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Diagnosis and six-month stability of negative symptoms in psychotic disorders

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Abstract Negative symptoms were examined in 150 primarily first-admission patients diagnosed with schizophrenia, schizoaffective disorder, psychotic depression, psychotic bipolar disorder, and 'other' psychoses. The analysis focused on patients who were rated on the Scale for the Assessment of Negative Symptoms (SANS) within 45 days of admission and at follow-up 6 months later. Significantly more schizophrenics had moderate to severe negative symptoms at each time point compared with other psychotic patients. The SANS scores were found to be relatively stable over time in all five diagnostic groups. Although the DSM-IV includes alogia, affective flattening, and avolition in the A criterion for schizophrenia, only alogia and affective flattening were found to be specific to this disorder. Our results point to the existence and enduring quality of negative symptoms in the early phase of psychosis and its specificity to schizophrenia even at this early stage.

Key words Negative symptoms · Psychotic disorders · Stability

Introduction

Although the concept of negative symptoms was originally ascribed to schizophrenia and stimulated extensive research in the biology of schizophrenia, its specifictiy to this disorder compared with other affective and nonaffective psychotic disorders remains an unanswered question. The few studies of nonschizophrenic patients found that negative symptoms were nonspecific. For example, Andreasen (1979) reported similar rates of affective flattening in 30 schizophrenic patients compared with 30 patients with major depression. Using the Scale for the Assessment of Negative Symptoms (SANS; Andreasen 1983), Kulhara and Chadda (1987) found that depressed inpatients and outpatients scored higher on this instrument than schizophrenics. One of the few studies to compare subjects with different diagnoses at an early stage of their illness was that of Montague et al. (1989) who found higher negative scores on the SANS in RDC-diagnosed schizophrenics compared with 'atypical schizophrenics' and manic patients. Although manic and schizoaffective manic patients had significantly less negative symptomatology (Andreasen 1979; Kitamura and Suga 1991; Walker et al. 1988; Reddy et al. 1992), patients diagnosed as schizoaffective-depressed were found to have levels of negative symptoms similar to schizophrenics. We could not locate any studies that included subjects with nonaffective psychotic disorders (i.e., delusional disorder).

The studies cited above contain heterogeneous samples of subjects in different stages of their illness, and the effects of chronicity could not be addressed appropriately. These studies were also cross sectional. With the exception of a small sample studied by Ragin et al. (1989) showing an increase in poverty of speech in schizophrenics compared with depressed patients from admission to 7-month follow-up, data on the temporal stability of negative symptoms exist only for schizophrenia, and the findings are somewhat contradictory. In the Mannheim Disability Study (Biehl et al. 1986; Maurer and Hafner 1991), negative symptoms decreased significantly from the acute episode to the 6-month assessment, but remained stable over the subsequent follow-up assessments during a 5-year period. Similarly, Addington and Addington (1991) assessed 41 young chronic schizophrenic patients at admission and 6-month follow-up and found a significant improvement in all symptoms over time except avolition/apathy. In contrast, Lindenmayer et al. (1986) prospectively examined a relatively young cohort of 19 male schizophrenic patients and found weak temporal correlations between negative symptoms rated at the time of inpatient admission and 2 years later, with no systematic direction for the observed changes. These observations on

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acute schizophrenic patients were in sharp contrast to those obtained by the same researchers in a sample of rehospitalized chronic patients who showed no change in the first weeks of assessment without neuroleptics and a general improvement in 4 months follow-up ratings of negative symptoms (Kay and Singh 1989).

The DSM-IV includes alogia and avolition in addition to affective flattening as a diagnostic criterion for schizophrenia. Although the DSM-IV recognizes that these symptoms are nonspecific, it nevertheless gives these symptoms important weight in this diagnosis. The present paper examines the diagnostic differences in negative symptoms based on the SANS rated at baseline (within 45 days of admission, i.e., shortly before discharge) and at follow-up 6 months later in first- or recent-admission patients with DSM-III-R schizophrenia, schizoaffective disorder, psychotic depression, bipolar disorder with psychotic features, and 'other psychoses.' In addition to examining composite scores, we present the distributions of affective flattening, avolition and alogia for these diagnostic groups.

Methods

Sample and procedure

This report is based on data from the Suffolk County (New York) Mental Health Project, an epidemiologic study of new admissions with psychotic disorders (Bromet et al. 1992). Subjects were identified from six 20- to 30-bed community hospital units, a 30-bed university hospital unit, a Veteran's Administration hospital, and an adult and a children's state psychiatric center. Potential study subjects were identified and recruited by the chief nurse or social worker of the unit, or, at the state and university facility, by a project interviewer. The screening criteria were: age 15–60 years; resident of Suffolk County; and clinical evidence of psychosis, including psychotic symptoms, prescription of neuroleptic medication, admission diagnosis indicating psychosis, or any suspicion on the part of the liaison that the patient might be psychotic. Exclusion criteria were: first psychiatric hospitalization more than 6 months before current admission, moderate or severe mental retardation, and non-English speaking status.

The total baseline sample included 309 subjects (72% of the target sample of 429). At baseline, responders were more likely to be younger and male than nonresponders. A total of 278 subjects (90%) participated in a follow-up assessment conducted approximately 6 months after the inital interview. No statistically significant differences in demographic characteristics or baseline SANS ratings were found between those included and not included in the follow-up.

The 6-month follow-up sample included 201 cases with schizophrenia, schizoaffective disorder, bipolar disorder with psychosis, major depression with psychosis, and 'other psychoses' (psychosis NOS and delusional disorder). [See Fennig et al. (1994) for details about the full diagnostic distribution]. Complete baseline and follow-up data were available for 177 of these 201 cases.

Although we attempted to perform baseline interviews during the hospitalization, it was not always possible to do so. The majority of patients (85%) were interviewed within 45 days of admission. After that, the distribution was scattered. Not surprisingly, the SANS scores (see below) for those interviewed later were significantly lower than when patients were ascertained within 45 days ($P = 0.04$). Because this paper focuses on changes in negative symptoms during the early phase of the illness, we restricted the analysis sample to 150 subjects whose baseline interviews were conducted within 45 days of the index admission. The DSM-III-R diagnostic distribution of the final sample included in the analysis was: schizophrenia ($n = 46$), schizoaffective disorder ($n = 17$), bipolar disorder with psychosis ($n = 47$), major depression with psychosis ($n = 27$), and 'other psychoses' ($n = 13$).

Diagnosis

The method for formulating research diagnoses has been described in detail elsewhere (Fennig et al. 1994). Briefly, following a lengthy informed consent procedure, the Structured Clinical Interview for DSM-III-R (SCID; Spitzer et al. 1992) was administered initially, and in modified form at 6-month follow-up, by interviewers who were master's-level mental health professionals with considerable clinical experience. With written permission from the subjects, interviewers then reviewed the medical records, talked with the treating clinician, and interviewed a significant other, usually a family member. Medical record and significant-other information on psychosis was incorporated into the SCID ratings if the information was specific. Following completion of these assessments, two project psychiatrists independently reviewed the longitudinal information, including the discharge summary, and then met to achieve consensus on the diangosis and the criteria supporting the diagnosis. Each case was then reviewed at a meeting of all project psychiatrists, the interviewer's supervisor, and other investigators. Consensus diagnosis among the psychiatrists was reached for each case. When the diagnosis was considered uncertain, a probable diagnosis was assigned whenever possible. It should be noted that there were no cases where the diagnosis of schizophrenia was based solely on affective flattening.

Negative symptoms

Negative symptoms were rated using the five subscales of the SANS (Andreasen 1983): affective flattening, alogia, avolition/apathy, anhedonia/asociality, and attention. Each global measure was rated on a six-point scale (0 = none; 1 = questionable; 2 = mild; 3 = moderate; 4 = marked; 5 = severe). The six project interviewers, who as noted were master's-level mental health professionals, completed the ratings after the diagnostic interview and after reviewing relevant material from the patient's medical record. Although they were blind to the research diagnosis, they were aware of the SCID diagnosis as well as the clinical diagnoses in the medical records. Interviewers were assigned study patients primarily on the basis of geographic considerations and not by probable diagnosis of the patient. The means and standard deviations of the individual global ratings at baseline and follow-up are presented in Appendix A. Interrater reliability for the average of the SANS global ratings was $r = 0.56$ for 43 randomly selected cases at baseline and $r = 0.89$ for 38 cases at 6-month follow-up. At baseline the reliability coefficients for the five subscales ranged from $r = 0.46$ for alogia to $r = 0.77$ for anhedonia; at 6-month follow-up they ranged from $r = 0.63$ (anhedonia) to $r = 0.84$ (avolition). Cronbach's alpha coefficients for the five global subscale scores were 0.68 at baseline and 0.73 at 6-month follow-up. In a principal components analysis with a one-factor solution, the factor loadings ranged from 0.47 (attention) to 0.77 (avolition) at baseline and from 0.62 (anhedonia) to 0.77 (alogia) at follow-up.

For some analyses patients were categorized as 'high' on negative symptoms if two or more global ratings on the SANS subscales were rated as moderate or higher (3+). For other analyses a cutoffpoint of 12 was used (Montague et al. 1989).

Analysis

For continuous data comparisons among the diagnostic groups were performed using repeated measures analysis of variance. This is analogous to performing at t-test on the difference scores. The distribution of this difference in our data set was nearly normal (Shapiro-Wilk test; $P = 0.239$) and exhibited homogeneity of variance across the diagnostic groups (Levene test; $P = 0.466$). Moreover, the diagnostic group effect was corroborated by the Kruskal-

Table 1 Demographic and clinical characteristics of study subjects

Variable	Schizophrenia ($n = 46$)		Schizoaffective ($n = 17$)		Psychotic bipolar ($n = 47$)		Psychotic major depression ($n = 27$)		Other psychoses ($n = 13$)		Significance		
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	χ^2	*df*	*P*
Gender (male)	27	58.7	7	41.2	19	40.4	17	63.0	8	61.5	5.921	4	n.s.
Ethnicity (caucasian)	34	73.9	10	58.8	41	87.2	21	77.8	8	61.5	7.649	4	n.s.
Ever married	12	26.1	3	17.6	20	42.6	11	40.7	4	30.8	5.472	4	n.s.
Education (high school and above)	35	76.1	12	70.6	40	85.1	19	70.4	10	76.9	2.850	4	n.s.
Neuroleptics at baseline	39	84.8	12	70.6	33[g]	71.7	18	66.7	10	76.9	3.826	4	n.s.
Neuroleptics at 6 months	32	69.6	7[g]	43.8	23[j]	56.1	14[g]	53.9	7	53.9	4.198	4	n.s.
First lifetime admission (yes)	41	89.1	15	88.2	45	95.7	24	88.9	13	100.0	3.223[b]	4	n.s.
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**F**	***df***	***P***
Current age[a]	30.3	9.0	24.2	5.7	28.9	9.2	28.5	9.6	34.3	13.1	2.42	4,145	n.s.
BPRS at baseline[c]	41.4[h]	7.0	44.8	6.7	38.2	7.1	41.4	7.9	31.3	9.5	7.5	4,143	0.000
Hamilton at baseline[d]	20.6[h]	6.4	22.1[h]	5.0	19.4[g]	6.3	24.4[i]	8.0	16.9[g]	5.6	3.7	4,136	0.007
BPRS at 6 months[a, e]	32.5	9.5	30.9	5.5	24.3	6.3	26.7	8.0	26.2	5.4	7.8	4,145	0.000
Hamilton at 6 months[a, f]	14.4	3.8	13.9[h]	4.8	10.4[g]	3.9	12.9	7.4	12.5[g]	6.5	4.0	4,141	0.004
Days from admission to baseline	22.1	12.0	19.5	11.9	16.6	9.1	16.6	8.0	18.2	12.2	1.90	4,145	n.s.

[a] This variable was reanalyzed using a transformation to correct for heteroscedasticity. The result did not differ substantively from that reported above
[b] Expected values are too small to obtain an accurate χ^2 statistic
[c] Scheffé Multiple Comparison Procedure ($\alpha = 0.05$): the group 'other' is significantly lower than the schizophrenic, schizoaffective, and major depression groups. The bipolar group is significantly lower than the schizoaffective group
[d] Scheffé Multiple Comparison Procedure ($\alpha = 0.05$): the major depression group is significantly higher than the 'other' group
[e] Scheffé Multiple Comparison Procedure ($\alpha = 0.05$): the schizophrenia group is significantly higher than the bipolar and major depression groups
[f] Scheffé Multiple Comparison Procedure ($\alpha = 0.05$): the schizophrenia group is significantly higher than the bipolar group
[g] One missing value
[h] Two missing values
[i] Three missing values
[j] Six missing values

Table 2 Comparison of SANS global scores (the average of the five SANS global ratings) at baseline and 6-month follow-up

Repeated measures ANOVA: F(group = 21.67; *df* = 4,145; $P < 0.001$; F(time) = 4.46; *df* = 1.145, $P = 0.037$; F (group × time) = 1.22; *df* = 4,145, $P = 0.307$

[a] $P = 0.06$

* $P < 0.05$

** $P < 0.01$

*** $P < 0.001$

Diagnosis	Negative Symptoms						
	Baseline		6 months		Baseline % 12+	6 months % 12+	Test/ retest (*r*)
	Mean	SD	Mean	SD			
Schizophrenia (*n* = 46)	2.0	0.8	1.8	0.8	39.1	30.4	0.56***
Schizoaffective (*n* = 17)	1.0	0.8	1.0	0.8	11.8	17.7	0.37**
Psychotic bipolar (*n* = 47)	0.7	0.6	0.7	0.7	0.0	2.1	0.42*
Psychotic major depression (*n* = 27)	1.3	0.5	0.8	0.7	3.7	3.7	0.45
Other psychoses (*n* = 13)	1.3	0.8	1.2	0.9	7.7	7.7	0.54[a]
Five-group summary	1.3	0.9	1.1	0.9	14.7	13.3	0.63***

Table 3 Temporal pattern of negative symptoms

Variable	Schizophrenia		Schizoaffective		Psychotic bipolar		Psychotic major depression		Other psychoses	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
High-high[a]	16	34.8	3	17.6	1	2.1	5	18.5	2	15.4
High-low[b]	8	17.4	3	17.6	2	4.3	4	14.8	2	15.4
Low-high[c]	8	17.4	3	17.6	4	8.5	1	3.7	2	15.4
Low-low[d]	14	30.4	8	47.1	40	85.1	17	63.0	7	53.8
Total	46	100.0	17	100.0	47	100.0	27	100.0	13	100.0

[a] Scores of 3+ on two or more SANS subscales at both baseline and 6-month follow-up

[b] Scores of 3+ on two or more SANS subscales at baseline only

[c] Scores of 3+ on two or more SANS subscales at 6-month follow-up only

[d] Scores of 3+ on two or more SANS subscales were not achieved at baseline or at 6-month follow-up

Wallis Test. The Scheffe Multiple Comparison Procedure was used for pair-wise comparisons. In order to control for potential confounders, a series of repeated-measures analyses of covariance were also performed using age, gender, and the baseline and 6-month scores on the Brief Psychiatric Rating Scales scores (BPRS; Woerner et al. 1988) and the Hamilton Depression Scale (Hamilton 1960) as covariates. Finally, the loglinear modeling procedure was employed to examine the interrelationship of diagnosis (schizophrenia; other psychosis), baseline SANS ('high' or 'not high') and 6-month SANS ('high' or 'not high').

Results

Background characteristics of diagnostic groups

The demographic and clinical characteristics of the five diagnostic groups are presented in Table 1. There were no statistically significant demographic differences among the diagnostic groups. The majority of the patients were Caucasian, unmarried, and had at least a high school education. The median age (not shown) ranged from 23 (in the schizoaffective group) to 32 (in the 'other psychosis' group) years. The majority of patients were sampled during their first lifetime hospitalization and on antipsychotic medication at baseline and again at 6-month follow-up. With respect to clinical symptoms at both baseline and 6-month follow-up, the differences in depressive symptomatology among the diagnostic groups were statistically significant, with the depressed and schizoaffective patients having the highest and the 'other psychoses' the lowest scores on the Hamilton Depression Scale. The overall BPRS rating was also significantly different across the diagnostic groups at each time. Finally, Table 1 shows that the groups were not significantly different with respect to the average number of days from admission to initial assessment.

Negative symptoms at baseline and 6-month follow-up

Differential change in negative symptoms over time was examined using a 5 (diagnostic group) by 2 (time) repeated measures analysis of variance for the average of the five SANS ratings. The results are presented in Table 3. There was a significant main effect for diagnosis and for time, but no time by diagnosis interaction. Over time the scores for the sample as a whole decreased. The main effect for diagnosis remained significant after controlling for the covariates (age, gender, baseline BPRS and Hamilton, follow-up BPRS and Hamilton) in a series of separate analyses. Using the Scheffe Multiple Comparison Procedure we examined all pair-wise comparisons of the diagnostic groups at each point in time. At baseline the schizophrenics had significantly higher SANS scores than each of the other groups. No other differences were found. At 6-month follow-up the schizophrenics had significantly higher scores than the bipolars, depressives, and 'other' category, but not the schizoaffective disorder group. No other differences were found.

Table 4 Relationship between diagnostic group (A), baseline, SANS rating (B), and 6-month SANS rating (C): loglinear analysis

Diagnostic group (A)	Baseline (B)	6 months (C)	
		High	Low
Schizophrenia	High	19	11
	Low	11	22
Other	High	8	8
	Low	7	64

Interactions: AB(G^2 = 6.09, df = 1, P = 0.0136; AC (G^2 = 7.48, df = 1, P = 0.0062); BC(G^2 = 16.46, df = 1, P = 0.0000); ABC (G^2 = 1.38, df = 1, P = 0.2404)
NOTE: A high rating represents a score of 3 or more on two or more SANS global subscales

Table 2 also presents the proportion of patients with SANS scores of 12 or more, the cutoff suggested by Montague et al. (1989). Approximately one third of the schizophrenic patients had scores in this range, whereas significantly fewer patients in the other diagnostic groups had scores of 12 or more.

Finally, Table 2 presents the test–retest correlation coefficients. While the correlations for the schizophrenic and other psychosis patients were relatively strong ($P > 0.5$), the remaining groups showed somewhat lower temporal stability.

Table 3 presents the temporal patterns of SANS scores for each diagnostic group using a cutoff point of 3 (moderate to severe) on two or more global ratings to dichotomize the groups. Approximately one third of the schizophrenics were categorized as 'high' at both points in time compared with 17.6% of schizoaffective disorder patients, 18.5% of major depressives, and 15.4% of others. Only one bipolar patient was in this category. About 30% of the schizophrenics were categorized as 'low' at both points in time compared with 85% of the bipolars and 47–63% of the other three groups. In order to perform a statistical analysis of the data presented in Table 3, we combined the schizophrenic and schizoaffective patients into one group, and the remaining categories into a second group. We next examined the interrelationship of diagnosis (schizophrenic vs nonschizophrenic), baseline score (high vs low), and 6-month score (high vs low) using loglinear modeling (Table 4). Each of the first-order interactions was statistically significant (ranging from P = 0.014 for diagnosis by baseline score to P = 0.000 for baseline by 6-month score). However, the second-order interaction (i.e., the three-way interaction between baseline SANS, 6-month SANS, and diagnostic group) was not significant. In effect this can be interpreted as indicating that there was no interaction between diagnostic group and change on the SANS score. This result is consistent with the finding in the analysis of variance reported above that the time by diagnostic group interaction effect was not statistically significant.

Table 5 describes the frequency distribution of SANS ratings of 3+ (moderate to severe) for each of the five subscales. We were particularly concerned with the three scales that are diagnostic for schizophrenia in the DSM-IV, namely, alogia, avolition, and affective flattening. Although a greater proportion of schizophrenic and schizoaffective patients had moderate to severe ratings on these measures, one third of the depressed patients and close to half of subjects with a diagnosis of 'other psychoses' had high ratings on avolition. We again combined the patients into two diagnostic groups (schizophrenic vs nonschizophrenic) and calculated the odds ratios for each of these symptoms. The resulting odds ratios were highly significant, ranging from 4.47 for avolition (confidence interval 2.19, 9.15) to 7.63 for affective flattening (confidence interval 2.62, 22.20). Table 5 also demonstrates the effects of combinations of these three ratings. The schizophrenic patients were most likely to have more than one such symptom rated 3+.

Discussion

At both baseline and 6-month follow-up negative symptoms were found to be significantly higher in schizophre-

Table 5 Proportion of cases with baseline ratings of 3+ (moderate to severe) on the five SANS subscales and specific combinations

Negative scale	Schizophrenia (n = 46)		Schizoaffective (n = 17)		Psychotic bipolar (n = 47)		Psychotic major depression (n = 27)		Other psychoses (n = 13)	
	N	%	N	%	N	%	N	%	N	%
Affective flattening	18	39.1	2	11.8	2	4.3	3	11.1	0	0.0
Alogia	16	34.8	2	11.8	4	8.5	1	3.7	0	0.0
Avolition	28	60.9	9	52.9	6	12.8	9	33.3	6	46.2
Asociality	26	56.5	7	41.2	5	10.6	20	74.1	4	30.8
Attention	8	17.4	2	11.8	4	8.5	0	0.0	1	7.7
Affective flattening and alogia	7	15.2	1	5.9	0	0	0	0	0	0
Affective flattening and avolition	12	26.1	1	5.9	0	0	1	3.7	0	0
Alogia and avolition	13	28.3	2	11.8	1	2.1	1	3.7	0	0
Affective flattening alogia and avolition	7	15.2	1	5.9	0	0	0	0	0	0

nia compared with four other different diagnostic groups in a sample of first-admission psychotic patients. These findings are consistent with those of Montague et al. (1989) who compared negative symptoms in schizophrenia, mania, and other nonaffective psychosis. In both studies the samples were composed of first-admission psychotic patients, and in both cases more than one third of subjects with a diagnosis of schizophrenia had high levels of negative symptoms at baseline assessment (46% in their sample vs 39% in our sample). Our findings of statistically significant differences in SANS ratings for schizophrenia vs major depression are in contrast to those of two previous studies of consecutive admissions (e.g, Andreasen 1979; Kulhara and Chadda 1987). On the other hand, Pogue-Geile and Harrow (1984) found that SANS ratings of depressed patients in remission were significantly lower than those of schizophrenics. Consistent with previous research (Andreasen 1979; Reddy et al. 1992), we found low SANS levels among psychotic bipolar disorder subjects. In our sample these patients had the lowest SANS scores. In fact, they 'bottomed out' on this scale. The schizoaffective disorder patients were significantly lower at baseline than the schizophrenics and showed no mean change over time. Our sample was too small to permit internal comparisons of those with the diagnosis of schizoaffective depressed vs schizoaffective manic. Finally, the findings of higher negative scores for schizophrenia as compared with the patients with nonaffective nonschizophrenic psychosis support their specificity and imply that negative symptoms encompassed by the SANS are not the by-product of the presence of psychosis per se.

The ability of the SANS to discriminate between subjects with schizophrenia and other psychotic disorders is further underscored by the findings from the longitudinal analysis. One third of the schizophrenics included in this analysis could be conceptualized at this early stage of their illness as having enduring negative symptoms, whereas this was the case for less than one fifth of the other diagnostic groups. When we included all 52 schizophrenics in the study (i.e., including those originally assessed more than 45 days from admission), the proportion with enduring negative symptoms was even higher (46%; Fennig et al. 1995).

Similar to Addington and Addington (1991), who compared SANS scores over a 6-month period, we observed that overall SANS scores improved from baseline to follow-up, although our baseline ratings could be conceptualized as the equivalent of a discharge assessment. However, we identified a subgroup whose ratings worsened during the 6-month follow-up (18 of 150 psychotic subjects, or 12%). It is difficult to compare the temporal changes across the different studies because even studies using the same or a similar diagnostic system had different starting points and follow-up periods, enrolled patients at different stages of their illness, and employed different assessment techniques. For example, Addington and Addington (1991) assessed patients who had on average five prior admissions; initial SANS assessments took place within 3–7 days of admission, and 5–6 months later. In our analysis of first-admission patients, the SANS was also used, but baseline assessments took place within 45 days of admission, which for the most part was shortly before discharge. Had we included first-admission subjects whose baseline interviews occurred even later (more than 45 days from admission and often after they had been discharged), the SANS ratings would have appeared more stable (Fennig et al. 1995) because the SANS scores for this subgroup (n = 27) increased somewhat over time (from 0.9 ± 0.7 at baseline to 1.2 ± 0.9 at 6-month follow-up). The importance of considering the actual time of assessment cannot be underestimated.

It was suggested by some authors that rating negative symptoms in the acute stage of psychotic disorganization potentially confuses transient and treatable secondary negative symptoms with enduring or core traits (Carpenter et al. 1988). Our data only partly support this notion. Two thirds of the schizophrenics had stable SANS ratings during the first admission, at the very end of the acute psychotic phase. It will be important to determine whether they remain stable during the next 18 months of follow-up and whether their illness course will differ from patients with less stable initial pictures. In one study of first-episode schizophrenic patients, the 6-month follow-up assessment of negative symptoms in itself did not predict outcome (Husted et al. 1992). Instead, poor outcome was associated with being high on negative symptoms at both 6- and 18-month follow-up.

While alogia and affective flattening seem to be relatively specific to schizophrenia and schizoaffective disorder, avolition is reasonably prevalent across the psychotic disorders. The patients in our sample were diagnosed under DSM-III-R. Some of these cases might be reclassified under DSM-IV because of this criterion. For example, patients with DSM-III-R delusional disorder who exhibit significant avolition might be categorized as schizophrenic. As expected, one third of the depressed patients had at least moderate-level ratings on this subscale, but surprisingly almost half of subjects with a diagnosis of 'other psychoses' (delusional disorder and psychosis NOS) also had high ratings on this measure, raising the question about its diagnostic specificity. In the future we intend to investigate whether nonschizophrenic subjects with high ratings on these subscales have a greater likelihood of being rediagnosed with schizophrenia at 24-month follow-up.

Our findings suggest that requiring the presence of two or more of these three negative symptoms would have increased their specificity, because only one nonschizophrenic subject had high ratings on both affective-flattening and alogia.

Finally, we were unable to analyze the effects of medication on change in negative symptoms, because the study was naturalistic in design and reports about dosage and frequency of use were by self-report only. Future studies of clinically monitored populations should address this important issue.

Conclusions

The following conclusions were reached as a result of this research:

1. Negative symptoms were more prevalent in schizophrenia in a first admission cohort than in patients with other affective and nonaffective psychoses.
2. The temporal stability of negative symptoms was reasonably high.
3. High ratings on alogia and affective flattening were specific to schizophrenia, whereas avolition showed less diagnostic specificity.

Appendix A

See Table Appendix A

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Appendix A Descriptive statistics for SANS global subscale ratings

Diagnostic group	SANS global subscales									
	Affective flattening		Alogia		Avolition		Asociality		Attention	
	Baseline SANS ratings									
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Schizophrenia (n = 46)	1.93	1.32	1.63	1.39	2.54	1.28	2.67	1.19	1.04	1.21
Schizoaffective (n = 17)	1.00	1.22	0.65	1.11	2.00	1.58	2.00	1.27	1.00	1.06
Psychotic bipolar (n = 47)	0.68	0.98	0.60	1.10	0.96	1.18	0.89	1.13	0.53	1.06
Psychotic major depression (n = 27)	1.07	1.11	0.26	0.71	1.67	1.33	2.89	1.28	0.44	0.70
Other psychoses (n = 13)	0.54	0.78	0.38	0.77	1.85	1.46	1.62	1.56	0.62	1.19
	Six-month SANS ratings									
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Schizophrenia (n = 46)	1.80	1.36	1.52	1.41	2.39	1.45	2.52	1.50	0.89	1.25
Schizoaffective (n = 17)	1.06	1.34	0.82	1.07	1.65	1.66	1.76	1.30	0.71	1.05
Psychotic bipolar (n = 47)	0.51	0.83	0.36	0.76	0.89	1.26	1.36	1.28	0.15	0.42
Psychotic major depression (n = 27)	0.81	1.11	0.33	0.73	1.30	1.54	1.74	1.58	0.00	0.00
Other psychoses (n = 13)	1.06	1.34	0.82	1.07	1.65	1.66	1.76	1.30	0.71	1.05

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