of the statements about the long-term course and outcome of schizophrenia that are made in *DSM-III*.

REDIAGNOSIS OF PATIENTS AT INDEX HOSPITALIZATION

Originally, 213, or 79%, of the 269 subjects had been given a diagnosis of schizophrenia according to *DSM-I* guidelines. Table 1 presents a breakdown by age, sex, and diagnosis of the entire cohort at entry into the study in the mid-1950s.

We instituted several methods to achieve the retrospective rediagnosis. First, the two raters selected (J.S.S. and A.B.) were new to the project and blind to the outcome of each subject. The raters participated in two sets of interrater trials on 40 randomly selected cases (15% of the 269 subjects), which were independently assessed in a straight series without any discussion between raters. The case records and standardized record review abstracts from the time of the patient's entry into the study were stripped of all previous diagnostic assignments as well as any information about future episodes, hospitalizations, and other outcome information after index admission. (Index hospitalization was designated as the hospitalization during the 1950s during which transfer to the rehabilitation program occurred.) The *DSM-III* criteria were strictly applied.

The hospital records had been abstracted, as part of the overall goals of the larger project, in a structured and systematic manner by means of a battery of instruments known as the Hospital Record Review Form. This battery contained forms for extracting data about family and early life history, prodromal signs, and all hospital admissions. Interrater trials had revealed it to be a reliable instrument battery (31).

For a signs and symptoms checklist, we used Strauss's Case Record Rating Scale (32) and ratings from the World Health Organization's (WHO) Psychiatric and Personal History Schedule (33). This combination battery recorded behavioral descriptors and symptom dimensions noted by the clinician in recounting his or her impressions of the patient at the time of the original assessment. Case summaries and copies of the original chart information, such as admission and discharge summaries with ward notes but with all references to diagnosis deleted, were included in each diagnostic packet. Structured *DSM-III* diagnostic checklists from WHO and the Chestnut Lodge Fol-

TABLE 1. *DSM-I* Diagnoses of 269 Chronic Psychiatric Patients at Entry Into the Vermont Study in the Mid-1950s

Diagnostic Category	Mean Age (years)	Subjects With Diagnosis (N=269)	
		N	%
Schizophrenia		213	79
Hebephrenic			
Men	36	13	
Women	41	9	
Catatonic			
Men	38	26	
Women	43	39	
Paranoid			
Men	43	48	
Women	45	59	
Undifferentiated			
Men	34	8	
Women	37	11	
Affective disorders		34	13
Men	39	16	
Women	38	18	
Organic disorders		22	8
Men	36	14	
Women	44	8	

TABLE 2. Follow-Up Status by *DSM-III* Category of 269 Chronic Psychiatric Patients in the Vermont Study Who Were Rediagnosed Retrospectively

Subjects' Follow-Up Status	Number of Subjects in Diagnostic Category						Total	
	Schizophrenia	Schizoaffective Disorder	Affective Disorders	Atypical Psychosis	Other	Organic Disorders	N	%
Alive and interviewed	82	25	29	13	19	10	178	66
Alive; refused participation	4	1	1	0	5	2	13	5
Could not be located	4	1	1	0	1	0	7	3
Deceased	28	4	16	5	7	10	70[a]	26
Total								
N	118	31	47	18	32	22	268[a]	
%	44	12	17	7	12	8		100

[a]For one patient there was not enough information to make adequate ratings.

low-up Study (34) were used by those making the rediagnoses to systematically summarize all the evidence for each diagnosis to be assigned.

Concerns about the quality of the records might be raised, because throughout the United States records from most state hospitals are considered to be poor. Vermont State Hospital's records, however, were remarkably complete. Since most of our subjects had also been the subjects of early phenothiazine drug trials before their entry into the rehabilitation program, the records tended to be of good research quality both before and during the institution of the federally funded rehabilitation program in 1957. The records described the evolution of symptoms by using statements from the patients themselves and gave examples of behaviors to illustrate the presence of hallucinations, delusions, catatonic waxy flexibility, and other symptoms. Such clinical notes were entered often by psychiatrists, residents, and other members of the treatment team. There were also mental status reports, past medical histories, results of current physical examinations, medication charts, treatment plans, progress notes, and admission and discharge summaries. In addition, social workers had collected systematic family and personal histories.

We conducted two sets of interrater trials. Complete agreement was achieved on 57% of the first 21 cases. In an analysis of the cases about which there was disagreement, it was found that 56% of the time, the second diagnosis proposed by one rater agreed with the first diagnosis selected by the other rater. Each rater agreed with the eventual consensual diagnosis 71% of the time overall and 75% of the time for schizophrenia. In assessing the level of interrater agreement, after collapsing the data into four diagnostic categories (schizophrenia, schizoaffective disorder, affective disorders, and "other" disorders), we generated an overall kappa coefficient (35) for the first trial of .40 ($p=.001$) and a kappa of .40 ($p=.02$) for schizophrenia alone. In the second trial set of 19 cases, an overall kappa of .65 ($p<.0001$) was generated; the kappa for schizophrenia was .78 ($p<.0007$). Clearly, there was an improvement in levels of agreement after the raters had further experience with the records and the diagnostic observed statistic, we concluded that the kappa value fell within the range observed by Spitzer et al. (36).

After application of the *DSM-III* criteria to the entire set of cases, 118 subjects received a diagnosis of schizophrenia (see table 2).

Fifty-four percent (114 of 213) of those who were diagnosed as having schizophrenia according to the *DSM-I* guidelines retained the same diagnosis with the *DSM-III* criteria. (An additional four members of the *DSM-III* schizophrenia group were shifted from the *DSM-I* affective disorders category.) The primary shift from the *DSM-I* category of schizophrenia occurred to the *DSM-III* categories of schizoaffective disorder and atypical psychosis, not to the affective disorders category as expected from the experience of previous investigators.

The process of rediagnosis provided subtype categories for this subsample. The paranoid subtype predominated in both the *DSM-I* (50%, or 107 of 213) and *DSM-III* (61%, or 50 of 82) classification systems. The remaining subtypes included undifferentiated (17%, or 14 of 82), catatonic (13%, or 11 of 82), and disorganized (9%, or seven of 82).

METHOD

Of the 118 subjects who met the *DSM-III* criteria for schizophrenia, at follow-up 70% (N=82) were alive and were interviewed, 24% (N=28) were deceased, 3% (N=4) refused to participate, and 3% were lost to follow-up. It should be noted that these figures are nearly identical to those reported for the larger cohort in our companion paper (see table 1 in that paper).

The present paper focuses on the long-term outcome of the 82 subjects who were alive and were interviewed 20–25 years after their entry into the project, because their data were the most reliable. The catamnestic period for these subjects ranged from 22 to 59 years.

Forty-five percent of the 82 subjects who met the *DSM-III* criteria for schizophrenia at index hospitalization had been hospitalized for more than 6 years before being

hospital from 2 to 6 years, and 31% had been hospitalized less than 2 years.

Demographic analysis of these 82 subjects produced the following information. The group was split evenly between the sexes (41 men and 41 women). Their ages (as of July 1, 1981, which was the midpoint in the data collection period) ranged from 41 to 79 years. It should be noted that 91% (N=75) were above the age of 50; the average age for the group was 61 years. Fifty-five percent (N=45) of the subjects had not completed high school. Sixty-two percent (N=51) had never married, and only 10% (N=8) had remained married. Seventy-six, or 93%, were living in Vermont.

To carry out the follow-up study, our raters conducted two structured and reliable field interviews with each subject to ascertain current status and longitudinal patterns of community tenure. The raters were blind to previously recorded information about the subjects. Additional informants who knew each subject well were also interviewed, and ratings were verified. The six subjects who were not living in Vermont were interviewed with the same protocols. Another structured protocol (the Hospital Record Review Form, described at length elsewhere [31]) was used by a rater blind to all field information to abstract hospital and vocational rehabilitation records.

We used two structured interview batteries from the Vermont Community Questionnaire (30, 31), which included 15 standard scales and schedules, to assess the subjects' levels of functioning in a variety of areas at follow-up and to discern longitudinal shifts and patterns across the 20–25 years since the rehabilitation program began. All batteries were subjected to two sets of interrater trials 6 months apart and were found reliable (30, 31).

As part of the assessment, the two interviewers, who were new to the project and who had 5–8 years of clinical experience each, made ratings that provided a current clinical profile for each subject. The interviewers were blind to diagnostic record information when they made these symptom ratings, after the third hour of contact with each subject. The interviewers used the Research Diagnostic Criteria Screening Interview (36, 37), the Brief Psychiatric Rating Scale (38), and a reduced version of the Mini-Mental State examination (39) to make their assessments. This assessment package was designed to replace the Schedule for Affective Disorders and Schizophrenia (SADS) (40), proposed in our original design (27), because the extra time and costs required for the SADS interview were not funded.

In addition, the Global Assessment Scale (GAS) (41, 42) provided a single score (from 0 to 100) based on level of symptoms and social functioning. The scale's developers divided scores on the instrument into three categories (0–30=poor, 31–60=fair, 61–100=good functioning). The interrater trials generated a Pearson coefficient of .85 ($p<.0001$) for the first set (N=20) and .93 ($p<.0001$) for the second set (N=20) on this scale alone.

The Strauss-Carpenter Levels of Function Scale (43) was used to identify some of the major components that constitute the overall level of functioning assessed by the GAS. Each of the nine items is scored from 0 (poorest) to 4 (best); they include hospitalizations, symptoms, amount and quality of friendships, amount and quality of work, ability to meet basic needs, fullness of life, and overall level of functioning. (We excluded quality of work because, unlike all the other assessments, it could not be cross-checked by separate informants. A visit to each subject's work site was not deemed to be in the best interests of our subjects, most of whose employers might have been unaware of their early history as state hospital patients.) The results of interrater trials on this instrument alone generated Pearson coefficients of .92 ($p<.0001$) on the first set (N=21) and .92 ($p<.0001$) on the second set (N=18).

RESULTS

For one-half to two-thirds of these subjects who retrospectively met the *DSM-III* criteria for schizophrenia, long-term outcome was neither downward nor marginal but an evolution into various degrees of productivity, social involvement, wellness, and competent functioning. The more stringent *DSM-III* diagnostic criteria for schizophrenia failed to produce the expected uniformly poor outcome.

The combined data from the structured instrument battery described earlier, as well as all of the clinical observations obtained in the 3-hour interview sequence, indicated that 68% of the 82 subjects who met the *DSM-III* criteria for schizophrenia at index hospitalization did not display any further signs or symptoms (either positive or negative) of schizophrenia at follow-up. Forty-five percent of the sample displayed no psychiatric symptoms at all. For another 23%, symptoms had shifted to probable affective or organic disorders. One person was rated as a probable alcohol abuser (see table 3).

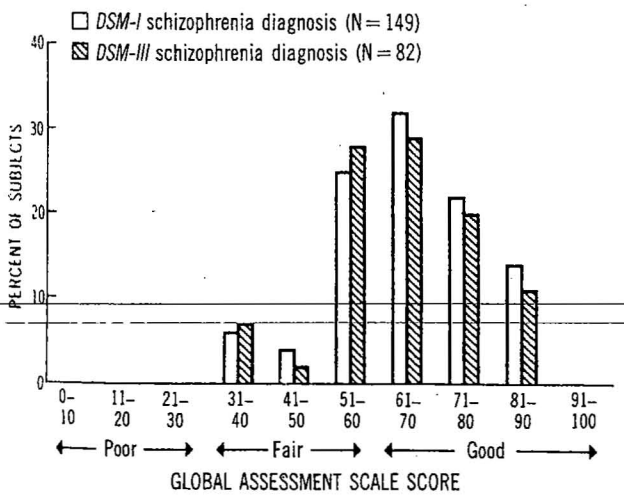
Eighty-four percent of the 82 subjects had had psychotropic medications prescribed for them; 75% of these in a low to medium dose range (in chlorpromazine equivalents). Seventy-five percent of the subjects stated they were complying with their regimes, but field interviewers were eventually told, after hours of interview time had elapsed, that the actual compliance pattern was closer to the following: about 25% of the subjects always took their medications, another 25% self-medicated when they had symptoms, and the remaining 34% used none of their medications. Adding the 34% who were noncompliers to the 16% who were currently not receiving any prescriptions for psychotropics means that 50% of the cohort was not using such medication.

A single score for psychological and social functioning was assigned each subject on the basis of the GAS. Figure 1 compares outcome scores of the subjects who met the *DSM-III* criteria for schizophrenia at index hospitalization with the scores of the subjects who met

TABLE 3. Psychiatric Status at Follow-Up of 82 Patients in the Vermont Study Originally Diagnosed as Schizophrenic and Rediagnosed According to the RDC

Diagnostic Category	Subjects With Diagnosis (N=82) N	%
No symptoms	37	45
Schizophrenia		
Positive symptoms		
Definite	1	1
Probable	7	9
Possible	0	0
Negative symptoms		
Definite	7	9
Probable	7	9
Possible	0	0
Affective disorders		
Definite	1	1
Probable	8	10
Possible	0	0
Organic disorders		
Definite	1	0
Probable	9	11
Possible	0	0
Alcoholism		
Definite	0	0
Probable	1	1
Possible	0	0
Not enough information to rate	4	4

FIGURE 1. Global Assessment Scale Scores of Subjects in the Vermont Study Who Met *DSM-I* Criteria and Those Who Met *DSM-III* Criteria for Schizophrenia at Index Hospitalization



the *DSM-I* guidelines for schizophrenia at index hospitalization. Sixty percent or more of the subjects diagnosed as schizophrenic by both diagnostic systems scored over 61, designated by the developers of the scale as good functioning. No one scored in the poor functioning category (score of 30 or less). It should be noted that all but four subjects who met the *DSM-III* criteria for schizophrenia came from the pool of subjects diagnosed as meeting the *DSM-I* criteria for schizophrenia.

FIGURE 2. Global Assessment Scale Scores of Subjects in the Vermont Study Who Met Both *DSM-I* and *DSM-III* Criteria for Schizophrenia and Subjects Diagnosed as Schizophrenic by *DSM-I* Who Had Other Diagnoses According to *DSM-III*

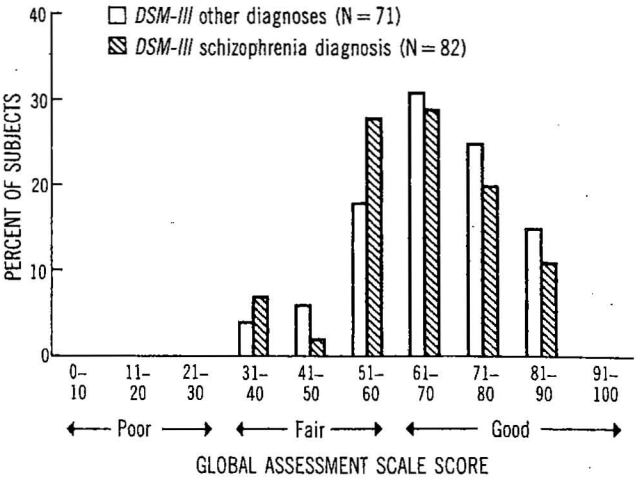


Figure 2 shows the GAS scores of the 82 subjects who met both *DSM-I* and *DSM-III* criteria for schizophrenia (including four subjects who were in other categories of *DSM-I* but who met *DSM-III* criteria for schizophrenia) and of the subjects who met *DSM-I* criteria but who were reclassified as fitting some category other than schizophrenia by *DSM-III* criteria (N=71). A t test for the means of the two groups revealed no significant differences between them ($t=-1.44$, $df=149$, n.s.).

Table 4 shows the findings from the Levels of Function Scale for living subjects originally diagnosed as meeting the *DSM-I* guidelines for schizophrenia, those for subjects who met the *DSM-III* criteria for schizophrenia, and those for subjects who met the *DSM-III* criteria for other categories. For most outcome variables in either diagnostic system, for any of the three groups, two-thirds to four-fifths of the subjects were found to be significantly improved.

The only exception to the high levels of functioning across all diagnostic categories was the rating for employment, which was scored for one-half or fewer of the subjects. However, this rating did not take into account subjects who were retired or elderly.

The major difference between the subjects who met the *DSM-III* criteria for schizophrenia and those who met the *DSM-III* criteria for other diagnoses was fewer close friendships for the *DSM-III* schizophrenia subsample (68% versus 86%) ($\chi^2=4.89$, $df=1$, $p=.03$).

We compared these two groups by using a 2×2 chi-square test with Yates' correction. A small number of cases with missing values were included in the analysis category that reflected the least positive outcome. No significant differences in results were observed when we used this approach and when we used the standard method of excluding cases with missing values.

TABLE 4. Results From the Strauss-Carpenter Levels of Function Scale at Follow-Up for Vermont Study Subjects Diagnosed as Schizophrenic by *DSM-I* and Rediagnosed by *DSM-III*

	Patients With *DSM-I* Schizophrenia (N=149)		Patients With *DSM-I* and *DSM-III* Schizophrenia (N=82)[a]		Patients With *DSM-I* But Not *DSM-III* Schizophrenia (N=71)			
Area of Functioning	N	%	N	%	N	%	χ^2 (df=1)[b]	p
Not in hospital in past year	125	84	67	82	61	86	0.23	.63
Met with friends every week or two	97	65	50	61	51	72	1.54	.21
Had one or more moderately to very close friends	113	76	56	68	61	86	5.62	.02
Employed in past year[c]	66	44	33	40	37	52	1.71	.19
Displayed slight or no symptoms	104	70	56	68	52	73	0.24	.62
Able to meet basic needs	119	80	66	81	57	80	0.00	1.00
Led moderate to very full life	113	76	60	73	57	80	0.71	.40

[a]Includes four subjects who were not schizophrenic according to *DSM-I* but who were given a *DSM-III* diagnosis of schizophrenia.
[b]Chi-square with Yates' correction for the comparison between the group diagnosed as schizophrenic by both *DSM-I* and *DSM-III* and the group with *DSM-I* schizophrenia only (now *DSM-III* other categories).
[c]Does not account for subjects who were widowed, retired, or elderly.

DISCUSSION

Members of the Vermont cohort were once profoundly ill, back-ward, chronic patients who were provided with a comprehensive rehabilitation program and released to the community 20–25 years ago. The 5- to 10-year follow-up study found that two-thirds of these patients were out of the hospital but were expected to require continuous support by the mental health system in order to remain in the community (44). Further, the subsample of this group rediagnosed as having met the *DSM-III* criteria for schizophrenia at index hospitalization would be expected, according to that system's description of schizophrenia, to have a course with "increasing residual impairment between episodes" (*DSM-III*, p. 185), including continued symptoms, unemployment, social isolation, and inability to care for themselves.

Data from the present study demonstrated that these predictions were inadequate for the majority of subjects. Widely heterogeneous patterns of social, occupational, and psychological functioning evolved over time for these once schizophrenic patients. The more stringent diagnostic criteria of *DSM-III* failed to predict any better than the more loosely formulated *DSM-I* guidelines the true outcome for these schizophrenic patients.

Although these findings show some robustness, they come from a study that suffers from numerous flaws (see our companion paper in this issue). Although it was one of the more rigorously designed research studies of its type, the selection was biased toward the long-term institutionalized patient. The use of reliable, structured instrument batteries was a significant advance over many earlier studies, but the *DSM-III* diagnoses had to be made retrospectively. The updating of subjects' diagnoses to meet current diagnostic criteria is a problem common to all longitudinal studies. It is always a trade-off to try to second-guess the original clinician, who was able to see and interact with the patient. The original clinicians were apt to neglect noting signs and symptoms that were not present and to present data to substantiate their own diagnostic decisions. We were fortunate to have excellent records rich in descriptive passages of actual conversations and behaviors to aid in our own rediagnostic work, but we did not see the patients in person then.

The structured battery that determined the subjects' current functional status was solidly reliable. The two interviewers each had 5–8 years of clinical experience with caseloads of chronic patients before these investigations, and they spent several hours with each subject as well as with a variety of other informants (including other clinicians) who knew these clients or family members well.

Our findings of heterogeneity in functioning at outcome corroborate similar results from the four other long-term studies of schizophrenia that we have mentioned: the three European studies by Bleuler (15), Ciompi and Müller (13), and Huber et al. (14) and the Iowa 500 study (16). These studies have been extensively analyzed by us elsewhere (45). Diverse levels of functioning have been found also in shorter-term studies such as the WHO International Pilot Study of Schizophrenia (33, 46), the Rochester First Admission Study (47), the Boston State Hospital 12-Year Follow-Up Study (48), and the New York State Psychiatric Institute Diagnostic Study (49).

It has been argued that the more stringent the criteria, the better a sample will reflect "true" or "core" schizophrenia (50, 51), and that core schizophrenia has a uniformly poor outcome (5, 52–54). The rigorous inclusion/exclusion criteria of the *DSM-III* classification were designed to select for core schizophrenia, but since the findings of this study revealed outcome to be heterogeneous, the *DSM-III* criteria did not predict long-term outcome as well as expected. This finding was recently duplicated for prediction of very short-term outcome as well (49).

Hawk and associates (55) also found that narrowness of criteria did not predict homogeneous outcome

functioning when they compared subjects rediagnosed according to four diagnostic systems, i.e., Langfeldt's criteria (51), Schneider's first-rank symptoms (56), *DSM-II*, and the Flexible System (57).

The focus on strictness of criteria evolved from the Kraepelinian notion that prognosis confirmed diagnosis (58). This theory stated that poor outcome reflected a unifying common denominator for clustering several differently expressed types of mental disorders under one umbrella, dementia praecox. If the patients recovered or improved, they had obviously been misdiagnosed, and another label was applied, such as reactive psychosis (59), schizophreniform states (51), or cycloid psychoses (60–61). In pursuing this argument further, Vaillant (62) cited 16 major attempts to reclassify "remitting schizophrenics" and concluded that most investigators were describing a blend known as Kasanin's schizoaffective disorder (63). Thus, there was no definitive system to describe schizophrenic patients who improved without recategorizing them as having another disorder.

A decade later, in 1975, Vaillant himself completed a 10- to 15-year follow-up of 51 patients who exhibited the classical profile of remitting schizophrenia, as cited from the literature by Stephens (64) and others. This profile included a positive family history of affective disorders, sudden onset with the patient reacting to a clear precipitant, bipolar-like symptoms, and remission within the first 2 years. Thirty-nine percent of the 51 study subjects developed a chronic course. Vaillant found no factors that could differentiate between the patients who would relapse and those who were later rediagnosed as having an affective disorder (65). He concluded that "diagnosis and prognosis should be treated as different dimensions of psychosis" (G.E. Vaillant, paper presented at the 128th annual meeting of the American Psychiatric Association, Anaheim, Calif., May 5–9, 1975).

In the current study, it should be noted that the 25 interviewed patients who were rediagnosed as schizoaffective, the three who had schizophreniform disorders, and the 13 who had atypical psychoses were all eliminated from the analyses that were done to determine the long-term outcome of "core" schizophrenia. These patients were considered to have a much better chance for a good long-term outcome. Despite this very stringent approach, there were still "core schizophrenics" who remitted—a finding that supports Vaillant's concept of the separate contributions of diagnosis and prognosis to long-term outcome (65, and the paper presented at the APA annual meeting).

In addition to incorporating the Kraepelinian idea that future course validates the original diagnosis, *DSM-III* was based on the Feighner, or St. Louis, criteria (1), which established the validity of a diagnosis by requiring deterioration from a previous level of functioning as well as a 6-month duration of illness with or without prodrome. Thus, in the *DSM-III* attempt to select out reactive, schizophreniform, and cycloid types, subjects are required to have been functioning poorly before they are entered into the classification and are expected to be functioning poorly at follow-up. Strauss and Carpenter (66) pointed out the tautology of such a scheme. They suggested that finding an outcome of chronic illness may be primarily related to the original selection of patients with a longstanding disorder as the entry criterion. However, the Vermont subjects were selected for their strong indications of chronicity (e.g., at selection these subjects had had an average of 6 years of continuous psychiatric hospitalization and 16 years of illness before entering the rehabilitation program). Despite this status, many of these very chronic patients appear to have recovered or improved considerably. This finding clearly supports those of the Bonn, Lausanne, Iowa, and Burghölzli studies, which found improvement or recovery two to three decades later (13–16).

One of the complications in analyzing data across earlier studies was the fact that those studies often used the criteria "recovered" or "improved" without defining either concept and commonly used only a single measure of outcome, such as "hospitalized" or "discharged" (see Shapiro and Shader [67] for a discussion). However, the work of Strauss and Carpenter (43, 68, 69) and many others has clearly demonstrated the partial independence in level of functioning at outcome in a variety of areas such as work, social relationships, symptoms, and hospitalization. In Strauss and Carpenter's "open-linked systems" approach (66) to analyzing the course of disorder, the best predictor of follow-up functioning was pre-episode functioning in the same area (e.g., previous levels of work predicted current levels of work—a finding also supported by Brown et al. [70] and Monck [71]). Strauss and Carpenter pointed to the need for separate measurements of functioning in a wide variety of areas.

The Vermont Longitudinal Research Project found evidence to support this strategy. Within the middle range of outcome, there were subjects in the sample who were considered to be functioning well (e.g., working, with good family relationships and friends) but who still had delusions or hallucinations. Many subjects had learned either to devise ways of controlling their symptoms—an ability reported also by Breier and Strauss (72)—or had learned not to tell anyone about them anymore. Other subjects were working but were otherwise socially isolated. Some subjects had warm and extensive social networks but did not work. The picture was a complex and heterogeneous one.

Because narrowness of diagnostic criteria seems not to predict outcome, attention might be refocused on an analysis of this hidden underlying heterogeneity within samples (28, 73) in order to sort out other possible predictors of long-term outcome.

The implications of the findings from the Vermont cohort are many and varied. The present study provides strong evidence for the limited usefulness of the current diagnostic classification systems in predicting accurately the long-term outcome for people who meet

the criteria for schizophrenia. Further, in each of the five major studies conducted in the past decade that assessed the long-term outcome of schizophrenia, one-half or more of the subjects had recovered or considerably improved in their functioning. Together, these findings offer an argument for a shift in our thinking about the proportions of schizophrenic patients who are able to achieve a better outcome than has heretofore been expected.

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