A STUDY OF FIRST RANK SYMPTOMS OF SCHNEIDER IN FUNCTIONAL PSYCHOSES*

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SUMMARY

The prevalence of FRSs of Schneider was studied in three groups of functional psychoses. They were most common in schizophrenia (53.3%) followed by affective psychosis (33.3%) and reactive psychosis (23.3%). Thought broadcast, thought insertion and thought withdrawal were commonest in schizophrenia. There was a suggestion that made volitional acts and commenting voices were more commonly present in patients with a diagnosis of depression. There was no distinctive FRS profile in reactive psychosis. A strong correlation also emerged between FRS and a family history of schizophrenia.

Kurt Schneider, an important representative of German psychiatry, stressed the usage of symptoms and signs as prime variables in the clinical diagnostic practice. He attempted to identify symptoms that are readily perceived and easily elicited by the clinician and attached decisive importance to a certain group of symptoms in the diagnosis of schizophrenia. He identified them as 'first rank symptoms' and contended that they should have 'decisive weight beyond all others in establishing the differential typology between schizophrenia and cyclothymia (Schneider, 1959). These symptoms were identified in the light of clinical experience and Schneider did not attempt to relate them to a theoretical concept of the underlying mechanisms in schizophrenia. However, he attempted to determine to what extent his diagnostic approach to mental illness could be applied with confidence. He reviewed the case records of almost three thousand patients attending his clinic and found that with the use of First Rank Symptoms, diagnostic certainty was achieved in more than 98% of the cases (Schneider, 1959).

For the next few years, there was little investigation in this area until Huber studied the prevalence of First Rank Symptoms, in Heidelberg. He analyzed the case records of 195 schizophrenic patients and found one or more First Rank Symptom in 72% of them (Huber, 1967). However, his criteria for the individual First Rank Symptom remained unknown as he did not use a formal check-list.

This drawback was overcome in a pioneering study carried out in Britain by Mellor. Using an exhaustive list of eleven First Rank Symptoms along with their defining characteristics, he detected First Rank Symptoms in 72% of schizophrenic patients (Mellor, 1970).

Since then, there have been many attempts to study the occurrence of First Rank Symptoms in Schizophrenia. As shown in Table 1, there is a wide variation in the reported prevalence rates of First Rank Symptoms-ranging from 25.4% to 82%. Such widely divergent prevalence rates have been attributed by Koehler to clearly demonstrable First Rank Symptom
descriptive discrepancies'. According to him, till a general agreement about the First Rank boundary criteria is obtained, two guidelines must essentially be followed: (1) a clear statement of the First Rank boundary criteria employed, (2) the nosological bias attached to these phenomena (Koehler, 1979).

Table 1
Prevalence of FRS in Schizophrenia

| Study                         | Percentage of FRS positive schizophrenics |
|-------------------------------|------------------------------------------|
| 1. Huber (1967)               | 25%                                      |
| 2. Mellor (1970)              | 72%                                      |
| 3. Taylor (1972)              | 25%                                      |
| 4. Abrams and Taylor (1973)   | 54%                                      |
| 5. Carpenter (1973)           | 51%                                      |
| 6. Carpenter & Strauss (1974)| 57%                                      |
| 7. Oh (1974)                  | 60%                                      |
| 8. Koehler (1977)             | 33%                                      |
| 9. Gharagozlous (1979)        | 82%                                      |
| 10. Chandrasena & Rodrigu (1979)| 25.4%                                   |

Evidently, First Rank Symptoms are not present in all schizophrenics. Schneider recognised this himself and noted that the diagnosis of schizophrenia could be made even in the absence of First Rank Symptoms.

So the crucial question would be, 'If present, do First Rank Symptoms have a good discriminating ability for a diagnosis of schizophrenia?' An answer to this question was attempted in the International Pilot Study of Schizophrenia (IPSS). It was noticed therein that the First Rank Symptoms were highly discriminating for a diagnosis of schizophrenia. For example, the probability of patients with thought broadcast to be allocated to the three different diagnostic classes were as follows: 0.97 probability for schizophrenia, 0.02 for manic psychosis and 0.01 for depressive psychosis (WHO, 1973). But such a high discriminating ability of the First Rank symptom is not surprising; since in this study, by definition, the diagnosis of schizophrenia was itself made primarily on the basis of the presence of First Rank Symptoms.

However, using the data from the same study, Carpenter came to a different conclusion. He stated that First Rank symptoms were not pathognomonic of schizophrenia since they did not occur exclusively in schizophrenia (Carpenter, 1973). But can a symptom be highly discriminatory for a diagnosis and yet not be pathognomonic? There seems to be an unfortunate semantic confusion, in the usage of these two terms. The third New International Webster Dictionary states that pathognomonic means, 'specially, distinctively or decisively characteristic of a particular disease'. Stated this way, there appears to be little difference between the two concepts. Nowhere in his paper has Carpenter defined the term pathognomonic, yet he refutes the 'postulated pathognomonicity' of First Rank Symptoms by pointing out its presence in clinical states other than schizophrenia. It should be pointed out that Schneider held the view that First Rank Symptoms may also occur in other conditions, 'any of these signs may sometimes occur in psychotic states that arise from a known physical illness' (Schneider, 1959).

There have been attempts to study the occurrence of First Rank Symptoms in clinical conditions other than schizophrenia. A diagnostic system that solely stresses on the presence of any First Rank Symptom for a diagnosis of schizophrenia might wrongly classify patients of other diagnostic categories who manifest with First Rank
Symptoms. While the presence or absence of First Rank Symptoms might not helpfully differentiate diagnostic categories, it would be worthwhile exploring whether there is a difference in the pattern of occurrence of these symptoms among the various diagnostic groups. It has been suggested that First Rank Symptoms do not form a homogenous group by themselves (Lewine et al. 1982). So it is quite possible that there are differing FRS profiles for different psychiatric conditions.

An attempt has been made in this study to analyse the pattern of occurrence of First Rank Symptoms in the three major psychoses—schizophrenia, affective psychoses and reactive psychoses. We also attempted to study the correlation, if any, between the occurrence of FRS and the presence of family history of schizophrenia, affective psychosis and reactive psychosis in the three categories.

**Aims**

1) To study the occurrence of First Rank Symptoms in three major forms of functional psychosis viz: schizophrenia, affective psychosis and reactive psychosis.

2) To explore the relationship between the occurrence of First Rank Symptoms and the presence of family history of schizophrenia, affective psychosis and reactive psychosis.

**Methods**

The study was conducted at National Institute of Mental Health and Neurosciences, Bangalore, India, between October 1979 and March 1980. The cases were selected from the out-patients attending the hospital for the first time. 30 cases in each diagnostic category were collected. Feighner's (1972) diagnostic criteria were employed for making the diagnosis of schizophrenia and affective psychosis and not Spitzer's (1978) since the latter specifically states that to make a diagnosis of depression, symptoms indicative of schizophrenia, like thought broadcast, thought insertion etc., should not be present. Spitzer's criteria would automatically exclude patients with First Rank Symptoms from the diagnostic category depression. Moreover, if we adhere to Spitzer's criteria, we would probably not find first rank symptoms in any other psychoses except schizophrenia. Feighner's criteria were preferred as they did not make a specific mention of the first rank symptoms. For a diagnosis of reactive psychosis, the criteria used by Pandurangi and Kapur (1979) were employed. The cases fulfilling these criteria were selected randomly by using Fisher's (1957) random number tables. The cases were seen by the investigator in the out-patient, before they were started on any medication. The first rank symptoms were evaluated using Mellor's check-list (Mellor, 1970). The occurrence of schizophrenia, affective psychosis and reactive psychosis among patient's immediate family members and first degree relatives was investigated in each of the ninety cases. Where possible the occurrence of any of these illness was confirmed by a diagnostic interview.

**Results**

One or more first rank symptoms were found to be present in 53.3% of patients with a diagnosis of schizophrenia, in 33.3% of patients with affective psychoses and in 23.3% of patients in the reactive psychosis group (Table 2).

The frequencies of the individual first rank symptoms in the three diagnostic categories are presented in table 3. A statistical test of significance was employed wherever
First rank symptoms

Table 2
Prevalence of First Rank Symptoms

| Diagnosis          | Number | %   |
|--------------------|--------|-----|
| Schizophrenia      | 16     | 53.3% |
| MDP                | 10     | 33.3% |
| Reactive Psychosis | 7      | 23.3% |

The expected frequencies of the first rank symptoms were 5 or above. This was possible for three first rank symptoms, namely: thought broadcast, thought insertion and thought withdrawal. It was observed that these three occurred significantly more often in the schizophrenic group as compared to the other two groups ($p < 0.05$). No statistical test of significance could be employed for the other first rank symptoms because of the small sample involved. However, even in these cases, analysis of their occurrence revealed interesting trends. For instance, in the affective psychosis group, the commonest first rank symptoms were voices commenting on one's actions and made volitional acts. On further analysis, it was noticed that these two occurred together in 5 out of 10 patients who manifested first rank symptoms in the affective psychosis group. Subsequently, on verification all these five patients were found to be in the diagnostic category of (psychotic) depression. No such characteristic trend emerged in the reactive psychosis group, where thought withdrawal, thought insertion and voices arguing were the FRS to occur with maximum frequency. The occurrence of family history of the three major functional psychoses is given in Table 4.

Table 3
Frequency of Individual First Rank Symptoms

| First rank symptoms | Schizophrenia | Affective psychosis | Reactive Psychosis |
|---------------------|---------------|---------------------|--------------------|
|                     | No. | %   | No. | %   | No. | %   |
| 1. Audible thoughts | 3   | 10.0| 1   | 3.3 | 1   | 3.3 |
| 2. Voices arguing  | 7   | 23.3| 2   | 6.6 | 4   | 13.3|
| 3. Voices commenting on one's action | 3 | 10.0| 5 | 16.6| 2 | 6.6 |
| 4. Somatic passivity | 6   | 20.0| 1   | 3.3 | 3   | 10.0|
| 5. Thought withdrawal | 9   | 30.0| 2   | 6.6 | 4   | 13.3* |
| 6. Thought insertion | 9   | 30.0| 2   | 6.6 | 4   | 13.3* |
| 7. Thought broadcast | 10  | 33.3| 2   | 6.6 | 3   | 10.0** |
| 8. Made feelings    | 2   | 6.6 | 2   | 6.6 | 1   | 3.3 |
| 9. Made impulses    | 2   | 6.6 | 2   | 6.6 | 1   | 3.3 |
| 10. Made volitional acts | 2 | 6.6| 5 | 16.6| 1 | 3.3 |
| 11. Delusional perception | 2 | 6.6| - | - | 1 | 3.3 |

$* X^2 = 6.24 \quad p < 0.05 \quad \quad ** X^2 = 9.1 \quad p < 0.01$

Table 4
Family History of Mental Illness

|                      | Schizophrenia (N = 30) | Affective psychosis (N = 30) | Reactive psychosis (N = 30) |
|----------------------|------------------------|-----------------------------|-----------------------------|
| Schizophrenia        | 7                      | -                           | 4                           |
| Affective psychosis  | -                      | 9                           | 2                           |
Discussion

The prevalence rate of first rank symptoms in schizophrenia found in this study, 53.3% is very similar to that found in the IPSS, namely 57% (Carpenter and Straus, 1974). If we look specifically into the prevalence rate of first rank symptoms in the Indian sample of the IPSS we note that 47% of patients had one or more FRS, similar to our finding.

The prevalence of FRS in patients with a diagnosis of affective psychosis is found in this study viz; 33.3% again compares favourably with that found in IPSS, viz. 39% (WHO, 1973).

We found that 23.3% of patients in the reactive psychosis had one or more FRS. There is only one study with which we could compare our results (McCabe, 1975) and we found our prevalence rate to be almost twice as that reported by McCabe.

Since we noted that FRSs do occur in patients with a diagnosis other than schizophrenia we thought it important to discern any differential pattern of their occurrence in the three diagnostic groups. Till date, there has been little investigation in this area and our study probably offers a clue in this direction.

Our study indicates that all FRSs do not occur with the same frequency. In our sample of schizophrenics, thought broadcast, thought insertion and thought withdrawal were much more prevalent than the other FRSs. There is indication also that these occurred to a significant extent in this group as compared to the other diagnostic groups under study.

In depressive psychosis we note that voices commenting on one's actions and made volitional acts occur with striking frequency. It is possible that the depressed patient who has already undervalued himself and is feeling low and inactive, begins to feel like a automaton and believes that others comment on his actions, usually in derogatory terms.

It is probable that these two FRSs are much more closely related to the clinical picture of depression than to that of schizophrenia. We could not compare our results in this area with the other available data in the field as there is little information on the pattern of occurrence of FRS in depression. Even though our findings indicate a close association between certain FRSs and depression, such association have to be borne out by further studies, in larger patient populations.

In the category of reactive psychosis no particular trend emerged. The pattern of occurrence of FRS in this category appears similar to that of schizophrenia, with thought broadcast, thought insertion and thought withdrawal being the commonest FRSs.

While reviewing the family history of functional psychosis in the three groups, we found that a family history of schizophrenia was present in 7 out of 16 patients who had First Rank Symptoms in the schizophrenia group and in 4 out of 7 patients with First Rank Symptoms in the reactive psychosis group. In the affective psychosis group no family history of schizophrenia was found. On the other hand, there were nine patients with family history of affective psychosis and only one of them had First Rank symptoms. In the reactive psychosis group, family history of affective illness was found in two patients and First Rank symptom was not found in either of them.
of schizophrenia and First Rank Symptoms was found to be highly significant in both, the schizophrenic and reactive psychosis group (p < 0.01), whereas the association between family history of affective illness and First Rank Symptoms was not statistically significant (p > 0.05). Several speculations can be offered to explain this interesting association. Presence of family history of schizophrenia may be the cause for the presence of First Rank symptoms. It could also mean that the presence of family history of affective illness for affective psychosis patients makes the subject relatively free from the presence of First Rank Symptoms.

We already noticed that First Rank Symptoms are present in schizophrenia, affective psychosis and reactive psychosis, but the prevalence is higher in the first group. A strong association between First Rank Symptoms and family history of schizophrenia also emerged. So an attempt was made to find out the effect of family history of schizophrenia on First Rank Symptoms controlling the diagnosis of schizophrenia statistically. For this purpose, patients from all the three diagnostic groups were considered along with three variables, namely, First Rank Symptoms, family history of schizophrenia and a clinical diagnosis of schizophrenia. These variables were measured on a dummy, binary two-point scale. If a variable was present, then score 1 was given and if it was absent, the score was 0. Phi-coefficient was calculated between three possible pairs, namely, First Rank Symptoms Vs. family history of schizophrenia; First Rank Symptoms Vs. clinical diagnosis of schizophrenia; family history of schizophrenia Vs. clinical diagnosis of schizophrenia. The correlation coefficient (Phi-coefficient) was significant at 0.001 level between First Rank Symptoms and family history of schizophrenia whereas the correlation coefficient between the other pairs was not significant even at 0.05 level. The partial correlation coefficient between First Rank symptom and family history of schizophrenia, controlling clinical diagnosis of schizophrenia was again significant at 0.001 level, but the partial correlation coefficient between First rank symptom and clinical diagnosis of schizophrenia was not significant at the 0.05 level. Thus the result of partial correlation further confirmed the finding that First rank symptom is significantly related to the family history of schizophrenia and not to the clinical diagnosis of schizophrenia.

One possible explanation for this finding could be that the criteria for a diagnosis of schizophrenia employed, namely, Feighner's does not tap the 'core' features of the schizophrenic illness. However, the strong association between family history of schizophrenia and First Rank symptoms suggests that the latter are manifestations of 'core' schizophrenic illness. It would be worthwhile to study whether the patients with a family history of schizophrenia and First Rank symptoms do differ from others in various aspects of the illness, like clinical course, treatment response and outcome. We notice that First Rank Symptoms is prevalent in all three groups of psychosis and by itself could be of little help in assigning a patient to a particular diagnostic category. But in patients in whom First Rank Symptoms are strongly linked to the presence of a family history of schizophrenia, such associations could be of some specific value. Coupling a clinical expression, namely, First Rank Symptom with a possible factor of aetologic importance, namely family history of schizophrenia, could help us to identify a homogenous group of patients in whom the course, treatment response and outcome may be different. In our clinical
practice we often rely on symptoms alone for a diagnostic evaluation on the basis of which we plan therapeutic intervention. But it has been pointed out that symptoms alone are poor predictors of outcome of the illness (Sartorius, 1977). It would be worthwhile if we explore other avenues for evaluation of a patient. This study points out that a symptom group though apparently present in various diagnostic categories, does have a very strong association with a single familial and hence perhaps genetic variable. Such an association would help us in guiding the evaluations of the patient and in predicting the course and outcome.

The strong association between First Rank Symptoms and family history of schizophrenia could help us to identify a homogenous group of schizophrenic patients as separate from, for example, affective psychosis.

We have already noted that patients with affective psychosis have little chance of manifesting First Rank symptoms if they also have a family history of affective illnesses. Thus the association between family history and clinical features as has been elicited in this study, could perhaps help us to separate groups of patients into discrete diagnostic categories, which would otherwise not be possible on the basis of symptom profile alone.

However, it should be noted that further studies are essential in this area. In our study the family history of mental illness was obtained through history and when possible it was substantiated by actual examination of the affected relative. This drawback can be remediated in future studies.

As has been detailed earlier, once such an association between family history of mental illness and the presence of distinguishing clinical features is established well, further studies regarding the practical implications of such associations are needed.

**Conclusions**

1. FRSs occur not only in schizophrenia but also in other psychoses.
2. Individual FRSs do not occur with the same frequency. Some are more frequent than others.
3. Thought broadcast, thought insertion and thought withdrawal occur to a significant extent in schizophrenics as compared to patients with affective and reactive psychoses.
4. Made volitional acts and commanding voices seem to be much more common in patients with a diagnosis of psychotic depression.
5. There seems to be a strong correlation between the occurrence of FRS in the patient population and the presence of family history of schizophrenia.

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