Ego-Pathology and Common Symptom Factors in Schizophrenia

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Abstract: The phenomenological construct of ego-pathology in schizophrenia has been widely referred to in psychopathological textbooks but was systematically assessed in very few empirical studies. This study investigated the association between ego-pathology (Ego-Pathology Inventory) and common symptom factors (Positive and Negative Symptom Scale) in paranoid schizophrenia patients within 3 days after admission and after 2 weeks of treatment. The predictive value of ego-pathology for short-term treatment outcome was also assessed. A factor analysis of all subscale scores revealed a four-factor solution: positive symptoms, negative symptoms, and two distinct ego-pathology factors, *i.e.*, general and identity. Although the ego-pathology subscale "activity" loaded on the positive symptom factor, the other four subscales formed the two ego-pathology factors with no high loadings on other factors. High scores on ego-demarcation at admission predicted poor treatment outcome after 2 weeks. The findings suggest that ego-pathology might be used to capture additional and clinically meaningful symptom dimensions in schizophrenia.

Key Words: Psychopathology, ego, symptom factors, schizophrenia.

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The dichotomized concept of schizophrenia with the assumption of two main distinct symptom dimensions, *i.e.*, a positive and a negative symptom factor, has received frequent criticism (Andreasen et al., 1995; Arndt et al., 1991; Grube et al., 1998), and it has been suggested that further meaningful symptom factors should be generated (Toomey et al., 1997). The concept of ego-pathology might provide a model to assess such additional symptom dimensions. Ego-experience or self-experience and the corresponding ego-pathology have repeatedly been described in textbooks as important symptom dimensions in schizophrenia (Sims, 1995). The concept has been referred to from phenomenological (Röhricht and Priebe, 2002; Scharfetter, 1981), psychological (Kernberg, 2000), and neurobiological (Vollenweider et al., 1997) perspectives.

Empirically, ego-pathology has mostly been assessed under the umbrella terms *ego-functioning*, *ego-strength*, *self-awareness*, or *ego defense mechanisms*. These concepts are not regarded as meaningful for the psychopathological phenomenology in schizophrenia. Explicitly referring to the concept of schizophrenia as severe ego-disorder and drawing from Jaspers' (1920) description of formal characteristics of ego-consciousness, Scharfetter (1981) operationally defined five basic dimensions of the empirical-ego; he developed and validated a corresponding psychopathometric tool with five ego-pathology symptom factors, the Ego-Pathology Inventory (EPI; Scharfetter, 1995a, 1995b). Unlike the symptoms of ego-disorder classified as Schneiderian first-rank symptoms, these factors capture basic qualities of ego-consciousness, and its corresponding pathology can be summarized as follows. Ego-vitality describes the self-experience of being present as a living being. Ego-activity is functioning as a self-directing unity, self-governing, and intentionally directing one's own thinking, feeling, and acting. Ego-consistency is defined as the quality and coherence of self-experience as structured and organized. Ego-demarcation relates to boundaries and the differentiation between ego and nonego spheres. Ego-identity refers to the prereflexively given certainty of one's own definite selfhood.

Other authors (Loftus et al., 2000; Soyka, 1990) identified a distinct ego-pathology factor based on symptom-items classified as Schneiderian first-rank symptoms (mainly thought insertion, thought broadcasting, and passivity phenomena), thereby suggesting a diagnostic validity or potentially an etiological and genetic significance of ego-psychopathology. Although the literature on schizophrenia throughout the last century therefore frequently refers to schizophrenia as an ego-disorder, the association between common symptom factors and ego-pathology and their clinical significance has not been systematically investigated yet. The present study aimed to assess ego-pathology systematically in patients with acute schizophrenia and explore whether ego-pathology scores overlap with or are distinct from common psychopathology, *i.e.*, general, positive, and negative symptom factors. Additionally, the predictive value of ego-pathology scores for short-term treatment outcome was investigated.

METHODS

Patients with a clinical diagnosis of acute paranoid schizophrenia according to ICD-10 ($N = 60$) were assessed within 3 days after admission for treatment into an acute psychiatric catchment area hospital. The decision to focus only on this subtype was made to assess a relatively homogenized sample with high levels of florid psychotic or first-rank symptoms. Based on a structured clinical interview, the EPI (Scharfetter, 1995b) and the Positive and Negative Symptom Scale (PANSS; Kay et al., 1987) were administered by an independent researcher to obtain rating scores on ego-psychopathology and common psychopathology. Socio-demographic (age, sex, marital status, education status) and clinical characteristics (duration of illness, number of previ-

ous hospitalizations, chlorpromazine-equivalents of antipsychotic medication) were also recorded after admission. Common psychopathology was reassessed on the PANSS by the same researcher after 2 weeks ($N = 43$); this period was chosen because acute symptomatology can be expected to have substantially improved in most patients by this time, and the majority of patients would still be treated in the hospital. Brief Psychiatric Rating Scale (BPRS; Overall and Gorham, 1962) subscale scores were also calculated based on the identical PANSS item ratings to enhance the variety of symptom factors for analysis.

Statistical Analysis

SPSS/PC, version 10.1, statistical software was used for data analysis. All subscales of PANSS and EPI were subjected to a principal component factor analysis with varimax rotation to test the association of ego-psychopathology and common psychopathology. Pearson correlation coefficients were calculated to assess further the association between symptom factors.

For predicting outcome, changes of PANSS total scores between initial assessment and 2-week follow-up were taken as outcome criteria. This change score was entered as dependent variable in a linear regression analysis (method stepwise). Independent variables were demographic (sex; age; marital status, married/with partner versus single/divorced; education, general certificate of standard education versus advanced level) and clinical characteristics (number of previous hospitalizations, duration of illness from first hospitalization, legal status at admission, medication) including psychopathology scores at baseline.

RESULTS

Sixty patients with paranoid schizophrenia were included in the study (36 female, 24 male; mean age, 35.9 years, SD, 11.1; mean length of illness, 6.0 years, SD, 6.3; frequency of hospitalizations, 3.8, SD, 3.3; marital status, 14 married with partner, 38 single, 8 divorced; educational status, 3 no degree, 34 GCSE, 23 A-level). After admission, mean total scores were 72.3 on PANSS (SD, 16.2), and 12.5 on EPI (SD, 6.8). The mean chlorpromazine-equivalent of antipsychotic medication was 487 mg (SD, 457).

Forty-three patients were reassessed after 2 weeks of inpatient treatment. Of the 17 patients who could not be reassessed, 11 withdrew from assessment, and six were already discharged. Comparing demographic and clinical baseline characteristics between the 60 initially included patients and the 43 remaining for follow-up, no significant differences were detected. The mean PANSS total score at follow-up was 59.3 (SD, 14.9), the difference between admission score and follow-up score was statistically significant (paired samples t-test, $t = 6.6$; df, 42; $p < .000$), and the mean change in PANSS total score was 13.2 (SD, 13.1).

Table 1 summarizes the results of the factor analysis of psychopathology subscales (PANSS and EPI) at baseline.

The analysis reveals a four-factor solution explaining 76% of the total variance. The solution shows a positive symptom factor and a negative symptom factor in line with the established two-dimensional model of common psychopathology. However, it additionally identifies two distinct ego-pathology factors, which may be called *ego-general* and *ego-identity*. Although the EPI subscale activity loads on the positive symptom factor, ego-identity forms a factor on its own, and the three remaining EPI subscales demarcation, consistency, and vitality all load on a general ego-pathology factor. Each subscale has loadings of more than .50 on only one factor. In addition to the information gathered through factor analysis, the calculation of Pearson correlation coefficients indicates positive association between EPI subscale

TABLE 1. Factor analysis (varimax rotation) on all psychopathology subscales*

	1 Positive	2 Ego-general	3 Negative	4 Ego-identity
PANSS general psychopathology			.746	.441
PANSS negative symptoms			.922	
PANSS positive symptoms	.866			
EPI identity				.916
EPI demarcation		.737	−.306	
EPI consistency		.831		
EPI activity	.812	.303		
EPI vitality	.309	.510		
Eigenvalue	1.7	1.6	1.5	1.2
% Explained variance	20.7%	20.4%	19.4%	15.4%

*Eigenvalue >1 and item loadings >0.30 are shown.
Total cumulative variance explained: 75.9%.

ego-identity and BPRS subscale thought disturbance ($r = .51$; $p < .001$) and between EPI subscale ego-activity and BPRS subscale hostile/suspiciousness ($r = .56$; $p < .001$). The linear regression identified three predictors for short-term treatment response defined as reduction in PANSS total scores between baseline and follow-up: EPI-demarcation (Beta, –.61), dosage of antipsychotics in chlorpromazine-equivalents (Beta, –.47) and PANSS general score at admission (Beta, .32), accounting for 46% of the variance ($R = .68$; $R^2 = .46$).

DISCUSSION

A factor analysis of ego-psychopathology and common symptom factors in acute paranoid schizophrenia yielded a four-factor solution. Each scale had loadings of more than .50 on only one factor, and the amount of explained variance was relatively high at 76%. Thus, the analysis provided a comparatively clear model. In line with previous studies (Andreasen et al., 1995; Arndt et al., 1991; Grube et al., 1998), separate positive and negative symptom dimensions were established, which may indicate a factorial validity of the psychopathology ratings in this study. Literature commonly describes a third or fourth factor (Liddle, 1987; Peralta et al., 1992), usually referring to the constructs of disorganization and bizarre behavior. In this study, subscale scores were entered into the factor analysis, thus not allowing detection of other common symptom factors. Nevertheless, two distinct ego-pathology factors were identified, *i.e.*, one factor mainly determined by the score of the subscale ego-identity and another factor with significant loadings of three of the five subscales of the EPI, thus called ego-general. Taking the positive association between the subscales ego-identity and thought disturbance (including the item conceptual disorganization) into account, one may consider this factor representing a third common (disorganization) factor. The fourth factor in this study, however, suggests that ego-pathology indeed represents one or more additional and distinct dimensions of psychopathology in schizophrenia.

The ego-activity subscale loaded on the positive symptom factor and was also positively correlated with the BPRS subscale hostility/suspiciousness. Ego-activity scores reflect a lack of one's own ability and power for self-determined action and thoughts. Phenomenologically, the association appears plausible, and the experience of passivity—also referred to as *loss of Meinhaftigkeit* (my-ness)—has been suggested as a core phenomenon of florid psychotic symptoms.

The findings of this study may be seen, to some extent, as revalidating Scharfetter's (1981) original concept of ego-pathology. Yet, the loadings of the subscales are split among three factors, which might be taken as a reason to specify and amend the concept in the light of these and further empirical findings. Ego-pathology as assessed in this study, applying the concept of Scharfetter's five basic dimensions (1981),

captures a variety of distinct symptoms, and their overlap with Schneiderian symptoms remains unclear and should be assessed in future studies. Given the findings of this study, one might consider ego-psychopathology to be—following Bleuler's (1911) original conceptualization—a fundamental symptom dimension at the core of schizophrenia, thus representing specific signs of the disorder rather than underlying personality. In line with the latter notion, some psychiatrists have continued to refer to schizophrenia as a *severe ego disorder* since Heinroth (1818) phrased the term.

The prediction of short-term outcome in this study had various methodological shortcomings, such as the naturalistic approach with the lack of standardized treatment conditions. Nevertheless, a multivariate analysis considering a number of variables as potential predictors found altered ego-demarcation to predict poor treatment response independently of the influence of other variables. This might cautiously been taken as a sign of some predictive validity of the construct. Disturbances of ego-demarcation were first described by Federn (1952) and later empirically underpinned by Fisher (1986). Sims (1995) suggested the loss of ego-boundaries as a common denominator for first-rank symptoms and emphasized that the sense of invasion of oneself appears fundamental to the nature of schizophrenia. Therefore, poor treatment response in patients with weakened ego-demarcation might indicate that the concept is closely linked with the core symptomatology of the disorder.

Systematic studies in bigger samples across the spectrum of subtypes of schizophrenia will be needed to advance the concept of ego-pathology and specify its association with other symptomatology. The overall findings of this study lend support to the concept of schizophrenia as severe ego-disorder.

REFERENCES

Andreasen NC, Arndt S, Alliger R, Miller D, Flaum M (1995) Symptoms of schizophrenia: Methods, meaning and mechanism. *Arch Gen Psychiatry*. 52:341–351.

Arndt S, Alliger RJ, Andreasen NC (1991) The distinction of positive and negative symptoms. *Br J Psychiatry*. 158:317–322.

Bleuler E (1911, trans. 1952 by NS Kline) *Dementia Praecox or the Group of Schizophrenias*. New York: International Universities Press.

Federn P (1952) *Ego Psychology and the Psychoses*. London: Imago.

Fisher S (1986) *Development and Structure of the Body Image*. Vols. 1 and 2. Hillsdale, NJ: Lawrence-Erlbaum Associates.

Grube BS, Bilder RM, Goldman RS (1998) Meta-analysis of symptom factors in schizophrenia. *Schizophr Res*. 31:113–120.

Heinroth ICA (1818) *Lehrbuch der Störungen des Seelenlebens oder der Seelenstörungen und ihre Behandlung*. Anhang 1825. Leipzig: Vogel.

Jaspers K (1920) *Allgemeine Psychopathologie*. Berlin: Springer.

Kay SR, Fiszbein A, Opler LA (1987) The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr Bull*. 13:261–276.

Kernberg OF (2000) Psychoanalysis: Freud's theories and their contemporary development. In: MG Gelder, JL Lopez-Ibor, NC Andreasen (Eds.), *New Oxford Textbook of Psychiatry* (pp 331–343). New York: Oxford University Press.

Liddle PF (1987) The symptoms of chronic schizophrenia: a re-examination of the positive-negative dichotomy. *Br J Psychiatry*. 151:145–151.

Loftus J, Delisi LE, Crow TJ (2000) Factor structure and familiality of

first-rank symptoms in sibling pairs with schizophrenia and schizoaffective disorder. *Br J Psychiatry*. 177:15–19.

Overall JE, Gorham DR (1962) The brief psychiatric rating scale. *Psychol Rep*. 10:799–812.

Peralta V, deLeon J, Cuesta MJ (1992) Are there more than two syndromes in schizophrenia? *Br J Psychiatry*. 161:335–343.

Röhricht F, Priebe S (2002) Do cenesthesias and body image aberration characterize a subgroup in schizophrenia? *Acta Psychiatr Scand*. 105:276–282.

Scharfetter C (1981) Ego-psychopathology: The concept and its empirical evaluation. *Psychol Med*. 11:273–280.

Scharfetter C (1995a) The ego/self experience of schizophrenics. *Schweiz Arch Neurol Neurochir Psychiatr*. 146:200–206.

Scharfetter C (1995b) *The Self-Experience of Schizophrenics: Empirical Studies of the Ego/Self in Schizophrenia, Borderline Disorders and Depression*. Zürich: Private Publication.

Sims A (1995) *Symptoms in the Mind: An Introduction to Descriptive Psychopathology*. London: Saunders.

Soyka M (1990) Psychopathological characteristics in alcohol hallucinosis. *Acta Psychiatr Scand*. 81:255–259.

Toomey R, Kremen WS, Simpson JC, Samson JA, Seidman LJ, Lyons MJ, Faraone SV, Tsuang MT (1997) Revisiting the factor structure for positive and negative symptoms: Evidence from a large and heterogeneous group of psychiatric patients. *Am J Psychiatry*. 154:371–377.

Vollenweider FX, Leenders KL, Scharfetter C, Antonini A, Maguire Missimer J, Angst J (1997) Metabolic hyperfrontality and psychopathology in the ketam model of psychosis using positron emission tomography (PET) and [18F]fluorodeoxyglucose (FDG). *Eur Neuropsychopharmacol*. 7:9–24.