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Anxiety in Schizophrenic Psychoses

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Summary. Anxiety and depression were assessed with self-rating and observer-rating scales on admission and at discharge in 225 inpatients with hebephrenic, catatonic, paranoid or residual schizophrenia. The control subjects were 104 patients with endogenous depression and 63 with anxiety neurosis. The results were also compared with findings for a reference group of 2493 inpatients with a wide range of psychiatric disorders and a representative sample of the general population consisting of 1952 persons. On admission the group of schizophrenic patients was markedly more anxious than the group of healthy persons, slightly less anxious than the psychiatric reference group and much less anxious than the group with endogenous depression and anxiety neurosis. Anxiety correlated significantly with acute paranoid symptoms, whereas depression dominated just prior to discharge, when the acute symptoms had subsided. This indicates that anxiety is a consequence of the underlying schizophrenic disorder and also that the psychotic symptoms may not be a defense against anxiety.

Key words: Anxiety – Depression – Schizophrenia – Subtypes of schizophrenia

Introduction

Although depressive mood in schizophrenic psychoses has been studied extensively, relatively little attention has been paid to anxiety. According to the usual diagnostic criteria, anxiety is regarded as a nonspecific symptom of schizophrenia (Schneider 1962; Bleuler 1979), but on the other hand many authors mention that mild or even intensive anxiety is not uncommon in schizophrenic patients. In addition, there are differing views about the significance of anxiety in schizophrenic psychoses. From the psychopathological perspective, anxiety is seen

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primarily as a consequence of the psychotic symptoms. The general sense of insecurity and the feeling that most interactions have a threatening character, which are common at the beginning of the psychosis, often lead to excessive anxiety, and sometimes there is even a feeling that something terrible is about to happen. Conrad (1958) referred to this kind of anxiety as "trema". Some patients have bizarre phobic or obsessive-compulsive fears long before the psychosis becomes evident (Connolly and Gipson 1978; Birnie and Littman 1978), and others have nightmares more frequently than before (McLeod and Fisher 1978; Hartmann and Russ 1979). During acute stages of the psychosis many, but by no means all patients develop a strong feeling of anxiety because of both the strange and often threatening nature of the paranoid symptoms and the disintegration of cognitive and emotional structures. Anxiety is sometimes also seen as the cause of excitement and aggression in schizophrenics (Schulte and Tölle 1977). Finally, long-term studies have shown that patients with schizophrenia tend to respond with anxiety to emotions expressed by others, that this continues even after the acute psychosis has subsided and that it appears to be of importance for the long-term prognosis (Brown et al. 1966; Vaughn and Leff 1976; Kuipers 1979).

From the psychoanalytic perspective, anxiety is interpreted as being the essential factor in the psychotic breakdown. Prepsychotic anxiety is considered to be the expression of the collapse of ego defenses and the schizophrenic psychosis is regarded as the transformation of the anxiety-producing conflict into delusional reality (Arieti 1978; Bodenheimer 1978). According to Schultz-Hencke (1952) and also representatives of other psychoanalytic schools, schizophrenia is "a process that can be explained fully in psychological terms" and that, in particular, can be differentiated from neurotic disorders by the failure of the mechanisms for preventing and coping with anxiety.

Considering the importance of anxiety in schizophrenic disorders and the conflicting interpretations, it is surprising that very few systematic studies have been done on anxiety in schizophrenics. In a study on a very small sample, Perini and Battegay (1977) found that patients with schizophrenia had the same level of anxiety as did those with other psychiatric disorders. Other comparative psychopathological studies have found that although anxiety is common in schizophrenics, it is much less severe than in depressives or patients in whom anxiety is the major component (Mombour 1974; WHO 1973, 1979). In contrast, the findings on depressive mood in schizophrenics are more consistent and are also based on extensive studies. These findings show that while most patients with schizophrenia suffer from irregular depression those with subacute or chronic forms (i.e. hebephrenia or residual schizophrenia) experience the most severe depression (Carpenter and Strauss 1979; Möller and von Zerssen 1981; Strian at al. 1981, 1982).

The question thus arises as to whether the level of anxiety in a larger sample of subjects with schizophrenia would be found to be correlated with the severity of the schizophrenic symptoms and what the significance of anxiety is in these patients as compared with patients in other psychiatric categories. From the etiological perspective, if the strongest manifestations of anxiety are found in those subjects with paranoid schizophrenia this would indicate that anxiety tends to be a manifestation rather than a cause of the schizophrenic disorder.

Table 1. Age and sex distribution in the patient groups studied (SCH = all types of schizophrenia, Par = paranoid schizophrenia, Cat = catatonic schizophrenia, Heb = hebephrenic schizophrenia, Res = residual schizophrenia, ED = endogenous depression, AN = anxiety neurosis)

Diagnosis	Number of patients	Age (years)				Sex	
	n	$\bar{X}$	SD	Min.	Max.	% ♂	% ♀
SCH	225	29.78	9.68	15	67	52	48
Par	140	31.69	9.76	16	67	48	52
Cat	15	30.93	10.34	19	61	47	53
Heb	46	22.26	3.74	15	31	72	28
Res	24	32.29	10.07	18	57	46	54
ED	104	45.10	14.54	15	78	29	71
AN	63	31.54	8.78	16	55	56	44

Methods

Subjects

The subjects were 225 patients first admitted to the Max Planck Institute for Psychiatry as inpatients between 1972 and 1980 and diagnosed according to ICD criteria (WHO 1974) as suffering from schizophrenic psychosis. Complete data from self-rating and physician-rating scales were available for all patients for both the time of admission and the time of discharge. Only those patients with the hebephrenic, catatonic and paranoid types of schizophrenic psychosis classified under ICD nos. 295.1 to 295.3 or with residual schizophrenia (295.6) were included in this study. The controls were 104 patients with endogenous depression (ICD no. 296.2) and 63 patients with anxiety neurosis (ICD no. 300.0). These patients were also all first admissions. The age and sex distributions of the subjects are given in Table 1.

The schizophrenic patients were treated with individually set dosages of neuroleptic agents, mainly haloperidol. Most of the patients with endogenous depression received amitriptyline and (at night) thioridazine, and the patients with anxiety neuroses were treated by means of behavior therapy and, where necessary, with tranquillizers. The self-rating and physician-rating questionnaires for all patients (n=2493) admitted to our Department of Adult Psychiatry between 1975 and 1980 were used for comparison with the questionnaires completed by the groups included in the present study. The distribution of diagnoses in the larger group is typical for a psychiatric inpatient service that does not have a large proportion of patients with chronic illnesses. In addition, the results of the self-rating were compared with the norms for a representative sample of 1952 healthy persons selected from the general population of the Federal Republic of Germany (von Zerssen 1976)

Procedure

The physicians made their assessments on the Inpatient Multidimensional Psychiatric Rating Scale (IMPS) (Lorr and Klett 1967; Lorr 1974). The patients rated themselves using the Clinical Self-Assessment Scales (KSBS) (von Zerssen 1976), which consist of a paranoid depression scale (PDS), a mood scale (BfS), and a list of complaints (BL). All of these scales have been validated. The physician-rating and the self-rating were performed at the time of admission and again just prior to discharge.

Analysis of the Data

The data from the two assessment scales were evaluated on the item, syndrome and scale level. The level of anxiety was assessed by analyzing the relevant anxiety items on the IMPS and KSBS. The level of depression was assessed using the relevant factors on the IMPS and data from the PDS, BfS and BL. Correlations between anxiety symptoms and other psychopathological symptoms were established on the basis of the relevant factors on the IMPS and/or the KSBS.

The scale and syndrome values obtained were standardized by converting them into z values of the reference groups (all psychiatric patients, representative sample from the general population). The assessments of the subjects obtained at the time of admission were compared with the admission assessments of the psychiatric reference group, and the assessments of the subjects at discharge with the discharge assessments of the psychiatric reference group. This enabled a comparison of the different scales, and thus of the occurrence and severity of anxiety and depression in the different groups of patients. Mean values and changes in mean values for the individual syndromes and diagnostic groups between admission and discharge were assessed by means of two-tailed Wilcoxon or U-tests. Analyses of variance with repeated measurements (admission vs. discharge) made it possible, by calculating the interaction effect (diagnostic group x time of assessment), to determine whether the course of the disease was different in the various diagnostic groups. The relationship between physician-rated and self-rated syndromes was examined by means of correlation statistics (product-moment correlation).

Results

1. Anxiety in Schizophrenic Patients (at Time of Admission)

Taken as a whole, the schizophrenic patients did not differ appreciably from the representative sample of all psychiatric inpatients in either self-rated or physician-rated anxiety (Fig. 1a and b). Compared with the reference group from the general population, however, the schizophrenic patients clearly suffered from a high level of anxiety (Fig. 1c). The severity of anxiety as rated by the patients at the time of admission was, on average, approximately 2 standard deviations above the mean for healthy persons. The control subjects, i.e. those with anxiety neuroses or endogenous depression, were considerably more anxious than the schizophrenics. These differences are significant for both the physician-ratings and the self-ratings (anxiety neurosis: $U=2.43$, $P<0.05$ and $U=4.4$, $P<0.001$; endogenous depression: $U=2.62$, $P<0.01$ and $U=4.1$, $P<0.001$).

Differences in anxiety among the subgroups of schizophrenia were evident only in the physician's assessment. These differences were mainly due to the low anxiety level of patients with residual schizophrenia as compared with all other schizophrenic patients ($U=2.37$, $P<0.05$). There was also a significant difference between patients with residual schizophrenia and those with paranoid schizophrenia ($U=2.81$, $P<0.01$), whereas the difference between the former subgroup and the catatonic subgroup was marked but not significant and between it and the hebephrenic subgroup only very slight. However, the patients with hebephrenic schizophrenia differed significantly from those with the paranoid type ($U=2.66$, $P<0.01$). There was thus a progressive decline in anxiety from paranoid to hebephrenic and finally to residual schizophrenia.

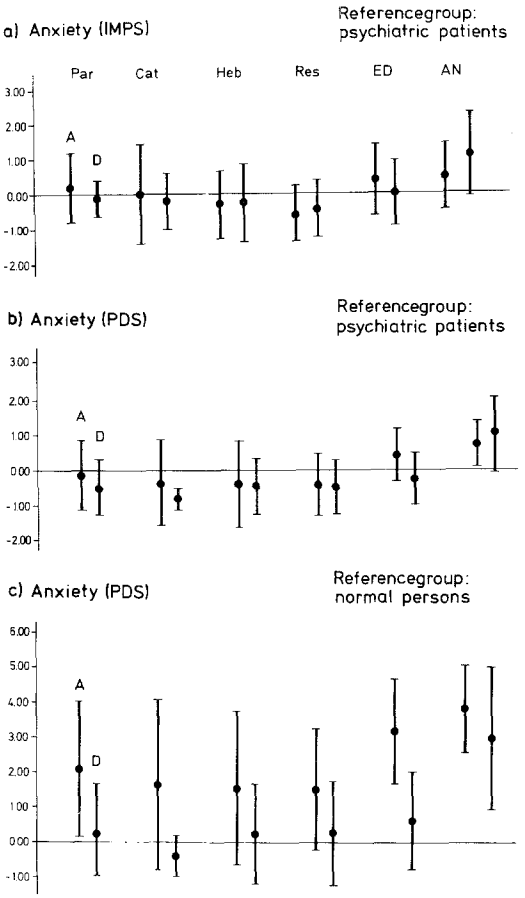

Fig. 1a–c. Anxiety according to self-rating and physician-rating (means and standard deviations) for the diagnostic groups on admission (*A*) and on discharge (*D*). (**a**) z values for physician-rated anxiety (*IMPS*) standardized on a reference group of psychiatric patients. (**b**) z values for self-rated anxiety (*PDS*) standardized on the same reference group of psychiatric patients. (**c**) z values for self-rated anxiety (*PDS*) standardized on a representative sample of normal persons

2. Depression in Schizophrenic Patients (at Time of Admission)

The average level of depression at the time of admission for all schizophrenic patients did not differ appreciably from that of the psychiatric reference group on either the self-rating or physician-rating (Fig. 2a and b). However, the schizophrenics were found to be considerably more depressed than the sample of normal persons. The mean for depression for schizophrenic patients is 1–2 standard deviations above that for normal persons (Fig. 2c). As would be expected, on both kinds of rating scales the mean level of depression of the schizophrenic patients was lower than that of the patients with endogenous depression (physician-rating (PB): $U=10.64$, $P<0.001$; self-rating (SR): $U=7.75$, $P<0.001$), but on the physician's assessment it was not significantly different from that of the patients with anxiety neuroses. On the other hand, according to their own assessment the patients with anxiety neurosis were more depressed than the schizophrenic patients. There were marked differences between the various types of schizophrenia. The patients with residual schizophrenia were considerably more depressed than those with any other type of schizophrenia included in the study (PR: $U=1.88$, $P=0.06$; SR: $U=1.87$,

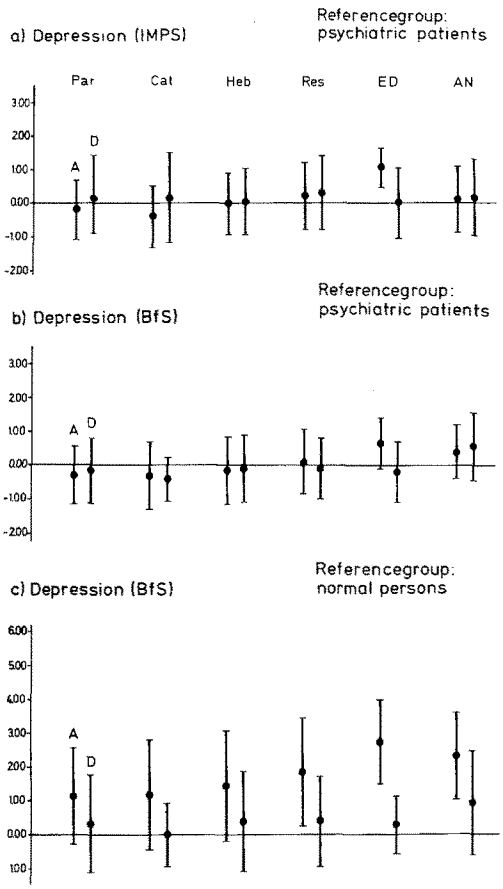

Fig. 2a–c. Depression according to self-rating and physician-rating (means and standard deviations) for the patient group on admission (*A*) and on discharge (*D*). (**a**) z values for physician-rated depression (*IMPS*) standardized on a reference group of psychiatric patients. (**b**) z values for self-rated depression (*BfS*) standardized on the same reference group of psychiatric patients. (**c**) z values for self-rated depression (*BfS*) standardized on a representative sample of normal persons

$P=0.06$). The patients with paranoid schizophrenia had the lowest depression values and thus differed most from those with residual schizophrenia.

3. Changes Between Admission and Discharge

Even though patients with paranoid, catatonic and hebephrenic schizophrenia appeared to be only slightly anxious on admission to the inpatient unit as compared with those suffering from anxiety neurosis of endogenous depression, they too showed a considerable reduction in anxiety level between admission and discharge (SR: $U=5.64$, $P<0.001$; PR: $U=6.96$, $P<0.001$). The reduction in anxiety in the patients with non chronic types of schizophrenia was less than in patients with endogenous depression (PR: $F=10.5$, $df=1,224$, $P<0.01$; SR: $F=5.1$, $df=1,113$, $P<0.05$). This was mainly because the patients with endogenous depression were considerably more anxious at the time of admission. Still, the reduction in anxiety in the schizophrenic patients was so marked that on discharge the self-rated anxiety level was the same as that of healthy persons.

In contrast to the situation on admission, on discharge the patients with residual schizophrenia were slightly more anxious than the other schizophrenic

Table 2. Rank correlation coefficients for the correlation between anxiety and depression (IMPS = Inpatient Multidimensional Psychiatric Scale, PDS = paranoid depression scale, BL = list of complaints, BfS = mood scale) on admission (A) and on discharge (D)

	Patients		Psychiatric reference group	
	A	D	A	D
IMPS Anxiety / IMPS Depression	0.39	0.47	0.34	0.41
PDS Anxiety / PDS Depression	0.79	0.81	0.80	0.86
PDS Anxiety / BL	0.73	0.79	0.70	0.84
PDS Anxiety / BfS	0.50	0.55	0.56	0.71

patients ($U = 1.6$, $P < 0.10$). The reduction in anxiety level in patients with residual schizophrenia was therefore noticeably less than in those with other types of schizophrenia ($F = 2.2$, $df = 1{,}165$, $P = 0.14$). The patients with paranoid schizophrenia showed the greatest reduction in anxiety during the course of treatment. The difference is significant by comparison with both patients with residual schizophrenia and those with hebephrenic schizophrenia ($F = 6.0$, $df = 2{,}146$, $P < 0.01$).

4. Relationship Between Anxiety and Depression

The physician-ratings and self-ratings of the schizophrenic patients on admission and on discharge show significant correlations between anxiety and depression (Table 2), as is also true for the reference group of psychiatric patients. The relationship was more marked for somatic symptoms of depression (measured with the BL) than for subjective mood (measured with the BfS) (Fig. 3).

The relative severity of anxiety and depression in the different types of schizophrenia was determined by means of the standardized physician-rating and self-rating scales. The initial ratings on both scales showed marked differences between the patients with hebephrenic or residual schizophrenia on the one hand and those with paranoid or catatonic schizophrenia on the other. While depression was more pronounced than anxiety in the patients with residual or hebephrenic schizophrenia (res.-PR: $t = 3.09$, $P < 0.01$; SR: $t = 3.15$, $P < 0.01$; heb.-SR: $t = 1.83$, $P = 0.07$), anxiety waas more severe than depression in the patients with paranoid or catatonic schizophrenia (par.-PR: $t = 4.26$, $P < 0.01$). These differences in the relative severity of anxiety and depression among patients with different types of schizophrenia were evident only on admission, not at the time of discharge. On discharge, when the general level of affective impairment was lower, the depressive element was in the foreground in all of the patients.

5. Relationship Between Anxiety and Other Symptoms of Schizophrenia

The correlation between the physician's rating of paranoid and anxiety symptoms is significant but still not very high. On the other hand, there is a close

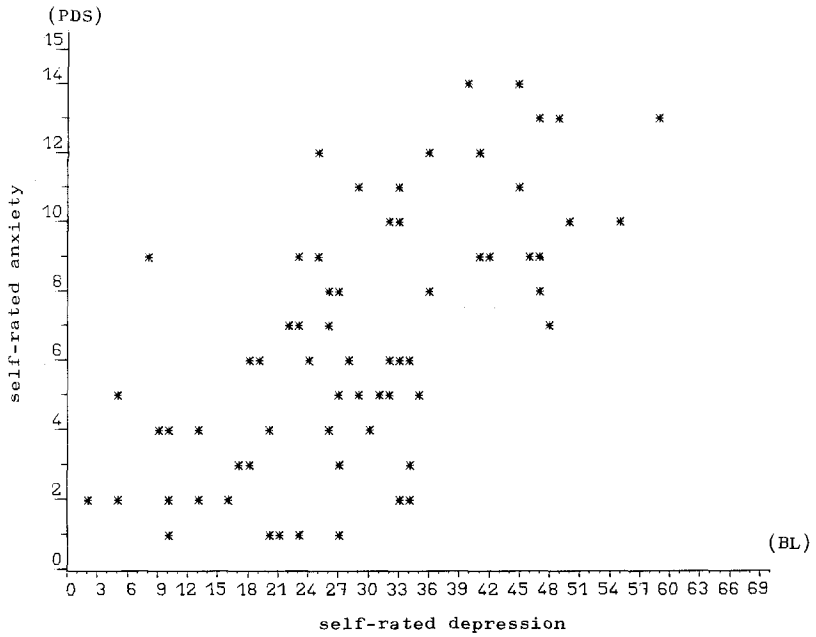

Fig. 3. Correlation diagram for self-rated anxiety (*PDS*) and depression (*BfS*) on admission

Table 3. Rank correlation coefficients for the correlation between self-rating and physician-rating of anxiety and depression on admission (A) and on discharge (D). (Scale abbreviations as in Table 2)

	Schizophrenics		Psychiatric reference group	
	A	D	A	D
PDS Anxiety / IMPS anxiety	0.26	0.35	0.25	0.45
PDS Depression / IMPS depression	0.27	0.40	0.39	0.42
BL Depression / IMPS depression	0.18	0.23	0.28	0.29
BfS Depression / IMPS depression	0.23	0.28	0.38	0.40

correlation between self-rated paranoid experiences and self-rated anxiety both on admission and on discharge ($r=0.39$ and $r=0.61$). The correlation between the physician's assessment of paranoid symptoms (IMPS) and the patient's assessment of the same symptoms (PDS) is low ($r=0.24$).

6. Relationship Between Physician-Assessment and Self-Assessment

The correlations between self-rated and physician-rated anxiety and depression are significant both on admission and on discharge, although they are lower on admission (Table 3, Fig. 4). The correlations are also high at the time of discharge in the control group of patients with endogenous depression or anxiety neurosis, but in this group the correlations are already high at the time of admission.

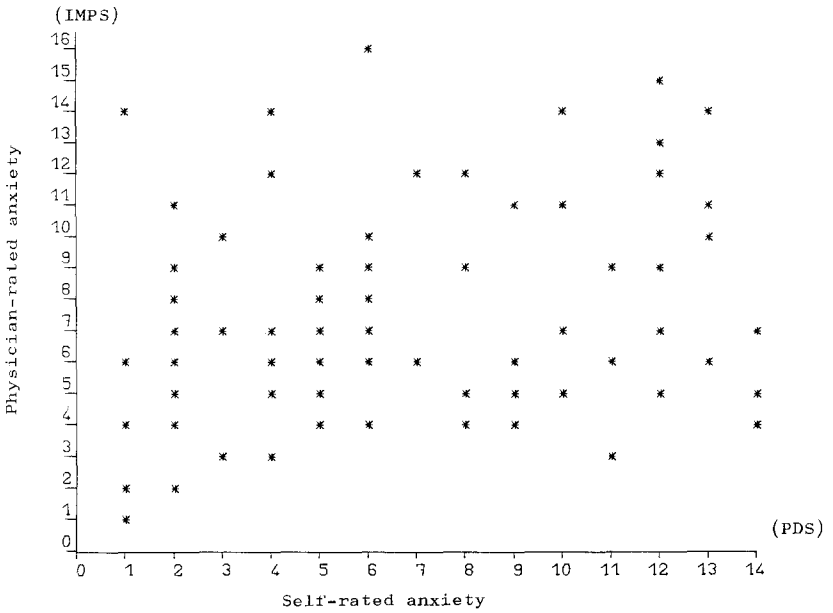

Fig. 4. Correlation diagram for physician-rated (*IMPS*) and self-rated (*PDS*) anxiety on admission

Discussion

Although the schizophrenics were found to be significantly more anxious than healthy persons, as a group they were in fact less anxious than a reference group of patients with all kinds of psychiatric disorders. The schizophrenic patients were also less anxious than the patients with depression or anxiety neurosis according to both their own and the physician's assessment. The scales used do not provide information as to the nature of the anxiety, but still the results, obtained from fairly large samples, would seem to cast a new light on the significance of anxiety in schizophrenic disorders. While there have been no previous systematic studies of anxiety in schizophrenic patients, the results of the present study are supported by comparisons made in other studies of the frequency of anxiety symptoms in various diagnostic groups. Other authors have found such symptoms in less than half of all schizophrenic patients and hence much less frequently in schizophrenics than in patients with depression or anxiety neurosis (Mombour 1974; Wing et al. 1974; WHO 1973, 1979).

In schizophrenic psychoses there thus appears to be a close correlation between the level of anxiety and the severity of acute psychotic symptoms. The patients with paranoid or catatonic schizophrenia had a higher level of anxiety initially and also showed a greater reduction in anxiety during hospitalization than did those with hebephrenic or residual schizophrenia. The fact that the highest level of anxiety was found in the patients with paranoid symptoms and that anxiety decreased with remission of the acute psychotic symptoms provides evidence against the interpretation of delusions as a defense mechanism against

anxiety. Otherwise the presence of paranoid symptoms should not correlate so closely with the highest level of anxiety. These results thus suggest that anxiety is an expression of emotional impairment governed by the acuteness and dynamics of the schizophrenic process.

Since the connection between anxiety and schizophrenic symptoms is apparent in both the self-rating and the physician-rating, it can be concluded that the rating scales used permitted a fairly accurate assessment of the patients' mood. The correlation between self-rated and physician-rated anxiety is usually lower at the time of admission than on discharge (Andreasen 1979; Reid et al. 1982). This may reflect both the greater difficulty experienced by the patients in rating themselves during the acute phase of their illness and the difficulty for the physician in differentiating between the subjects' behaviour and feelings. However, the agreement between the ratings on the two scales indicates that the type of scale used has little effect on the results (Süllwold 1977).

The depression which becomes prominent in the course of chronic schizophrenic illness can also be considered as further evidence of the relationship between anxiety and the severity of the acute psychotic symptoms (Möller and von Zerssen 1981; Strian et al. 1981, 1982). The present study shows that as the acute psychotic symptoms subside so also do anxiety and depression. There is also a shift in the relationship between anxiety and depression, with an accentuation of depression in the later stages of treatment. Thus depression is most pronounced in patients suffering from the subacute and chronic forms of schizophrenia, i.e. in those with hebephrenic or residual schizophrenia.

While the results obtained in the present study cannot answer the question of the etiological significance of anxiety in schizophrenia on the basis of a detailed analysis of the course of the illness, they do shed some light on the problem. The close relationship between anxiety and the severity of acute symptoms on the one hand and the marked increase in depression associated with the remission of these symptoms and thus with chronic forms of schizophrenia on the other provide evidence against the interpretation of paranoid symptoms as a defense against anxiety. Rather, the results suggest that—as in other psychiatric disorders— anxiety may be a nonspecific reaction to the threat presented by the psychosis.

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