

Psychopathology and Language Behavior in Schizophrenics

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Summary. Verbal samples of 30 schizophrenics were analyzed using the Social Alienation—Personal Disorganization (Schizophrenic) Scale developed by Gottschalk and Gleser (1969). The psychopathological status of all patients had been assessed in a semistandardized interview (Present State Examination, Wing et al., 1974). A relatively close relationship was found between 'productive' or 'plus' symptoms and syndromes of psychosis and the scores on the content analytic scale. On the other hand, no significant relationship existed with the 'minus' symptomatology and no relationship with the 'residual syndrome' and the neurotic syndromes. The Schizophrenic Scale may allow a sufficiently reliable estimate of the degree of psychosis. There was no significant effect attributable to sociodemographic factors and to the course of illness (disregarding the duration of the present hospitalization).

Key words: Language behavior – Psychopathology – Schizophrenia.

Introduction

There have been many attempts to study the language of schizophrenics. Most of these studies have focused on two aspects: the evaluation of the formal or structural aspects of language (Critchley, 1964; Ellsworth, 1951; Fairbanks, 1944; Lorenz and Cobb, 1954; Mabry, 1955; Maher et al., 1966; Mann, 1944; Pavy et al., 1969; Supprian, 1974; White, 1949) and the examination of content or thematic characteristics (Ertel, 1975; Maher et al., 1966; Reilly et al., 1973; Tucker and Rosenberg, 1975; Weintraub and Aronson, 1965).

One of the most elaborate content analytic procedures has been developed by Gottschalk and Gleser (1969): the Social Alienation—Personal Disorganization (Schizophrenic) Scale. This scale provides a method of analyzing the lexical

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content and some structural features of communication units; it also regards complex psychological states using a predominantly empirical psychodynamic frame of reference. The validity of this classic content analytic instrument (Marsden, 1970) has been demonstrated in a number of studies. Thus Gottschalk and Gleser (1969) were able to differentiate schizophrenic patients from all other diagnostic groups, excluding organic brain syndrome. Mozdierz et al. (1974) and Angermeyer and Hecker (1979) found significant differences between schizophrenics and normal persons. Intraindividual variations in the severity of illness correlated positively with the Schizophrenic Scale scores (Gottschalk and Gleser, 1969). Flegel (1967) reported that the Schizophrenic Scale scores corresponded better to his own clinical judgments of the changing state of patients than did the rating derived from the Wittenborn Rating Scale (1955). The Schizophrenic Scale correlated significantly with the factors from the Mental Status Schedule (Spitzer et al., 1964) labeled 'delusion-hallucinations' and 'confusion-retardation'. Among the 16 (PF) scores, the Schizophrenic Scale scores showed a significant positive correlation with 'autism' and a significant negative correlation with 'conscientiousness', 'shrewdness', and 'self-sentiment' (Gottschalk and Gleser, 1969).

This study was designed to answer the following questions: Can the Schizophrenic Scale, applied to the verbal samples of German-speaking subjects, provide valid information about schizophrenic illness? What relationship exists between different signs and symptoms of schizophrenia and the thematic content and structural aspects of language evaluated by means of the Schizophrenic Scale? Does the Schizophrenic Scale, as proposed by Gottschalk and Gleser, provide a satisfactory estimate of the degree of schizophrenic psychosis?

Material and Methods

Social Alienation–Personal Disorganization (Schizophrenic) Scale (Gottschalk and Gleser, 1969; Gottschalk et al., 1969)

Gottschalk and Gleser favor a dimensional model of psychopathology and consider the schizophrenic syndrome as a quantitatively describable phenomenon with interpersonal and intrapersonal variations in the degree of severity. The concept of the Schizophrenic Scale is based on five assumptions:

1. The severity of the schizophrenic syndrome can be validly estimated from the typescript of the speech of an individual.
2. The smallest communication unit conveying information in our language about process, agent, and object is the grammatical clause... Lexical and structural content per clause, with only a few exceptions, will suffice to provide a satisfactory quantitative estimate of the schizophrenic syndrome.
3. The magnitude of the schizophrenic syndrome is directly proportional to:
 - a) The frequency of occurrence in a language sample of verbal themata listed in our schizophrenic scale.
 - b) The degree to which the verbal expression—lexical or structural content—indicates alienation from the self or others and/or impairment of cognitive function. This degree... has been represented as a weighting factor, and each weight designates roughly the relative probability that the thematic or structural speech category is associated with our conception of the schizophrenic syndrome.
4. The weights applied to the categories of our schizophrenic scale are considered to be the same whether the thematic (lexical content) references are expressed in the past, present, or future tense, as a conditional probability, as a wish, or as a report of a dream...

5. The frequency of use of relevant verbal categories multiplied by a numerical weight assigned to the category and, finally, the summation of these products, provide an ordinal index of the intensity of the schizophrenic syndrome (Gottschalk et al., 1969).

The different categories of the Schizophrenic Scale are listed in Table 1.

Table 1. Social Alienation and Personal Disorganization (Schizophrenic) Scale (Gottschalk et al., 1969)

Weights	Content categories and scoring symbols
	I. Interpersonal references (including fauna and flora).
	A. To thoughts, feelings or reported actions of avoiding, leaving, deserting, spurning, not understanding of others.
0	1. Self avoiding others.
+1	2. Others avoiding self.
	B. To unfriendly, hostile, destructive thoughts, feelings, or actions.
+1	1. Self unfriendly to others.
+ $\frac{1}{3}$	2. Others unfriendly to self.
	C. To congenial and constructive thoughts, feelings or actions.
-2	1. Others helping, being friendly toward others.
-2	2. Self helping, being friendly toward others.
-2	3. Others helping, being friendly toward self.
	D. To others.
0	1. Being bad, dangerous, strange, ill, malfunctioning, having low value or worth.
-1	2. Being intact, satisfied, healthy, well.
	II. Intrapersonal references.
+2	A. To disorientation-references indicating disorientation for time, place, person, or other distortion of reality past, present, or future (do not score more than one item per clause under this category).
	B. To self.
0	1a. Physical illness, malfunctioning (references to illness or symptoms due primarily to cellular or tissue damage).
+1	1b. Psychological malfunctioning (references to illness or symptoms due primarily to emotions or psychological reactions not secondary to cellular or tissue damage).
0	1c. Malfunctioning of indeterminate origin (references to illness or symptoms not definitely attributable either to emotions or cellular damage).
-2	2. Getting better.
-1	3a. Intact, satisfied, healthy, well; definite positive affect or valence indicated.
-1	3b. Intact, satisfied, healthy, well; flat, factual or neutral attitudes expressed.
+ $\frac{1}{2}$	4. Not being prepared or able to produce, perform, act, not knowing, not sure.
+ $\frac{1}{2}$	5. To being controlled, feeling controlled, wanting control, asking for control or permission, being obliged or having to do, think, or experience something.
+3	C. Denial of feelings, attitudes, or mental state of the self.

Table 1 (continued)

Weights	Content categories and scoring symbols
	D. To food.
0	1. Bad, dangerous, unpleasant, or otherwise negative; interferences or delays in eating; too much and wish to have less; too little and wish to have more.
0	2. Good or neutral.
	E. To weather.
-1	1. Bad, dangerous, unpleasant, or otherwise negative (not sunny, not clear, uncomfortable, etc.).
-1	2. Good, pleasant, or neutral.
	F. To sleep.
0	1. Bad, dangerous, unpleasant, or otherwise negative, too much, too little.
0	2. Good, pleasant, or neutral.
	III. Disorganization and repetition.
	A. Signs of disorganization.
+1	1. Remarks or words that are not understandable or inaudible.
0	2. Incomplete sentences, clauses, phrases; blocking.
+2	3. Obviously erroneous or fallacious remarks or conclusions; illogical or bizarre statements.
	B. Repetition of ideas in sequence.
0	1. Words separated only by a word (excluding instances due to grammatical and syntactical convention, where words are repeated, e.g., 'as far as', 'by and by', and so forth; also excluding instances where such words as 'I' and 'the' are separated by a word).
+1	2. Phrases or clauses (separated only by a phrase or a clause).
	IV. References to the interviewer.
+1	A. Questions directed to the interviewer.
+ $\frac{1}{2}$	B. Other references to the interviewer.
+1	V. Religious and biblical references.

Present State Examination (PSE) (Wing et al., 1974)

To elicit and record reliable sign and symptom data we used the PSE. This semistandardized interview schedule contains 140 items which can be combined to 38 clinically relevant symptom groups or syndromes (Wing et al., 1974). Each syndrome has a total score of its constituent symptoms and a degree of certainty. For statistical reasons we treated the syndrome scores '0' and '?' as one class ('absent or questionable'), and the syndrome scores '1' and '2' as another class ('present').

Procedure

One of the authors (F.T.) carried out the semistandardized interview and took the verbal samples in one and the same session. The latter were elicited upon giving, in German, an instruction adapted from the standardized one suggested by Gottschalk et al. (1969):

"This is a study of speaking and conversational habits. Upon a signal from me I would like you to speak for five minutes about any interesting or dramatic personal life experiences you have had. Once you have started I will be here listening to you but I would prefer not to reply to

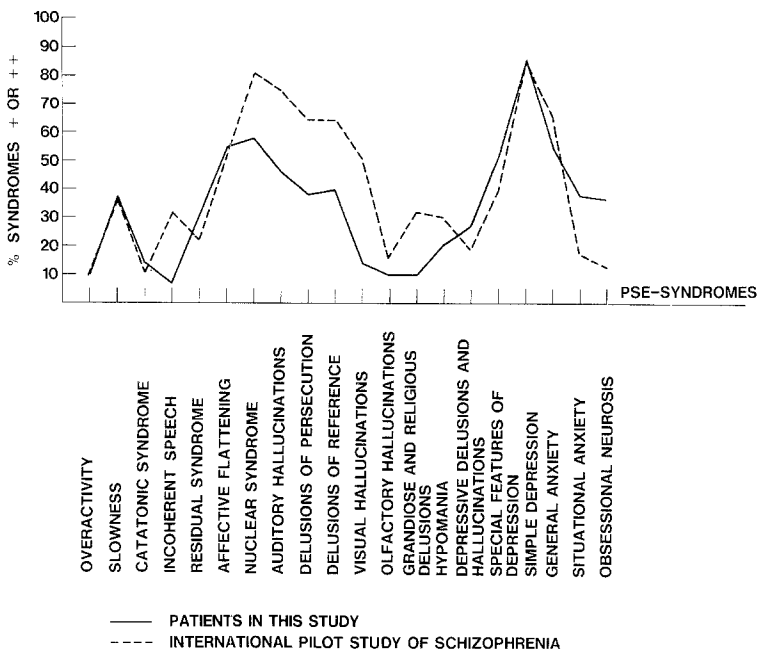


Fig. 1. Syndrome profile of the patients in this study compared with the one of the International Pilot Study of Schizophrenia (Wing et al., 1974)

any questions you may feel like asking me until the five-minute period is over. Do you have any questions you would like to ask me now before we start? Well, then, you may begin."

To reduce variance all interviews were conducted by a single interviewer in the same environment. Following this standard instruction the patient was asked to talk for another five minutes about his actual situation in the hospital:

"Some time has passed now since your admission to the hospital. I myself would be interested to hear how you have got used to the environment here. How do you get along with other patients, with the hospital staff and how are you settling down to your daily routine?—Again I will listen to you thoroughly once you have started to speak, but would prefer not to reply to any of your questions until the five-minute period is over."

The verbal samples were recorded on tape, transcribed, and broken up into coding units. The unit to be coded is the grammatical clause, whether independent or dependent. Each clause is examined and coded according to the appropriate category (see Table 1). All weights assigned are totaled to give a weighted score which is multiplied by 100 and divided by the number of words spoken (corrected score). The coding was carried out without knowledge of the identity of the patient. To assure an adequate level of reliability the verbal samples of ten patients selected at random were coded independently by a second person. The interrater correlation attained was $r=0.87$ (Spearman correlation coefficient). To determine the reliability of the PSE scoring, videotaped interviews were evaluated independently by each author. On 'section' level the interrater reliability attained was $r=0.85$ (Spearman correlation coefficient).

Subjects

Thirty patients of German origin (14 males, 16 females) undergoing hospital treatment in the Medizinische Hochschule Hannover were considered. All patients had been clinically diagnosed as schizophrenic (ICD 295). The diagnosis was verified by the semistandardized interview (PSE). The syndrome profile of the group studies is shown in Figure 1.

According to the clinical diagnosis the patients could be assigned to the following sub-categories of schizophrenia: two simple (ICD 295.0), four hebephrenic (ICD 295.1), one catatonic (ICD 295.2), 16 paranoid (195.3), two acute schizophrenic reaction (ICD 295.4), two residual (ICD 295.6), and three schizoaffective (ICD 295.7).

The patients' mean age was 34.4 years (± 13 years) and the duration of hospitalization (mean \pm SE) was as follows: actual hospitalization, 49.9 ± 79.3 days; accumulated former hospitalizations, 14.2 ± 21.5 months; for seven patients, this was the first hospitalization; for three patients, the second; for seven patients, the third; for eight patients, the fourth; and five of the patients had been hospitalized five or more times. Using the criteria of Kleining and Moore (1968) for socioeconomic status (SSE), 13 patients were of the lower class and 17 were of the middle class. In addition, 14 patients had elementary school educations and 16 high school education or more.

The verbal samples of one patient did not contain the required minimum of 45 words and were eliminated for reasons of reliability.

Medication

Twelve patients received Haldol (3–18 mg/day), four patients Haldol with *L*-mepromazine (50–150 mg/day), eleven patients fluspirilene (4.0–9.0 mg/week), and one patient fluphenazine (25 mg/2 weeks). Two patients did not receive any medication.

Results

As shown in Table 2, a remarkably strong relationship exists between the psychopathological status and the language behavior elicited by the standardized instruction under conditions comparable to those of projective tests (Gottschalk and Gleser, 1969). A one-way analysis of variance computed with the Schizophrenic Scale scores as a dependent variable indicates significant differences between schizophrenic patients with 'productive' symptomatology typical for acute phases of the disease and patients without. The speech pattern had a significant relationship to the following 'plus' syndromes (or at least showed a trend in this direction): 'nuclear syndrome' (thought intrusion, thought broadcast, thought commentary, thought withdrawal, voices about patient, delusions of control, delusions of alien penetration, primary delusions), 'auditory hallucinations,' 'delusions of persecution,' 'sexual and fantastic delusions,' and 'delusions of reference' (as well as 'ideas of reference'). No significant relationship existed to the 'residual syndrome' and to the following features of 'minus' symptomatology: 'affective flattening,' 'self-neglect,' 'lack of energy,' and 'loss of interest and concentration.' The only exception among the 'minus' symptoms was 'slowness,' its occurrence being significantly related to higher scores on the Schizophrenic Scale. As expected, all neurotic syndromes found no expression in language behavior.

Since patients had to be omitted who might not be able to tolerate the interview situation, the absolute frequencies of occurrence of some syndromes ('catatonic syndrome,' 'incoherent speech,' 'overactivity') were too low to be of statistical significance. Some very special features of schizophrenic symptomatology ('grandiose and religious delusions,' 'visual hallucinations,' 'olfactory hallucinations,' 'subcultural delusions or hallucinations') could hardly be found in the patients studied.

Table 2. Relationship between PSE syndromes and Schizophrenic Scale (one-way analysis of variance) ($N = 29$)

Syndromes	F value		Syndromes		F value	
	A	B			A	B
1 Nuclear syndrome	5.75*	3.06(*)	20 Overactivity ^a		—	—
2 Catatonic syndrome ^a	—	—	21 Slowness		4.16*	0.18
3 Incoherent speech ^a	—	—	22 Nonspecific psychosis		1.00	0.77
4 Residual syndrome	1.70	0.65	23 Depersonalisation		1.52	0.25
5 Depressive delusions and hallucinations	3.01(*)	1.15	24 Special features of depression		0.71	0.02
6 Simple depression	1.16	0.34	25 Agitation		0.41	0.00
7 Obsessional neurosis	0.13	0.50	26 Self-neglect		0.04	1.08
8 General anxiety	0.80	0.48	27 Ideas of reference		3.14(*)	1.09
9 Situational anxiety	0.40	0.03	28 Tension		0.06	0.32
10 Hysteria	0.06	1.05	29 Lack of energy		0.25	2.28
11 Affective flattening	0.13	2.10	30 Worrying, etc.		0.12	3.83(*)
12 Hypomania ^a	—	—	31 Irritability		2.24	0.98
13 Auditory hallucinations	7.14**	2.03	32 Social unease		0.00	0.76
14 Delusions of persecution	4.13*	2.17	33 Loss of interest and concentration		0.24	1.22
15 Delusions of reference	11.94***	2.05	34 Hypochondriasis		1.45	2.55
16 Grandiose and religious delusions ^a	—	—	35 Other symptoms of depression		0.42	0.18
17 Sexual and fantastic delusions	3.78(*)	1.01	36 Organic impairment ^a		—	—
18 Visual hallucinations ^a	—	—	37 'Subcultural' delusions or hallucinations ^a		—	—
19 Olfactory hallucinations ^a	—	—	38 Doubtful interview ^a		—	—

(*) = $P < 0.10$; * = $P < 0.05$; ** = $P < 0.01$; *** = $P < 0.001$

A = Standard instruction; B = Modified instruction

^a Frequency of occurrence too low for statistical analysis all syndromes dichotomized

Table 3. Social-demographic and general psychiatric characteristics of patients and scores on the Schizophrenic Scale (standardized instruction)

	F^a	r^b	P
Age		-0.01	—
Sex	0.00		—
Education	2.22		—
Social status (SSE) ^c	0.08		—
Duration of actual hospitalization		-0.40	0.05 ^d
Frequency of hospitalization		0.13	—
Total duration of former hospitalizations		0.02	—
Premorbid sexual and adjustment ^e		0.20	—
Premorbid social-personal adjustment ^e		0.12	—

^a One-way analysis of variance^b Product moment correlation (two-tailed)^c Self assessment of social status (SSE; Kleining and Moore, 1968)^d Two-tailed^e Phillips Rating Scale of Premorbid Adjustment, abbreviated form (Harris, 1975)

In accordance with the observation of Gottschalk et al. (1969) these results could not be replicated under more structured conditions (modified instruction). Only patients with the 'nuclear syndrome' tended to show higher scores on the Schizophrenic Scale than patients without this syndrome.

To test the hypothesis that the Schizophrenic Scale provides a satisfactory estimate of the schizophrenic psychosis for each patient, all symptom scores indicative of psychosis (PSE items 49-96, 104, 107) were added together. PSE items 108-140 based on behavior observation were omitted because of too low frequency in relevant scorings for psychotic features. The product-moment correlation (Pearson) of these values with the scores of the Schizophrenic Scale showed a strong relationship between the degree of mental disorder and the disturbances manifested in language behavior ($r=0.51$, $P<0.01$, two-tailed).

The significant positive correlation between the duration of the actual hospitalization and the Schizophrenic Scale scores may also serve as an indirect proof of the correspondence between the degree of symptomatology and language behavior (Table 3). On the other hand, no correlation could be found with indicators of the former course of the schizophrenic disorder (frequency of hospitalization, cumulated duration of former hospitalizations). No significant effects attributable to age, sex, education, or socioeconomic status were noted, and no correlation was found with the level of premorbid sexual and social-personal adjustment.

Conclusions

The Schizophrenic Scale applied to verbal samples of German-speaking subjects does provide valid information about schizophrenic illness. A relatively close

relationship could be found between 'plus' symptomatology associated predominantly with acute phases of the psychosis and the scores on the Schizophrenic Scale. No significant relationship existed with 'minus' symptomatology and no relationship existed with the 'residual syndrome' and neurotic syndromes. The positive correlation between summed item scores of PSE and Schizophrenic Scale scores, as well as the negative correlation of the latter with the duration of the actual hospitalization, suggests that the Schizophrenic Scale does allow a sufficiently reliable estimate of the degree of psychosis. The Schizophrenic Scale proved to be stable against influences of sociodemographic variables and the course of illness. The dependency of the verbal expression of psychopathology on situational factors could be shown by varying the instruction given to the patients.

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