Brit. J. Psychiat. (1981), **139**, 519–522

Language Dysfunction in Schizophrenia

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Summary: Similarities between language disorders in aphasia and formal thought disorder in schizophrenia are explored in 24 schizophrenic, 5 manic and 5 depressed psychiatric in-patients, and 28 normal controls. Eight sub-tests from the Boston Diagnostic Aphasia Examination, a picture naming test and the Token Test were administered. Schizophrenics with formal thought disorder showed significant abnormalities compared to all other groups, particularly on the Token Test and the repetition of phrases test. These deficits are suggestive of language comprehension and repetition dysfunctions in a substantial minority of rigorously defined schizophrenics.

Disordered language is a common clinical manifestation of schizophrenia. It is generally believed that such disordered language results from a disturbance of thinking and, hence, is often referred to as a formal thought disorder (Benson, 1975). This is in contrast with aphasic language where the basic dysfunction results from brain pathology involving language mechanisms. Phenomenological similarities between aphasic and schizophrenic language are apparent, however, and some of schizophrenic language might be interpreted as an aphasic disturbance, as suggested by Kraepelin and more recently by Kleist (1960), Chaika (1974; 1977) and Andreasen and Grove (1979). Other authors (Fromkin, 1975; Lecours and Vanier-Clement, 1976; Gerson *et al*, 1977; Rausch *et al*, 1980) dispute this.

This report examines the similarity with aphasia of the disordered language manifested in schizophrenia utilizing standard, simple tests widely used to assess language competency.

Method

Subjects

As part of a larger study, 24 schizophrenic, 5 manic and 5 depressed patients were selected from acute treatment wards of a V.A. hospital during a six-month period if they met the diagnostic criteria of Taylor and Abrams (1978). These criteria exclude patients with neurological disease. Twenty-eight control subjects (hospital employees with no history of psychiatric or neurological disease) were selected to be comparable with patients in age and level of educational attainment. As shown in Table I, subjects did not differ in these demographic characteristics.

Procedure

All patients and controls were tested by a research assistant who was unaware of the research diagnosis. Testing was generally performed prior to the patient receiving psychotropic medications; however, lifetime total dosage was not calculated.

Subjects were administered ten tests: (a) eight tests of the Boston Diagnostic Aphasia Examination (BDAE)—(i) automatized sequences (days of the week, months of the year); (ii) repetition of words; (iii) repeating phrases; (iv) word reading; (v) responsive naming; (vi) visual confrontation naming; (vii) body part naming; and (viii) animal naming (as many animals as possible in one minute); (b) an extensive picture-naming test made up of 68 pictures taken from the Peabody Picture Vocabulary Test; (c) the Token Test (DeRenzi and Vignolo, 1962), a highly reliable and sensitive test of auditory comprehension (Boller and Vignolo, 1966), which entails identifying or manipulating round or square tokens of different colours according to increasingly complex directions.

The student's test, two tailed, was used to evaluate mean differences between groups, subsequent to a one-way analysis of variance if the P value obtained was significant at the .05 level.

The authors predicted that schizophrenics with formal thought disorder would perform poorly compared to other subjects. This was based on an unpublished pilot study performed by one of the authors (R.F.), where about one-third of schizophrenics had auditory comprehension and picture-naming difficulties which correlated with the presence of formal thought disorder.

TABLE I

General information on subject groups

	Schizophrenia			
	Thought disorder	No thought disorder	Affective disorder	Control
Number	14	10	10	28
Mean age	41.8	40.3	43.8	43.1
Mean years of schooling	11.8	12.2	13.6	12.0
% Female	21	10	20	11
% Left-handed	21	10	10	18

TABLE II

Language test results

	Schizophrenia (thought disorder) (n = 14)		Schizophrenia (no thought disorder) (n = 10)		Affective disorder (n = 10)		Controls (n = 28)			
	mean	SD	mean	SD	mean	SD	mean	SD	Groups differing	T-test value
Automatized sequences	7.5	0.76	7.4	0.97	7.9	0.32	7.8	0.63	none	
Repetition of words	9.3	0.61	9.6	0.70	9.6	0.52	9.9	0.36	FTD+vs C	3.59***
Repetition of phrases	12.6	2.76	15.1	0.99	15.5	0.71	14.9	0.89	FTD+vs FTD–	3.97***
									FTD+vs AD	4.61***
									FTD+vs C	4.62***
Word reading	30.0	0	29.7	0.95	29.4	1.26	30.0	0	none	
Responsive naming	27.2	3.29	29.2	1.93	28.3	3.09	29.8	0.79	FTD+vs FTD–	2.21*
									FTD+vs C	3.6***
Visual confrontation naming	100.6	4.78	99.9	2.92	99.8	8.68	100.4	4.29	none	
Body part naming	25.6	2.24	26.0	1.63	27.0	0	27.0	0	FTD+vs AD	2.7**
									FTD+vs C	3.44**
									FTD–vs C	2.1*
Animal naming	14.3	5.74	15.3	8.3	16.3	11.86	20.8	7.67	none	
Picture naming	65.2	3.2	65.9	3.2	65.7	3.7	67.5	0.92	FTD+vs C	2.75**
Token test	49.3	11.4	56.6	4.0	57.2	4.4	59.3	2.3	FTD+vs FTD–	2.9**
									FTD+vs AD	3.1**
									FTD+vs C	5.0***

(FTD + = formal thought disorder; FTD – = no formal thought disorder).
* P < .05 (two-tailed)
** P < .01 (two-tailed)
*** P < .001 (two-tailed)

Results

As there were no significant differences on demographic or test data between the manic and depressed patients, their data were combined into an affective disorder group. Based on prior pilot study data, patients with schizophrenia were split into two groups based on the presence or absence of a formal thought disorder (FTD), identified clinically as derailment or loosening of associations if this was agreed upon by two independent examiners.

Table II shows the mean scores of language tests administered and the significant differences between the groups compared.

Significant differences were found on several tests

https://doi.org/10.1192/bjp.139.6.519 Published online by Cambridge University Press

when schizophrenics with formal thought disorder were compared with the three other groups. Differences were most striking on the Token Test and the repetition of phrases test. On tests of responsive naming, body part naming, picture naming and repetition of words, schizophrenics with formal thought disorder differed significantly from other groups, but the differences were less significant.

Discussion

This study identified a subgroup of schizophrenics (with formal thought disorder) who manifested significant language dysfunction. Patients with affective disorders, schizophrenics without formal thought disorder and controls did not exhibit this dysfunction.

The topic of aphasic impairment in schizophrenia has interested clinicians since Kraepelin first described schizophrenics with unintelligible speech, which he termed schizophasia. Since then various authors have described schizophrenic language dysfunction in terms similar to those used in the aphasiology literature.

Chaika (1974; 1977) has argued strongly that schizophrenic speech represents "a true break in normal language competence" quite like that found in aphasia. Horsfall (1973) was unable to differentiate the performance of schizophrenic and aphasic subjects on the Porch Index of Communicative Abilities. Of related interest are studies of schizophrenics finding evidence of dysfunction in the left temporal lobe. These include EEG measures (Flor-Henry, 1976), neuropsychological tests (Taylor *et al*, 1979), and skin conductance (Gruzelier and Venables, 1972). This region is often the anatomic locus of pathology in aphasics with comprehension, repetition and communication problems (Maly *et al*, 1977).

Other writers have found differences between aphasics and schizophrenics. Gerson *et al* (1977) examined the verbal output of eight patients with posterior aphasia and ten patients with acute schizophrenia. Patients were asked open and closed-ended questions. Six striking differences between the groups were described, though numerical data were not presented and statistical methods were not applied. DiSimoni *et al* (1977) administered a battery of ten tests for aphasia to a group of 27 chronic schizophrenic patients. Results showed patients to perform quite poorly with regard to relevance of their responses and reading comprehension. The authors compared their results with those obtained on the same battery previously administered to a group of aphasic patients and concluded that these two groups differed significantly. However, 30 per cent of the schizophrenic subjects performed well below the normal range on several of the tests administered, including the digit span test, Part V of the Token Test, and the word fluency test.

This report supports the former studies, suggesting the existence of a subgroup of patients which could be labelled as schizophasic schizophrenia. It is also supportive of the recent suggestions of Andreasen and Grove (1979) and Abrams and Taylor (1980) showing similarities between this subgroup and Wernicke's aphasia, which is characterized by fluent paraphasic speech, comprehension, repetition and word-finding disturbances. Further studies directly comparing verbal output and language competency in schizophasic schizophrenia and Wernicke's aphasia would be of interest.

Acknowledgements

The authors wish to thank Elaine Emmer for assistance in the acquisition of data and Laura Beckingham for typing the manuscript.

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(*Received 7 May; revised 17 June 1981*)