

[Original Paper]

Studies on Schizophrenics and Atypical Psychotics by the Tree Test

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Abstract

We studied 40 patients with the features of schizophrenia and 40 patients with those of atypical psychosis using the Tree test in which we quantitatively investigated the features of trees drawn by the patients. Items used to distinguish between schizophrenia and atypical psychosis included “distorted impressions”, “lack of necessary lines”, “tree size less than 1/9 of the paper” and “tree without the ground line or tree not touching the bottom of the paper”.

With schizophrenics, the stream or flow of thought was poorer with respect to logic than atypical psychotics. The former were less interested in other persons, while atypical psychotics seemed to maintain moderate daily activity. These results agreed with those from other psychological tests (Rorschach test, Word Association Test) for schizophrenics and atypical psychotics. The above four items were identified as being useful for distinguishing schizophrenia from atypical psychosis.

Key words : schizophrenia, atypical psychosis, Tree test, multivariate analysis

Introduction

Mental disease is classified from various viewpoints, but in most cases from the etiological point of view. It is often classified into three types depending upon the cause : (1) endogenous, (2) exogenous and (3) psychogenic. The most widely accepted concept is the trichotomy which divides the endogenous psychoses into three major psychoses, namely schizophrenia, manic depressive psychosis and genuine epilepsy. However, there are psychoses that cannot be categorized in the traditional trichotomy. On the basis of Mitsuda's clinico-genetic studies (1942, 1954), a fourth psychosis, “atypical psychosis” was added to the three major psychoses. Since then, in the field of psychiatry, the distinction between schizophrenia and atypical psychosis has been the subject of much study (Mitsuda 1966, 1968, Tsuang 1976).

From the viewpoint of clinical psychology, Otsuka (1960) administered the Rorschach test to schizophrenics and atypical psychotics. His results showed that a difference existed between the two groups. Aoki (1975) also applied the Rorschach test to schizophrenics and atypical psychotics and reported his results in view of the characteristics of the reaction, particularly the manner of approach. Ashikaga (1997, 1998) used the Word Association Test and found that the stream or flow of thought of schizophrenics was poorer in association and logic, and also that cognition was more frequently distorted than for atypical psychotics.

To contribute to methods for distinguishing between schizophrenia and atypical psychosis, the present study tried to clarify the items to discriminating between schizophrenia and atypical psychosis using the Tree test.

Subjects and Methods

1. Subjects

The subjects of the present study were 40 schizophrenic inpatients with stable symptoms, at the average age of 34.0 ± 9.3 years old, and 40 atypical psychotic inpatients, at the average age of 36.0 ± 11.2 years old (Table 1). They were admitted to Aino Hospital between April 1993 and March 1996.

The diagnostic criteria of atypical psychosis were those proposed by Mitsuda and Toyoda (Table 2). We also adopted the WHO ICD-10 (1990) (Table 3, Table 4) for both groups.

Table 1 Subjects

		Schizophrenia N (%)	Atypical psychosis N (%)
Sex	male	22 (55.0)	18 (45.0)
	female	18 (45.0)	22 (55.0)
Age	18~29	14 (35.0)	13 (32.5)
	30~39	17 (42.5)	5 (12.5)
	40~49	7 (17.5)	14 (35.0)
	50~59	2 (5.0)	7 (17.5)
	60~69	0 (0.0)	1 (2.5)
Duration of illness	< 5yrs	9 (22.5)	21 (52.5)
	5yrs~10yrs	8 (20.0)	10 (25.0)
	> 10yrs	23 (57.5)	9 (22.5)

Table 2 Diagnostic criteria of atypical psychosis (Mitsuda, Toyoda et al., 1988)

1	Endogeneous psychosis with acute onset, often preceded by a precipitating factor.
2	Symptomatology comprises hallucination, delusion, psychomotor symptoms affective symptoms and a disturbed consciousness
3	The course of illness is phasic or cyclic with an episode of illness subsiding within 6 months
4	Between episodes patients are generally symptom-free but may have some residual symptoms
5	Patients with organic brain disorders and symptomatic psychoses are excluded

Table 3 Distribution of schizophrenia among categories of ICD-10

Categories	Number of patients
F20 Schizophrenia	
F20.0 Paranoid schizophrenia	20
F20.1 Hebephrenic schizophrenia	8
F20.2 Catatonic schizophrenia	2
F20.3 Undifferentiated schizophrenia	2
F20.4 Post-schizophrenic depression	1
F20.5 Residual schizophrenia	2
F20.6 Simple schizophrenia	5
Total	40

Table 4 Distribution of atypical psychosis among categories of ICD-10

Categories	Number of patients
F23 Acute and Transient Psychotic Disorder	
F23.0 Acute polymorphic psychotic disorder without symptoms of schizophrenia	4
F23.1 Acute polymorphic psychotic disorder with symptoms of schizophrenia	15
F23.2 Acute schizophrenia-like psychotic disorder	10
F23.3 Other acute predominantly delusional psychotic disorders	4
F23.8 Other acute and transient psychotic disorders	0
F23.9 Acute and transient psychotic disorder, unspecified	3
F25 Schizoaffective Disorders	
F25.0 Schizoaffective disorder, manic type	3
F25.1 Schizoaffective disorder, depressive type	0
F25.2 Schizoaffective disorder, mixed type	0
F25.8 Other schizoaffective disorders	0
F25.9 Schizoaffective disorders, unspecified	1
Total	40

2. Administration method of the Tree test

The Tree test is an effective method for understanding the personality of patients. This test is based on interpreting patient drawings by a regular procedure. The tools required for the test are B5 seal drawing paper and a HB pencil (Takahashi, 1974). The patients are told, "Please draw a tree." The Tree test was administered individually by a clinical psychologist.

3. Analytical items of the Tree test

We used the 40 analytical items (Table 5) of Takahashi (1975) and analyzed the data by using Hayashi's second method of quantification (Hayashi, 1967) which selects the most effective items for differentiating two groups.

Table 5 List of analytical items (Takahashi, 1975)

1	Distorted impressions
2	Nonactuality
3	Intermingling of actuality and nonactuality
4	Tree which is not an ordinary tree (for example, an electric light pole, wood, bamboo shoots, a toadstool, a bloom)
5	Tremulous lines
6	Lack of necessary lines
7	Remarkably uncombining lines
8	Remarkably unnecessary lines
9	Tree size less than 1/9 of the paper
10	Tree size less than 1/9 of the paper and the position in an extreme place
11	Weak and light strength of brushstrokes
12	Obvious transparency
13	More than two trees
14	Tree without the ground line or not touching the bottom of the paper
15	Single lines about the trunk and branches
16	Parts of trees
17	Tree without canopies
18	Trunk without combining the top and without canopies
19	Top of the trunk closed at right angles
20	Broken trunk
21	Thick top of the trunk
22	Unmodified trunk
23	Trunk with vertical lines like the ivies
24	Bark with strange patterns
25	Trunk with the conspicuous scars
26	Tree without branches
27	Broken branches
28	Nonactualitical branches
29	Branches with single lines
30	Unmodified branches
31	Branches without combining the end or without canopies
32	End of branches closed at right angles
33	Thick end of branches
34	Root of single lines
35	Without the roots
36	Open bottom of the trunk
37	A garden plant bowl and tray
38	Fruits
39	Insects, birds, animals
40	Mountains

Results and Discussion

Table 6 shows the mean, variance and standard deviation with the case point (the value which became 0 in the average and 1 in the variance) of both groups. For the schizophrenia group, the mean was -0.74 , the variance 0.55 and the standard deviation 0.74. On the other hand, for the atypical psychosis group, the mean was 0.74, the

variance 0.35 and the standard deviation 0.59.

Table 7 gives the partial correlations and Table 8 gives the four analytical items which contributed to the distinction between schizophrenics and atypical psychosis: "1. distorted impressions", "6. lack of necessary lines", "9. tree size less than 1/9 of the paper" and "14. tree without the ground line or not touching the bottom line of the paper".

Our interpretations of the four items are as follows. The "distorted impressions" is based on the whole impression such as whether or not the viewer has a strange impression, or whether or not the balance of the canopy and the root is appropriate. As shown in Figure 1, many trees drawn by schizophrenics presented a strange impression, suggesting that the patients have a lowered ability for judgement in their daily lives. On the other hand, the balance was good for trees drawn by atypical psychotics, and the drawing gave a natural impression (Figure 2). Incidentally, in the present investigation the duration of illness of schizophrenics was long compared with that of atypical psychotics and may have had an influence in producing a distortion of character which could produce trees with a distorted impression.

The second item of "lack of necessary lines" refers to a tree having incomplete branches without leaves on both sides of the trunk. Atypical psychotics drew the necessary lines for the canopy of the trunk. Schizophrenics drew open branches and often drew an open trunk. Figure 3, drawn by schizophrenics, has the so-called open branch, which was not seen in trees drawn by atypical psychotics. Therefore, atypical psychotics seem to have better social coping abilities than schizophrenics.

The third item was "tree size less than 1/9 of the paper" which refers to the tree being abnormally small. The trees drawn by atypical psychotics are of ordinary size which suggests appropriate relationships in daily living

Table 6 Case point of both groups

Clinical type	Mean	Variance	Standard deviation
Schizophrenia	-0.74	0.55	0.74
atypical psychosis	0.74	0.35	0.59

Table 7 Partial correlations

Item No.	Partial correlation	Item No.	Partial correlation
1	0.29169	21	0.04932
2	0.08643	22	0.16601
3	0.02155	23	0.03057
4	0.11604	24	0.12516
5	0.18905	25	0.12947
6	0.22926	26	0.01094
7	0.12730	27	
8	0.03821	28	0.19381
9	0.21822	29	0.12664
10		30	0.00573
11	0.17173	31	0.14836
12	0.02956	32	0.07255
13	0.01771	33	0.07280
14	0.21962	34	0.11024
15	0.10856	35	0.06943
16	0.00385	36	0.01314
17	0.11006	37	0.03840
18	0.09262	38	
19		39	
20	0.08719	40	0.05288

(As the frequency for items 10, 19, 27, 38, 39 was 0, they were excluded from the analysis.)

Table 8 Analytical items which contributed to the distinction between schizophrenics and atypical psychotics

Item No.	
1	Distorted impressions
6	Lack of necessary lines
9	Tree size less than 1/9 of the paper
14	Tree without the ground line or not touching the bottom of the paper

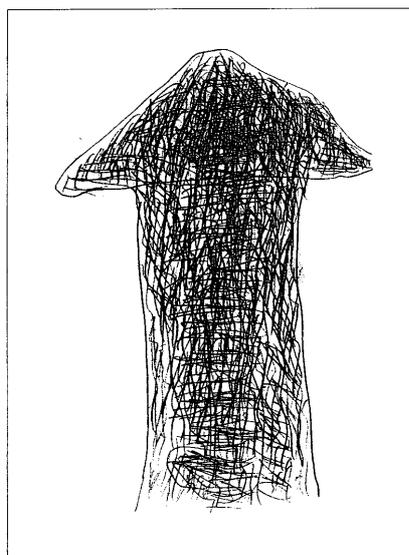


Figure 1

activities. However, the trees drawn by schizophrenics were small (Figure 4). This suggests that schizophrenics tend to be withdrawn in their daily lives while atypical psychotics maintain moderate activity. A thinking warp and a decline of judgement were not significantly recognized for atypical psychotics when compared with schizophrenics. These findings indicate that atypical psychotics are capable of introspection and insight, and can act according to social common sense ; i. e., they maintain moderate daily activity and have an interest in the outside world.

Finally, the item of "tree without the ground line or not touching the bottom of the paper" was typical of the trees drawn by schizophrenics. Atypical psychotics tended to draw a ground line. As shown by the example presented in Figure 5, schizophrenics did not draw roots and the ground line, giving the impression of a tree floating in the sky. Our interpretation was that atypical psychotics are more mentally stable than schizophrenics.

In the present study we administered the Tree test to schizophrenics and atypical psychotics, and used Hayashi's second method of quantification of 40 analytical items. We were able to extract four items which could effectively differentiate between schizophrenic and atypical psychotic patients.

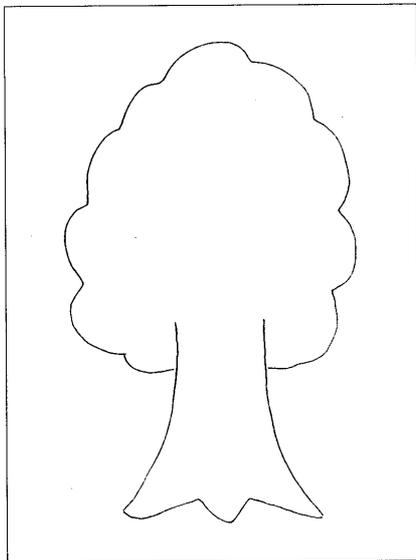


Figure 2

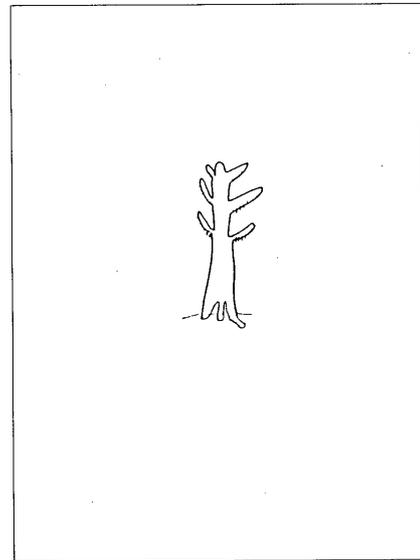


Figure 4

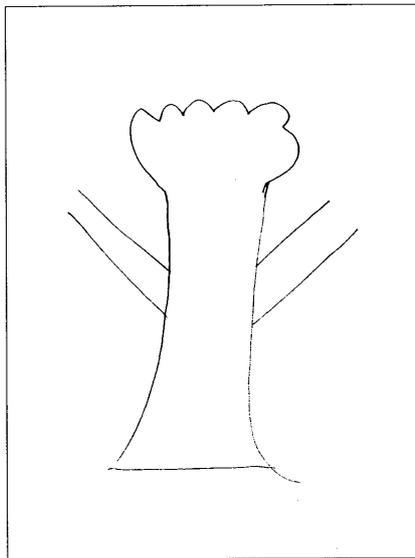


Figure 3

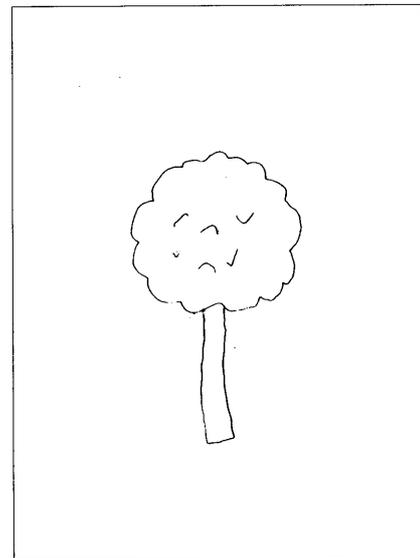


Figure 5

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