CORRELATION OF LINGUISTIC COMPETENCE WITH PSYCHOPATHOLOGY†

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SUMMARY

The present study was carried out to test our hypothesis that linguistic competence may importantly determine the manifest symptomatology as well as type of schizophrenia and neurosis. A test of linguistic competence constructed by us after two tryouts and consisting of eight subtests, namely colour naming, naming filial relationships and household objects, TAT (mean length of utterance and total number of morphemes), picture arrangement, temporal and spatial relationships, similarities and vocabulary was administered to 15 patients each of acute, paranoid and chronic schizophrenia; manic depressive psychosis; and anxiety, hysterical and obsessive compulsive neurosis. On analysis of variance, the groups differed significantly on household objects, TAT (total morphemes), temporal and spatial relationships and vocabulary. Obsessive compulsive neurotics, paranoid schizophrenics and anxiety neurotics scored highest while chronic schizophrenics and MDP scored lowest on these subtests. The study thus suggests that these illnesses may be phenomenological correlates of high and low linguistic competence, respectively.

Long before the birth of psycholinguistics as an independent line of enquiry, linguistics did contribute to the problem of relationship between languages and thought. The most significant contribution in this area has come from Benjamin Lee Whorf (1950) whose linguistic relativity hypothesis was a direct attack on the problem. Benjamin Whorf (1961) has hypothesised that language and thought go together, that language limits (and facilitates) particular concepts and perpetuates a particular world view. It is thus a shaper of ideas and a determinant of conception of reality. It is reasonable to assume that the concept is socially mediated and the mediation is linguistic. Brown and Lenneberg (1954) share the same view – “If we may be permitted a guess it is that in the history of a culture the particular features of the language and thought of a people develop together.”

Languages across cultures differ not only in such basic things as the classification of words and rules of syntax, but also in specificity and precision in referring to objects and events. The differences in world view between languages may be in such simple things as number of colours named to more complex differences in temporal and spatial relationships. Time can be taken as a flowing system or as a static interval. Some languages may permit greater precision in quantitative or qualitative differences than others. The concept of possession may differ from one language to another. It is seen that language permits greater precision in expression of those things that matter most in a particular society.

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Language seems to be an essential prerequisite for the manifestation of schizophrenic symptomatology and outcome of schizophrenia as well as in the use of language across cultures (WHO 1979, 1983), it may be that these two may be functions of each other. Varma (1982) has speculated on this possible relationship. He has hypothesized that there may be a relationship between language and psychopathology and that linguistic competence importantly determines psychopathology of schizophrenia. Language may, to illustrate, take over from intense anxiety or organic defect of schizophrenia and set into motion a reverberating cycle with increasing elaboration of delusions being one of the results. The greater linguistic competence on part of the patient may perpetuate elaboration of the delusions making them more systematised and at the same time more entrenched and less amenable to therapeutic change thus giving rise to a poorer prognosis.

In the same way linguistic competence may influence manifestations of other forms of illness and typology of neuroses. Although the contribution of language to thinking process is immense, the same language which permits logical and realistic deductions, can cause if some basic disturbance exists in the brain processes, a derailment of thinking which can create a vicious cycle to produce and perpetuate psychopathology.

It has been noticed that schizophrenic patients in developing countries more often develop catatonic symptoms and make greater use of body language (Hoch 1959, 1961). On the other hand, those from the developed countries demonstrate greater psychic anxiety and highly systematised delusions. We may possibly hypothesize that the present categorization of schizophrenia in the various subtypes may depend to a large extent on the patients' linguistic ability and competence. It may be that one patient shows paranoid features because he has a high linguistic competence, the other catatonic features and somatic symptoms because his low linguistic competence does not permit him to elaborate his psychotic anxiety into a delusional system.

It is important to note that the syntactic processes are intact in schizophrenia. The language is deviant only in terms of semantic aspect. The language dysfunction in schizophrenia is more of a cognitive sort rather than linguistic (Clemen 1971), Chomsky (1965) has also held the same viewpoint. In schizophrenia the linguistic competence is not impaired (Koplin 1968).

Before the present study was launched, two pilot tryouts were carried out administering a psycholinguistic battery of 10 subtests to schizophrenics and normals. Amongst both patients and normals a cluster emerged consisting of certain subtests which indicate that these subtests measured the same personality dimension. On the basis of test-retest reliability and cluster analysis the psycholinguistics test was modified and finalised as used in the present study. Two subtests namely 'definitions' and 'emotions' were deleted on the basis of this initial experience. The present study was carried out to test the following hypotheses:

1) Linguistic competence importantly determines manifestations and outcome of schizophrenia. Those with higher competence are more likely to develop elaborate thinking disorders and have worse prognosis and those with low competence to manifest somatic and catatonic symptoms, perplexity and better prognosis.
2) The various clinical types of schizophrenia differ from one another in linguistic competence. In other words, linguistic competence determines the type of schizophrenia.

**Method**

To meet the above objectives, selection, clinical assessment and administration of tests of linguistic competence of patients and normal subjects was carried out.

**Sample:** The population under study included all the patients of our Acute Psychosis Clinic (excluding those of rural clinic) who were attending psychiatry outpatient clinic. These patients included cases of acute schizophrenic episode (AS), paranoid (PAR) and manic-depressive psychosis (MDP). Patients suffering from anxiety neurosis (AN), hysteria (HYS), obsessive-compulsive neurosis (OCN) and chronic schizophrenia (CS) were also taken from the Walk-in-clinic and follow up clinic of the Psychiatry OPD. In all, 15 cases of each sub-type were included in the study. Thus the total sample comprised of 105 patients. These patients were all tested for colour blindness and also clinically reassessed to confirm the diagnosis.

Fifty normal subjects were also included from the relatives of the neurotic patients. The age group of the patients and normal subjects was between 15-55 years.

**Tests of linguistic competence:** The test of linguistic competence comprised of eight subtests. An additional test of intelligence (Raven's Standard Progressive Matrices) was also used to test whether there is any correlation between linguistic competence and IQ.

The sub Tests administered were:

1. **Colour naming (CN):** 30 coloured cards were shown and the subject asked to name as many colours as possible. The score was the number of distinct colours named.

2. **Filial Relationship (FR):** The subject was asked to name all possible filial relationships. The score was the number of relationships named, irrespective of sex.

3. **Household Objects (HO):** The subject was asked to name all possible household objects. The score was the number of the objects named.

4. **Thematic Apperception Test Card 2 (TAT) (Indian Adaptation):** depicting a farming scene, was presented and the subject's response obtained. The response was analysed in 2 ways:-

   (a) Mean length of utterance (MLU)- The mean number of morphemes per utterance.

   (b) Total Morphemes-The Total number of morphemes in the entire story.

5. **Picture Arrangement:** Four series of cards from WAIS-R Performance test were administered and the subjects asked to arrange the cards correctly and to tell the story. The response was scored in two ways:-

   (a) Arrangement-Correctness of arrangement of cards (Score 0 to 2 on each card).

   (b) Story-Correctness of the story (Score 0 to 2 on each card).

6. **Temporal and Spatial relationships (TSR):** The subjects were presented 15 cards depicting sketches of objects and scenes and were asked what they perceived on each card. Score of 1 was given for each card if time and space relationship was correctly perceived.
7. **Similarities (SIM):** The similarities test of Suri (1976) consisting of 10 pairs of words was administered and the response scored according to the abstraction level (Score 0 to 3 on each pair).

8. **Vocabulary (VOCAB):** The vocabulary sub-test of the Standard Binet Test (1960) Hindi adaptation (Kulshrestha 1971), was administered and the response scored according to the correctness.

### Results

Table 1 shows the means and SD's of the seven group of patients on each subtest. A one way analysis of variance was applied to the seven groups and the results of this is shown in Table 2.

The fraction given in Table 2 shows that in 4 subtests there are significant differences among the different groups of patients. These were: household objects, TAT (Total morphemes), vocabulary and spatial and temporal relationships. A detailed analysis of these subtests as given in Table 3 shows further interesting results.

The patients group which have scored high on tests of linguistic competence were obsessive compulsive neurotics, paranoid schizophrenics and anxiety neurotics. Obsessive compulsive neurotics have the highest linguistic competence on almost all the sub-test.

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**Table 2**

Comparison between the patient groups on the various subtests by one-way analysis of variance

| Name of the subtest       | F Ratio | Significance |
|---------------------------|---------|--------------|
| Colour naming             | 0.62    | n.s.         |
| Filial relationships      | 2.00    | n.s.         |
| Household objects         | 2.70    | p<.05        |
| TAT (M.L.U.)              | 1.81    | n.s.         |
| TAT (Total morphemes)     | 2.42    | p<.05        |
| Picture (Arrangement)     | 2.13    | n.s.         |
| " (Story)                | 0.88    | n.s.         |
| Vocabulary                | 2.63    | p<.05        |
| Similarities              | 1.74    | n.s.         |
| Spatial and Temporal relationship | 2.25 | p<.05 |
| IQ                        | 1.46    | n.s.         |

**Table 1:** Mean ± (SD) of different patient subgroups on the various subtests

| GROUP                  | N  | CN | FR | HO | MLU | MOR | ARR | STR | VOCAB | TSR | SIM | IQ  |
|------------------------|----|----|----|----|-----|-----|-----|-----|-------|-----|-----|-----|-----|
| Acute Schizophrenia (AS) | 15 | 11.3 | 13.6 | 17.5 | 6.85 | 71.4 | 1.33 | 3.33 | 6.6    | 7.6  | 14.4 | 18  |
| Paranoide Schizophrenia (PAR) | 15 | 12.07 | 16.7 | 19.9 | 7.8 | 77  | 2.0  | 4.0  | 16.7   | 8.7  | 18.7 | 20  |
| Chronic Schizophrenia (CS) | 15 | 11.5 | 14.2 | 16.1 | 5.3 | 38.9 | 2.0  | 2.9  | 12.2   | 6.8  | 16.4 | 19.7 |
| Manic Depressive psychosis (MDP) | 15 | 11.06 | 13.73 | 17.6 | 6.76 | 68.6 | 1.33 | 2.66 | 13.7   | 6.9  | 15.46 | 18.33 |
| Anxiety Neurosis (AN) | 15 | 11.86 | 16.6 | 20.53 | 7.73 | 81.67 | 2.4  | 3.2  | 16.5   | 9.3  | 19.13 | 39.3 |
| Hysteria (HYS) | 15 | 12.8 | 17.8 | 22.6 | 7.0 | 61.7 | 2.0  | 2.8  | 10.5   | 8.3  | 13.8 | 18.3 |
| Obsessive Compulsive Neuritis (OCN) | 15 | 12.26 | 19.6 | 25.6 | 8.3 | 86.9 | 1.6  | 3.3  | 16.2   | 8.2  | 19.87 | 44.67 |

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### Table 3
Comparison between the patient groups on subtests with significant F Ratio

| Subtest                     | F Ratio | Significance | SED | Means of the 7 groups of patients (in descending order) | Remarks (Differences significant between) |
|-----------------------------|---------|--------------|-----|--------------------------------------------------------|------------------------------------------|
| 1. Household objectives     | 2.70    | p < .05      | 2.83| OCN - 22.67, HYS - 22.6, AN - 20.53, PAR - 19.9, MDP - 17.6, AS - 17.5, CS - 16.1 | OCN Vs MDP, CS AS & PAR |
| 2. TAT (Total Morphemes)    | 2.42    | p < .05      | 14.26| OCN - 86.93, AN - 81.67, PAR - 77, AS - 71.4, MDP - 68.67, HYS - 61.73, CS - 38.9 | CS Vs all others (Except HYS) |
| 3. Vocabulary               | 2.63    | p < .05      | 2.39| PAR - 16.7, AN - 16.53, OCN - 16.2, MDP - 13.73, CS - 12.2, HYS - 10.47, AS - 6.6 | AS Vs all others (Except HYS) |
| 4. Spatial and Temporal     | 2.25    | p < .05      | 0.86| AN - 9.33, PAR - 8.7, HYS - 8.3, OCN - 8.2, AS - 7.6, MDP - 6.93, CS - 6.8 | AN Vs MDP, AS & CS PAR Vs MDP & CS |

On the other hand, chronic schizophrenics and manic depressive psychotics have consistently shown a pattern of low linguistic competence.

The group of hysterical neurotics and acute schizophrenics show no consistent pattern. Hysterical patients had low linguistic competence as only shown by TAT (Total morphemes) and vocabulary subtest.

The relationship of linguistic competence with specific symptoms and with one year outcome of mental illness is currently under study.

### Discussion
The results indicate that, by and large, the obsessive compulsive neurotics, paranoid schizophrenics and anxiety neurotics were the highest on linguistic competence. With regard to obsessive-compulsive neurosis, it can be said that a high linguistic competence may set into motion and sustain obsessional thoughts and compulsive behaviour resulting from it. In other words, it may be speculated that in the patients of OCN, anxiety has been channelized to obsessions and compulsions on account of their high linguistic competence. The high
linguistic competence of paranoid schizophrenics is very much in keeping with the main ideas behind the present work as is discussed in detail in the introduction. It appears therefore that the paranoid schizophrenic compensates for his intense (psychotic) anxiety by explaining the anxiety on the basis of paranoid ideation. Although this reduces the anxiety, the high linguistic competence takes over for sustenance and further systematization of the delusions. Anxiety neurotics are those who are able to sustain the anxiety as such without resorting to the secondary compensatory mechanisms to channelize the anxiety.

As expected, the chronic schizophrenics and manic depressive psychotics have shown a consistent pattern of low scores on most measures of linguistic competence. The low linguistic competence of chronic schizophrenics does not permit him to develop a delusional solution to his anxiety or to crystallize his illness into specific psychopathology. Accordingly, he continues with a mixed picture of symptoms. The hysterical patients also had low linguistic competence, at least on some of the subtests. This again supports the correlation of low linguistic competence with somatization and also possibly lack of mature coping mechanisms.

The present study, thus, supports the hypothesis of the relationship between linguistic competence and psychopathology in terms of the diagnostic groups. It is possible that a patient develops a particular type of illness depending upon his linguistic competence. As we have earlier speculated (Varma 1982), it may be that “schizophrenia may be just one or two diseases and the precise symptomatology by which we presently catagorise it into the clinical subtypes may depend to a large extent on the patient's linguistic ability and competence”. The same line of reasoning can be extended to the subtype of neurosis that a patient adopts.

Finally, two questions may be raised. Is linguistic competence an independent personality dimension? To what proportion could it contribute to the manifest psychopathology as compared to other variables reported to have a bearing on manifestations and course of illness?

The question as to what are truly independent personality dimensions is controversial one. Eysenck (1968) identifies only four basic dimensions, namely extraversion, neuroticism, psychoticism and intelligence. As regards linguistic competence, it can be said on the basis of experimental evidence that although it may have same correlation with intelligence and with such cognitive activities like concept formation, it is not the same thing as these. The evidence seems to support it as a relatively independent variable.

As regards the real role of psychosocial variables in shaping manifest psychopathology, a number of such variables have been proposed. Correlation is often drawn between psychopathology and its course and such variables as intelligence, life events, expressed emotions, and socio-economic variables like class, marital status and living situation. It is agreed, however, that the contribution of these variables is modest. It is our guess and submission that the actual contribution of linguistic competence in determining symptomatology and course of illness may also be considerable, at least as great as ascribed to life events and expressed emotions.

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