Longitudinal Studies of Schizophrenic Patients

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Abstract

A sample of 502 schizophrenic patients, who had been admitted to the University Psychiatric Clinic between 1945 and 1959, was systematically followed up between 1967 and 1973. The same well-defined diagnostic criteria were used throughout the study. At the time of the last followup, the average duration of illness was 22.4 years. Twenty-two percent of the patients showed complete psychopathological remissions, 43 percent had noncharacteristic types of remission, and 35 percent suffered from characteristic schizophrenic deficiency syndromes. Psychopathological outcome in the patients studied was assessed in relationship to such factors as duration of illness, social remission, family history of schizophrenia, primary personality, educational level, social class, age at onset, and presence of precipitating factors. It is concluded that prognostic predictions are possible only when several factors with a similar influence on long-term outcome occur in combination and when factors with a contrary prognostic influence are absent. Even under these circumstances, the individual course is by no means certain. The hypothesis that presenting symptomatology can be used to differentiate between true schizophrenias and schizophreniform psychoses is not supported.

Research investigating the course of schizophrenia is still in its infancy. This surprising discovery was made by M. Bleuler in 1972. Until just a short time ago, there were hardly any life-long studies of schizophrenia with results that would even approach general applicability. Studies that included long-term outpatients who were no longer under a doctor's care were virtually nonexistent. Not until this past decade were studies presented that could be considered as generally valid and representative for the schizophrenias. Among these were investigations by M. Bleuler, Ciompi and Müller, and those of our own team (Bleuler 1972; Bleuler et al. 1976; Ciompi and Müller 1976; Huber, Gross, and Schüttler 1979). The data collected by M. Bleuler in studies of patients from Zürich and our own studies of the Bonn population were compared, and the results were summarized (Bleuler et al. 1976).

Below we briefly report on some of the results of the Bonn investigation. This study began with 758 schizophrenic patients who had been admitted as inpatients to the University Psychiatric Clinic of Bonn between 1945 and 1959. Of these, 502 patients could be personally followed up, usually in their home environments, between 1967 and 1973. During the period of the followup catamnesis, 87 percent of them lived at home in their residential communities. Among the 435 probands who were not permanently hospitalized, two-thirds had not been under a doctor's care for an extended period at the last followup. Details of the study have been presented in a monograph (Huber, Gross, and Schüttler 1979).

Diagnostic Concepts and Sample Characteristics

M. Bleuler, C. Müller, H. Mitsuda, and others have emphasized the differences in the diagnostic criteria for schizophrenia. In view of the variety of methods, different selection criteria of probands, and insufficient reporting of methodological details, it is virtually impossible to make accurate comparisons among the results of different

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investigations in the world literature. However, a comparison of the criteria used by M. Bleuler and ourselves to diagnose the Zürich and Bonn probands, respectively, convinced us that there was complete agreement in the diagnoses for schizophrenia (Bleuler et al. 1976). The applicability of course investigations relies heavily on the unambiguous definition of the schizophrenia concept on which they are based. Diagnoses must be made independently of outcome assessments. As Bleuler has remarked, long-term studies investigating prognosis are meaningless if an unfavorable outcome is used as an obligatory criterion for the diagnosis of schizophrenia, and a favorable outcome as an exclusionary criterion. Our findings agree with those of Bleuler and Müller, in that no symptoms or syndromes at the time of onset could be used to predict, with any certainty whatever, the differentiation between malignant or benign, process or nonprocess, genuine or pseudo-schizophrenic, and schizophrenic or schizophreniform psychoses. This point is important with respect to the studies by various schools and authors who regard schizophrenias with favorable outcomes as independent disease types, labeling them as schizophreniform psychoses, schizoaffective psychoses, reactive psychoses, atypical psychoses, or cycloidal psychoses (Langfeldt 1956; Leonhard 1966; Angst and Perris 1968; Weitbrecht 1973; Mitsuda 1974; Mitsuda and Fukuda 1974; Huber 1976*b*; Huber, Gross, and Schüttler 1976).

The concept of schizophrenia applied in the Heidelberg and Wiesloch study (Huber 1957, 1961, 1966) was used in the present investigation. Diagnoses were based upon the criteria of K. Schneider and M. Bleuler. Thus, we included schizophrenic psychoses with complete remissions that would have been excluded by some others: for example, by Leonhard, who would have called them cycloidal psychoses; by Mitsuda and Fukuda, who would have called them atypical psychoses; and by Langfeldt and Astrup, who would have called them schizophreniform or psychogenic psychoses. The diagnosis was supported by first-rank symptoms in 77 percent of the cases, and by second-rank symptoms and so-called symptoms of expression (as per K. Schneider 1976) in 23 percent of the cases. The schizophrenics who showed first-rank symptoms had a significantly less favorable prognosis than those who did not. Sixty-seven percent of the 502 subjects from Bonn became probands upon their *first* hospitalization. This portion of the sample is considered to have a more favorable prognosis—although not significantly so—than the remainder of the probands (Huber, Gross, and Schüttler 1979).

Of the original sample of 758 patients, 142 patients died (4.9 percent by suicide) before the followup examinations were carried out. For the remaining probands, only indirect catamneses were possible (26 cases), a followup examination was refused (48 cases), or the probands could not be located (34 cases). Six cases with symptoms of schizophrenia were ultimately shown to be suffering from identifiable brain diseases (see table 1). The separate analysis of probands not personally inspected in followup examinations supports the assumption that the 502 patients included in the Bonn main sample are adequately representative of a population of patients with at least one hospitalization for schizophrenia. In general, there was no particular support for the assumption that the long-term prognosis for the subgroup of probands who refused to submit to followup examination (12 percent) was any less favorable than that of the main group. "Refusal of followup examination" correlates positively with such factors as "above average intelligence," "belonging to upper social strata," and "abnormal primary personality."

Typology of Schizophrenic Residual Syndromes

The average course of illness, up to the time of the last followup investigation, was 22.4 years, including the prodromal period insofar as it was known. In the last followup, we found the distribution of psychopathological outcomes shown in table 2. These are based on the typology of schizophrenic residual syndromes that we established in 1961, and have since modified a number of times (Huber 1961, 1966, 1968, 1976*a*, 1976*b*; Huber, Gross, and Schüttler 1979). As can be seen in

Table 1. Original sample of 758 cases

Original group of patients	Males	Females	Total
Personal followup examinations (main sample)	209	293	502
Deceased	64	78	142
Indirect catamneses from relatives	15	11	26
Refused catamneses	17	31	48
Undiscoverable	16	18	34
Symptomatic schizophrenias	2	4	6
n	323	435	758

table 2, 22 percent of the probands were in a state of complete remission—the same percentage M. Bleuler (1972) included in his outcome category "phasic course with recovery." An important component of our typology of residual syndromes is the pure defect state without psychotic symptomatology (the so-called "reiner Defekt"). The concept of a pure defect state is somewhat similar to Janzarik's (1959) "dynamic insufficiency" or Conrad's (1958) "reduction of the psychic energetic potential." Although the pure defect residual state is categorized in table 2 as "noncharacteristic" (because it no longer takes a characteristically schizophrenic form), it is in fact the most common outcome—accounting for 40 percent of cases. The other noncharacteristic outcome type, "structural deformity without psychosis" (odd, original characters) is relatively rare, seen in only 3 percent of cases. The remaining 35 percent of the sample was categorized as "characteristic" outcome types. Most common among these were the mixed residues (16 percent) and the typically schizophrenic defect psychoses (11 percent). The chronic pure psychoses and the "structural deformities with psychosis," respectively, constituted only 4 percent and 3 percent of the sample.

Basic Disorders

The clinical picture of the pure defect states is made up of numerous symptoms of diminished capacity that are not identifiably "schizophrenic"; that is, by dynamic and cognitive deficiencies that are experienced and described by the patient himself (Huber and Penin 1968; Huber 1976*d*). These deficiencies, which we refer to as "basic disorders," are pervasive, appearing at different phases of illness. Süllwold (1977) has described them as part of the onset of illness, whereas we have observed the same phenomena in the postpsychotic pure residual states (Huber 1961, 1966, 1973). We have been exploring the concepts of basic disorders, prodromal and postpsychotic basic states ("Basisstadium"), and pure residual syndromes since 1961, and we have tested these concepts in the Bonn study.

Table 3 lists the most characteristic symptoms of basic disorders, which were derived from self-descriptions provided by the patients in pure (202 cases) and mixed residual states (83 cases). Recurring symptoms include cognitive disturbances (such as thought and memory disorders); exhaustion; general disturbances of well-being; loss of drive, energy, endurance, and patience; cenesthesia; and exaggerated impressionability—a category that corresponds to the lowering of the threshold of tolerance for nonspecific stress (Huber 1966; 1976*c*; Wing 1976).

Table 2. Types of remission after average duration of illness of 22.4 years

Types of remission	*n* = 502	Groups of types of remission
Complete remission	111 22.1%	111 = 22.1% Complete remissions
Pure residual syndromes	202 40.2%	217 = 43.2%
Structural deformity without psychosis	15 3.0%	Noncharacteristic residual syndromes
Mixed residual syndromes	83 16.5%	
Typically schizophrenic defect psychosis	54 10.8%	174 = 34.7%
Chronic pure psychosis	21 4.2%	Characteristic residual syndromes
Structural deformity with psychosis	16 3.2%	

Table 3. Characteristic symptoms of patients with pure residual syndromes

Cognitive disturbances
Physical and mental exhaustion
Disturbances of general well-being and efficiency
Loss of drive, energy, endurance, etc.
Cenesthetic disorders
Exaggerated impressionability
Reduced threshold of tolerance to nonspecific stress
Hypersensitivity to noise and weather
Sleep disturbances
Vegetative and sensorial disturbances
Decrease of initiative
Loss of naivety, compulsion to reflection
Tendency to subdepressive moods
Disorders of "In-Erscheinung-Treten" (aesthetic symptoms)
Loss of liveliness and directness
Inability to be pleased, "Gefühl der Gefühllosigkeit"
Increased need for sleep
Reduced capacity for adaptation

In 75 percent of schizophrenics with pure or mixed residual states, the "pure defect" becomes evident in the first 3 years of illness. Psychotropic medication seems to have little effect on the nonpsychotic symptomatology of pure defect states. The performance of patients with pure residual syndromes on psychological tests deviated significantly from normal, and indeed findings obtained in these patients did not differ appreciably from those in patients with organic brain disease (Hasse-Sander et al. 1971; Huber, Gross, and Schüttler 1979). It is possible that the poor psychological test performance of patients with pure residual syndromes may reflect underlying deficits in the collection and processing of information (Broen 1969; Huber 1976*c*, 1976*d*; Süllwold 1977). Echoencephalographic findings revealed a significantly greater median value of the transverse diameter of the third ventricle in patients with pure residual syndromes as compared to patients in complete remission (Schüttler, Huber, and Gross 1974).

Long-term Prognosis

The long-term prognosis is independent of the *duration of the disease* (table 4). The distribution of the various types of remission (from most favorable to least favorable outcomes) does not vary significantly within the four different course-duration groups (i.e., patients ill 9–14 years, 15–19 years, 20–29 years, and 30–59 years, respectively). Complete remissions and noncharacteristic residual states both occur at approximately the same rate in patients whose durations of illness range from short to long. The most unfavorable outcomes (i.e., the characteristic residual states) occur with almost equal frequency in the last three course-duration groups (15–19, 20–29, and 30–59 years' duration). However, the shortest courses (9–14 years) tend to be associated with more favorable outcome, and there are some data to indicate that psychopharmacological treatments are responsible for the better prognosis in this group.

Table 4. Duration of illness and long-term psychopathological prognosis

Course duration (in years)	Complete remission	Non-characteristic residual syndromes	Characteristic residual syndromes	$n = 502$
9–14	22	39	18	79
	27.8%	49.4%	22.8%	15.7%
15–19	40	56	60	156
	25.6%	35.9%	38.5%	31.1%
20–29	38	93	73	204
	18.6%	45.6%	35.8%	40.6%
30–59	11	29	23	63
	17.5%	46.0%	36.5%	12.5%

χ^2 10.6 (6 *df*) = nonsignificant.

The overall pattern of our findings confirms the results of previous long-term studies from Zürich and Heidelberg. Based on these studies, schizophrenia does not seem to be a disease of slow, progressive deterioration. Even in the second and third decades of illness, there is still potential for full or partial recovery (Bleuler 1972; Huber 1961, 1966, 1968, 1969).

No significant relationship is found between *age* at the last followup and social and psychopathological remission in the Bonn sample.

Social prognosis at the last followup is shown in table 5, which distinguishes five levels of social remission. Social recovery is achieved when the probands are fully employed at their previous occupational level (social remission degree 0) or fully employed below their previous occupational level (1). The level of recovery of female patients who previously worked as housewives was estimated according to analogous criteria. Fifty-six percent of the probands are socially recovered; that is, fully employed. Of these, about a third are employed below, and two-thirds are employed at their previous occupational level. Social prognosis is somewhat better for women, 60 percent of whom are considered socially recovered as compared to 51 percent of men.

Social and psychopathological long-term remission are highly significantly correlated (table 6). Ninety-nine percent of the probands with total psychopathological remission are also socially recovered. The differentiation between characteristic and noncharacteristic residual states is also meaningful. Sixty percent of the noncharacteristic residues have socially recovered, as compared to only 25 percent of the characteristic residues. The rather high rate of social recovery in the total sample—56 percent—is all the more remarkable when one considers that only 13 percent of these patients participated in any outpatient rehabilitation program.

Duration of the *stability of the psychopathological remission* and quality of the social remission correlate posi-

Table 5. Social remission in men and women

Degree of social remission	Males	Females	Total
0—Fully employed at previous occupational level	72	121	193
	34.5%	41.6%	38.6%
1—Fully employed below previous level	34	54	88
	16.3%	18.6%	17.6%
2—Limited ability to work	31	66	97
	14.8%	22.7%	19.4%
3—Incapable of earning a living	52	31	83
	24.9%	10.7%	16.5%
4—Completely incapable of working	20	19	39
	9.6%	6.5%	7.8%
n	209	291	500

Table 6. Social remission and psychopathological long-term prognosis

Degree of social remission	Complete remission	Non-characteristic residual syndromes	Characteristic residual syndromes	*n* = 500
0—Fully employed at previous occupational level	107	65	21	193
	97.3%	30.0%	12.1%	38.6%
1—Fully employed below previous level	2	64	22	88
	1.8%	29.5%	12.7%	17.6%
2—Limited ability to work	—	49	48	97
		22.6%	27.7%	19.4%
3—Incapable of earning a living	1	35	47	83
	0.9%	16.1%	27.2%	16.5%
4—Completely incapable of working	—	4	35	39
		1.8%	20.2%	7.8%

$\chi^2 = 278.1$ (8 *df*), $p < .001$.

tively. Among the patients with 10 or more years of stable remission (53 percent), 51 percent are fully employed at their previous occupational levels, but only 24 percent of those patients with less than 10 years of stable remission are similarly employed. Up to age 50 the stability of the remission remains independent of age. Only after that is it possible, as it was in the Lausanne study (Ciompi and Müller 1976), to recognize a stabilizing effect due to age.

In order to characterize the entire course, we established *course types* that consider both the kind of course ("Verlaufsweise") and the psychopathological outcome. In 22 percent of the cases, course of illness was phasic, in 48 percent it progressed in surges ("Schübe"), and in only 21 percent was it sluggish ("einfach-geradlinig"). Patients with no more than five episodes throughout their entire course predominate (75 percent).

When type of course and psychopathological outcome were considered together, 73 course types could be empirically identified, which we were able to reduce to 12 by combining related types. These types, classified according to rate of social recovery, are designated as Course Types I through XII (table 7).

In *monophasic Course Type I*, one single psychotic phase, lasting on an average of 17 months, is followed by complete remission. *Polyphasic Type II*, averaging five psychotic episodes, also ends in permanent recovery. These are the two most prognostically "favorable" types, and they account for 22 percent of patients. *Course Type III* includes psychoses that appear predominantly chronic from the beginning and persist continuously as paranoid-hallucinatory psychoses until the late catamnesis, but without any substantial disturbance of performance or adaptation to reality and a surprisingly high rate of social recovery (91 percent). *Type IV* leads to predominantly mild pure residual states (Huber, Gross, and Schüttler 1979) with but a single surge ("Schub"). The average duration of this first and only psychotic manifestation in Type IV is shorter, lasting only 10 months, than is the case with monophasic Type I. This refutes the hypothesis that pure deficiency syndromes are the necessary psychic-reactive consequences of a longer lasting psychotic experience. *Type V* progresses primarily in phases, and then in surges ("Schüben") to pure residues. *Type VI* progresses in surges and ends in pure residues with a second (positive) bend. This second (positive) bend, with remission from a chronic psychosis to a pure residual state,

Table 7. Frequency and rates of social remission in 12 types of course

Types of course	Frequency (n = 502)	Social remission
Favorable		
I: Monophasic	50	50
	10.0%	100%
II: Polyphasic	61	59
	12.1%	96.7%
Relatively favorable		
III: Chronic pure psychoses	21	19
	4.2%	90.5%
IV: With one manifestation to pure residues	31	25
	6.2%	80.6%
V: Phasic- "schubförmig"[1] to pure residues	50	35
	10.0%	70.0%
VI: "Schubförmig" with second, positive bend to pure residues	29	19
	5.8%	65.5%
Relatively unfavorable		
VII: "Schubförmig" or simple to structural deformities	31	16
	6.2%	51.6%
VIII: Simple to pure residues	27	13
	5.4%	48.1%
IX: "Schubförmig" to pure residues	65	29
	12.9%	44.6%
Unfavorable		
X: "Schubförmig" to mixed residues	48	12
	9.6%	25.0%
XI: Simple to mixed residues	36	3
	7.2%	8.3%
XIII: "Schubförmig" or simple to typically schizophrenic defect psychoses	53	1
	10.5%	1.9%

[1] Course in surges or shifts.

may occur at any time from the 5th to the 30th year of illness. Types III through VI comprise the "relatively favorable" prognostic group.

Course Types VII through IX are characterized by "relatively unfavorable" prognoses. The social recovery rate for this group ranges from 45 to 52 percent. *Type VII* ends in structural deformities with or without psychoses. *Type VIII* follows a simple course to pure residues, with a second (positive) bend in over half the cases. *Type IX* progresses in several surges to pure residues. In the "prognostically unfavorable" group, including Types X, XI, and XII, the social recovery rate is 25 percent in Type X, 8 percent in Type XI, and 2 percent in Type XII. *Type X* progresses in several surges, and *Type XI* in a simple course to mixed residues. The highly unfavorable *Type XII* progresses to typically schizophrenic defect psychoses. In 38 percent of the patients of Type XII, this defect psychosis developed in the first 3 years of illness. A rate of 4 percent of 502 of such "schizophrenic catastrophes" (Mauz 1930) is lower than the values encountered by Bleuler (5 to 14 percent) in 1941.

For the *individual prognosis*, it is important to note that 3.4 percent of probands, after having had a complete or a partial remission to a pure residual state, went on to develop a typical schizophrenic defect psychosis. Even in patients who have seemingly made a complete recovery and who have been free of psychosis for a long period (up to 30 years!), the most unfavorable outcome imaginable is still possible. In 15 percent of the probands, after complete remission of the first psychotic episodes, there are still later manifestations of noncharacteristic (three-quarters) or characteristic (one-quarter) residual syndromes. The chances for rehabilitation are reduced by the irreversible components of partially remitting and chronic schizophrenias, that is, by "structural deformation" and by "pure defect" and their interference with productive-psychotic symptoms (Huber 1976*a*, 1976*b*; Huber, Gross, and Schüttler 1979; Janzarik 1968). The prognostically favorable Types I, II, and III are free of the components of "pure defect" and/or "structural deformation" that play a role in creating the "end states" (Bleuler 1941) of the increasingly unfavorable Types IV through XII. Whereas structural deformities are usually resistant to therapy, the symptoms of "pure defect" can be favorably influenced by profiled thymoleptics (Huber 1976*a*). The four groups of prognostically favorable, relatively favorable, relatively unfavorable, and unfavorable course types each embrace about one-quarter of all schizophrenic illnesses. The proportion of men tends to be lower in the relatively favorable

group, while the men predominate significantly in the relatively unfavorable group.

An attempt was made in the Bonn study to correlate long-term prognosis with a number of factors that have been studied in past investigations.

Sex Differences. The long-term prognosis tended to be more favorable for women than for men, but the only significant difference was in social recovery. Some data suggest that women are more frequent among schizophrenics than men, as is known to be true in manic-depressive psychosis. Of the 3,767 schizophrenic patients hospitalized in the three psychiatric facilities in Bonn from 1945 through 1959, 64 percent were women and only 36 percent men. Social factors are not sufficient to explain this difference. An additional finding was that the age of onset was lower for men than for women. Among 2,991 schizophrenic patients, 70 percent of the men, as compared to 47 percent of the women, had onset of illness before age 30. In the fourth and fifth decades of life, and after age 50, significantly more women than men became ill (Huber, Gross, and Schüttler 1979).

Family History of Functional Psychosis. The presence or absence of secondary cases of schizophrenia or manic-depressive psychosis among the relatives of probands is not related to long-term prognosis. The only exceptions are male probands with secondary cases of schizophrenia in the immediate family; in this subgroup, the rate of complete remissions is significantly lower. In the 46 probands who have two or more secondary cases of schizophrenia in their families, the long-term prognosis is significantly more favorable than that for the rest of the sample because of the low rate (17 percent) of characteristic residues (table 8).

Table 8. Long-term psychopathological prognosis in subgroup with positive family history of schizophrenia (two or more secondary cases)

Subjects	Complete remission	Noncharacteristic residual syndromes	Characteristic residual syndromes	n = 480
Two or more secondary cases of schizophrenia	9 19.6%	29 63.6%	8 17.4%	46 9.6%
Rest of the sample	101 23.3%	178 41.0%	155 35.7%	434 90.4%

$\chi^2 = 9.1$ (2 df), $p < .01$.

Birth Order. Only children are relatively rare (8 percent) among the Bonn probands. First- and last-born children occur with about the same frequency (24 and 22 percent, respectively). Middle-born children are the most common (34 percent). There are no significant birth-order effects on long-term prognosis.

Primary Personality. Patients with a nonaberrant, syntonic (adaptable), socially competent primary personality (37 percent) and, especially, patients with a markedly abnormal (psychopathic) primary personality (11 percent) differ significantly from the overall sample (table 9). Among the markedly abnormal primary personalities, complete remissions are absent, and the least favorable outcomes—the characteristic residues—are relatively frequent at 48 percent. The influence of the primary personality on long-term prognosis is more pronounced among women than among men. A sensitive-inhibited personality structure is significantly more favorable than a schizoid one.

Scholastic Achievement. We categorized probands into three general groups: elementary school failures (10 percent), average elementary school achievers (54 percent), and probands with advanced education (35 percent). Elementary school failure is prognostically unfavorable, and advanced education is usually favorable (table 10). Among the elementary school failures, characteristic residues are markedly more frequent (50 percent) and complete remissions rarer than among probands with advanced education. In contrast to the finding reported for primary personality, scholastic achievement (and so also that of the premorbid intelligence level) has greater prognostic importance for men than for women. The favorable influence of above-average intelligence is less pronounced than the negative effect of scholastic failure. Among probands with advanced education, improved prognosis is noted only in elementary pupils with above-average achievement (about a 10 percent level), whereas patients with high school or college training cannot be distinguished from the average of the total sample. Half of the university graduates are fully employed at their former occupational levels, but the other half are socially nonrecovered, since no university

Table 9. Primary personality and long-term psychopathological prognosis

Primary personality	Complete remission	Non-characteristic residual syndromes	Characteristic residual syndromes	$n = 477$
Normal	51	75	50	176
	29.0%	42.6%	28.4%	36.9%
Slightly abnormal	57	109	83	249
	22.9%	43.8%	33.3%	52.2%
Markedly abnormal	—	27	25	52
		51.9%	48.1%	10.9%

$\chi^2 = 20.6$ (4 *df*), $p < 0.01$.

Table 10. Scholastic achievement (premorbid level of intelligence) and long-term psychopathological prognosis

Scholastic achievement	Complete remission	Non-characteristic residual syndromes	Characteristic residual syndromes	$n = 502$
Elementary school failures	6	20	26	52
	11.5%	38.5%	50.0%	10.4%
Average elementary school achievers	63	111	99	273
	23.1%	40.7%	36.3%	54.4%
Advanced education	42	86	49	177
	23.7%	48.6%	27.7%	35.3%

$\chi^2 = 11.1$ (4 *df*), $p < .025$.

graduate is fully employed below his previous occupational level.

Disrupted Family Relationships. Disrupted family relationships (as reflected in broken homes, up to age 16) are apparent in 27.4 percent of the cases. This factor has no significant influence on long-term development, but an interesting sex difference is noted. Female patients from disrupted families during childhood tend toward a less favorable long-term prognosis, but the males toward a more favorable one. This finding supports M. Bleuler's (1972) conclusion that disrupted family relationships more clearly influence the disease course in women than in men.

Social Standing. Since Hollingshead and Redlich published their study in 1958, there has been a feeling of certainty that schizophrenics come from the lower socioeconomic levels of society. In our opinion, investigations addressing this question must differentiate among the social level of the patient's parents, the highest social level achieved by the proband premorbidly, and the proband's social level after a short or long duration of illness. The Bonn study distinguishes between these three categories. In defining criteria of the socioeconomic status, we held to the analysis of social strata in West Germany by Janowitz (1958). The essential formal criterion is membership in certain occupational groups.

First, we consider the proband's social *background*, that is, the level of his parental family. As can be seen in table 11, for the entire population of Bonn's three psychiatric hospitals (University Psychiatric Clinic, Rhenish State Hospital, and a private clinic), 41.7 percent belong to the lower levels, 42.7 percent to the lower-middle level, and 15.6 percent to the upper-middle level. In comparison with the total population of the Federal Republic of Germany (according to Janowitz), the lower social levels might be underrepresented, while the upper-middle levels might be overrepresented. There was no difference in the distribution of classes between the patients of the University Psychiatric Clinic and the Rhenish State Hospital, but a larger proportion of patients admitted to the private clinic were from the upper-middle stratum.

A comparison of the social backgrounds (table 11) with the highest social levels attained premorbidly (table 12) reveals that intergenerational mobility, which shows an increase in the lower levels from 42 to 50 percent and a drop in the middle levels from 58 to 50 percent, is relatively minimal. Likewise, the distribution of premorbid social levels among those patients who later became schizophrenic hardly deviates from that of the average population of the German Federal Republic, with the exception of the figures for members of the upper-middle class,

Table 11. Social class of parents of schizophrenic patients in three hospital samples

Social class of parents	University clinic	State hospital	Private clinic	*n*	Federal Republic of Germany
Lower classes	217	820	21	1,058	
	43.8%	43.6%	13.0%	41.7%	51.9%
Lower	209	795	79	1,083	
middle class	42.1%	42.2%	49.0%	42.7%	38.6%
Upper	70	265	61	396	
middle class	14.1%	14.2%	38.0%	15.6%	4.6%
n	496	1,880	161	2,537	

Table 12. Highest social class achieved before onset of illness by schizophrenic patients in three hospital samples

Premorbid social class	University clinic	State hospital	Private clinic	*n*	Federal Republic of Germany
Lower classes	255	1,214	17	1,486	
	51.2%	53.0%	9.9%	50.0%	51.9%
Lower	198	855	90	1,143	
middle class	40.0%	37.0%	52.6%	38.4%	38.6%
Upper	42	240	64	346	
middle class	8.5%	10.0%	37.5%	11.6%	4.6%
n	495	2,309	171	2,975	

which still remain somewhat higher. Only a comparison of the social background and of the premorbid levels with the social levels of the 502 probands in the study sample *at the time of the last followup* (table 13) reveals a clear shift toward the lower strata. In the lower bottom level, we note an increase from 12 to 23.5 percent from premorbid levels to those at the time of catamnesis; the reverse is true for the lower middle levels, which show a decrease from 40 to 33 percent.

All told, we find that after an average of 22.4 years' duration of illness, the distribution is unequal, in favor of the lower bottom social level. Since such inequality is not noted premorbidly or among the parents, it is most easily explained, in the context of a *drift hypothesis*, as a consequence of the disease. As a result of social incompetence, related either directly or indirectly to their disease, schizophrenic patients drift increasingly toward socioeconomically lower population groups (Huber, Gross, and Schüttler 1979).

Furthermore, neither the patient's family background nor his premorbid social status significantly influences his social or psychopathological long-term development.

Precipitating Factors in the Initial Psychotic Episode. We attempted to identify precipitants that had preceded the onset of an initial episode of psychosis by no more than 4 weeks (table 14). In 25 percent of cases, psychological precipitants (e.g., loss of a close relative, professional conflicts) appeared to have been important. No really typical—much less specific—psychological precipitants could be pinpointed, however. The types of precipitants also did not seem to be linked to a characteristic premorbid personality type. Nine percent of initial psychotic episodes were apparently precipitated by somatic factors (e.g., illnesses accompanied by fever, surgery, physical excesses and exhaustion, alcoholic intoxication, accidents, and sleep deprivation). Generational processes (e.g., childbirth) were implicated in the onset of psychosis in 5 percent of patients. However, in the majority of cases—61 percent—no clear-cut precipitating factors could be identified. There were no significant differences in long-term prognosis among the four subgroups (table 14).

Precipitating Factors in Psychotic Relapses. In 29 percent of cases, psychotic relapses were associated with psychological precipitants. The long-term prognosis for this subgroup is significantly more favorable (only 24 percent developed characteristic residual syndromes). Psychotic relapses precipitated by generational processes, especially postpartum psychoses, are also prognostically favorable. However, our data do not support a separate nosological category for the schizophrenic postpartum psychoses, since the long-term prognosis of patients whose initial psychotic episodes occurred during the postpartum period does not differ significantly from that for the rest of the sample. Neither initial episodes nor subsequent episodes

Table 13. Social class of parents, highest premorbid social class, and social class at the last followup

Social Class	Bonn main sample			Federal Republic of Germany
	Class of parents	Premorbid class	Class at catamnesis	
Lower low class	32 6.5%	59 11.9%	112 23.5%	38.5%
Upper low class	185 37.3%	196 39.6%	164 34.4%	13.3%
Lower middle class	209 42.1%	198 40.0%	159 33.3%	38.6%
Upper middle class	70 14.1%	42 8.5%	42 8.8%	4.6%
n	496	495	477	

Table 14. Precipitating factors in the initial psychotic episode and long-term prognosis

Type of precipitant	Complete remission	Noncharacteristic residual syndromes	Characteristic residual syndromes	*n* = 496
Somatic	9 20.0%	18 40.0%	18 40.0%	45 9.1%
Psychological	33 26.6%	60 48.4%	31 25.0%	124 25.0%
Generational processes	7 26.9%	11 42.3%	8 30.8%	26 5.2%
No clear-cut releasing precipitants	62 20.6%	126 41.9%	113 37.5%	301 60.7%

$\chi^2 = 7.2$ (6 *df*), nonsignificant.

of psychoses precipitated by somatic factors are significantly related to long-term prognosis. (See table 15.)

Multiple Episodes With Clear-cut Precipitants. Releasing of more than one episode occurs significantly more often among women than among men. Of the Bonn sample of 502 patients, 98 had two or more psychotic episodes with identifiable precipitants. As can be seen in table 16, the long-term prognosis for this subgroup is significantly more favorable than that for the rest of the sample. Only 16 percent of patients with multiple releasings of psychotic episodes show an unfavorable outcome; that is, go on to develop characteristic residual syndromes.

Among the cases with psychological precipitants, acute, subjectively severe life events predominate, providing some support for the hypothesis of a nonspecific stress effect on a latent basically somatic process (Gross, Huber, and Schüttler 1971). The precipitating factors are nonspecific somatic or psychic "triggers" that, in many cases, seem to represent necessary—but not sufficient—conditions for the development of the psychotic episode. The Bonn findings provide support for the assumption of Langfeldt and others that clear-cut psychological precipitants may be regarded as signs of a favorable prognosis. However, the differences are too small to form the basis for a nosologically independent concept of true "psychogenic psychoses" (see Astrup 1974; Huber 1969, 1976*b*; Huber, Gross, and Schüttler 1976).

Age of Onset. Among the 2,991 patients in the overall Bonn sample, age of onset is most commonly (39 percent) in the third decade of life, followed by the fourth decade (26 percent), the second decade (17 percent), and the fifth decade (14 percent). Only 14 percent of patients become ill after age 50. The age of onset has no significant prognostic value, as table 17 shows for the study sample of 502 patients. This is valid for the early- as well as for the late-onset schizophrenias. Despite the various peculiarities in primary personality, symptomatology, and outcome (Huber, Gross, and Schüttler 1975*b*, 1979), the late-onset schizophrenias are no more deserving of special nosological classification than are the postpartum psychoses, the reactive schizophrenias, or—in the area of the cyclothymias—the so-called involutional depressions (Angst and Perris 1968).

Prodromes and Outpost Syndromes ("Vorpostensyndrome"). Noncharacteristic prodromes, which lead to initial

Table 15. Precipitants of psychotic relapses and long-term prognosis

Type of precipitant	Complete remission	Noncharacteristic residual syndromes	Characteristic residual syndromes	$n = 375$
Somatic	2	18	9	29
	6.9%	62.1%	31.0%	7.7%
Psychological	23	59	26	108
	21.2%	54.6%	24.1%	28.8%
Generational processes	5	7	—	12
	41.7%	58.3%		3.2%
No clear-cut precipitants	32	88	106	226
	14.2%	38.9%	46.9%	60.3%

$\chi^2 = 30.1$ (6 *df*), $p < .001$.

Table 16. Long-term prognosis in schizophrenic patients with 2 or more psychotic episodes

	Complete remission	Noncharacteristic residual syndromes	Characteristic residual syndromes	$n = 502$
Repeated episodes	22	60	16	98
	22.4%	61.2%	16.3%	19.5%
Rest of the sample	89	157	158	404
	22.0%	38.9%	39.1%	80.5%

$\chi^2 = 20.9$ (2 *df*), $p < .001$.

psychotic episodes after an average course of 3.2 years, occur in 37 percent of the sample. Phenomenologically, these prodromes are, by and large, identical to the pure residues, the reversible asthenic basic states, and the free-standing outpost syndromes that precede the prodromes or the initial psychotic manifestations by an average of 10.2 years. Outpost syndromes, which were observed in 15 percent of cases, are noncharacteristic (e.g., asthenic) episodes that completely remit after a duration of 3 days to 4 years. However, the occurrence of prodromes does not correlate with the progression to pure residues. Pure residues often develop without any of the noncharacteristic precursors. This is illustrated, among others, in Course Type V, which leads to pure residues (see table 7), but begins in only 12 percent of cases with a prodrome. The type of course that progresses to a "pure defect" state does not always signal its coming in the noncharacteristic prodromes and outpost syndromes that sometimes precede the psychoses.

There are clear differences between the brief prodromes and the long-term prodromes that last over 2 years. The longer the prodrome persists, the rarer are complete psychopathological remissions. Long-term prodromes correlate positively with the development of pure and mixed residues, that is, of deficiency syndromes that are exclusively or predominantly determined by symptoms of irreversible reduction of psychic energetic potential.

Onset of Illness. The long-term prognosis in acute-onset psychoses is significantly more favorable (only 24 percent characteristic residues), whereas the reverse is true in insidious-onset psychoses (58 percent characteristic residues). Acuteness of onset correlates with the primary personality. In cases of abnormal primary personalities, insidious onsets are more frequent than in cases of nonaberrant or slightly aberrant primary personalities.

Psychopathological Pictures. The most common initial psychotic manifestations are paranoid-hallucinatory (37 percent) and paranoid (17 percent). Hebephrenic (11 percent), depressive or depressive-cenesthetic (combined 9 percent), cenesthetic (7 percent), and catatonic (5 percent) symptom pictures are seen more rarely. Catatonic and cenesthetic-depressive initial psychopathological syndromes are prognostically favorable, but hebephrenic symptoms (especially in women) are unfavorable. While pure paranoid initial syndromes prove to be prognostically neutral, the paranoid-hallucinatory onset syndromes are unfavorable (though the difference is not significant). Initial cenesthetic and depressive-cenesthetic syndromes lead more fre-

Table 17. The age at the onset of illness (first psychotic manifestation) and long-term psychopathological prognosis

Age at onset of disease (in years)	Complete remission	Noncharacteristic residual syndromes	Characteristic residual syndromes	n = 502
5–14	5	2	5	12
	41.7%	16.7%	41.7%	2.4%
15–19	26	46	39	111
	23.4%	41.4%	35.1%	22.1%
20–29	37	91	58	186
	19.9%	48.9%	31.2%	37.1%
30–39	22	54	47	123
	17.9%	43.9%	38.2%	24.5%
40–49	16	19	18	53
	30.2%	35.8%	34.0%	10.6%
50 and more	5	5	7	17
	29.4%	29.4%	41.2%	3.4%

$\chi^2 = 11.9$ (10 *df*), nonsignificant.

quently to noncharacteristic residues, and more rarely to characteristic residues. This finding is more pronounced in men and supports earlier findings in male cenesthetic schizophrenics who, as a rule, develop pure residues and only rarely typical schizophrenic defect-psychoses (Huber 1971).

Initial Psychopathological Symptoms. Of 31 individual symptoms, only three occur in over half the patients during the first 6 months, and these are schizophrenic disturbances of affect or communication, central-vegetative disturbances, and delusional ideas. First-rank symptoms and likewise catatonic disturbances are present in the first 6 months in less than one-fourth of the patients. In the long-term course, among the first-rank symptoms, ego disturbances occur in 51 percent, delusional perceptions in 42 percent, acoustic hallucinations in 40 percent, and bodily influence experiences in 39 percent. Among the second-rank symptoms, the most frequent are delusional ideas (86 percent), self-relationships (75 percent), and second-rank acoustic hallucinations (75 percent). We tested whether the presence or absence of certain symptoms in the first 6 months would influence the long-term prognosis. Among the prognostically favorable symptoms are catatonic hypersymptoms, endogenous-depressive moods, depersonalization, and delusional misidentification of persons. The only prognostically unfavorable initial symptom that achieves significance is first-rank acoustic hallucinations. Second-rank acoustic hallucinations, bodily influence experiences, and schizophrenic ego disturbances also tend to be unfavorable. Delusional perceptions, optical hallucinations, and—contrary to expectations—formal thought disturbances (loosening of association, interruption of thought, and more or less noncharacteristic disturbances in thinking) tend toward a more favorable outcome. The long-term prognosis of the small subgroup (18 percent) of schizophrenics without formal thought disturbances is not significantly different from that of the rest of the sample group. Thus, the presence of formal thought disturbances in schizophrenic psychoses does not appear to be a useful criterion to distinguish between, for example, the "true schizophrenias" and the "schizoaffective psychoses" (Huber, Gross, and Schüttler 1979).

Therapeutic Factors. The subgroup (43 percent) of patients who were not treated during their initial psychotic episodes (table 18) have significantly worse remissions than patients who were initially treated (with electroconvulsive or psychopharmacological therapy, or with combinations of these two). In the overall course, only 7 percent remained untreated. For these, too, the long-term prognosis is less favorable, although not significantly so, than that for the total sample. Certain findings from the Bonn study attest to a favorable influence on the long-term prognosis of therapy, and especially of psychopharmacotherapy. Thus, for example, patients who became ill from 1951 through 1959 (when psychopharmacological treatment became increasingly available) have a significantly better prognosis than patients who became ill before 1951. Patients who were initially hospitalized and treated within 1 year after onset (including prodromes) have a highly significantly better long-term prognosis than do patients who did not receive their first treatment until later.

Individual Prognosis. Predictions are possible only when several factors that have a similar influence on the long-term prognosis occur in combination, and when factors with a contrary prognostic influence are absent. Even under these circumstances, the individual course is by no means certain. More-

Table 18. Treatment of the first psychotic manifestation and long-term psychopathological prognosis in the Bonn main sample

	Complete remission	Noncharacteristic residual syndromes	Characteristic residual syndromes	$n = 500$
Treated	80	119	88	287
	27.9%	41.5%	30.7%	57.4%
Untreated	31	96	86	213
	14.6%	45.1%	40.4%	42.6%

$\chi^2 = 13.5\,(2\,df), p < .01$.

over, at the onset of illness, no reasonably reliable prognosis for the individual patient is possible. The hypothesis that presenting symptomatology can be used to differentiate between true schizophrenias and schizophreniform (or schizoaffective) psychoses cannot be supported by current findings (see Bleuler 1972; Huber, Gross, and Schüttler 1979).

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