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Current Status of First Rank Symptoms

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Abstract

Kurt Schneider's enumeration of certain symptoms of schizophrenias First Rank Symptoms (FRS) heralded a new era of prospective diagnosis into the discipline of psychiatry. His phenomenological approach, heirarchial arrangement of different groups of symptoms were unique. The questions concerning various definitions, clinical boundaries and varying prevalence rates in different studies have been discussed. Recent trends in the conceptualisation of FRS, the possible biological basis and the directions for future research have also been discussed.

Key words -
First rank symptoms

Kurt Schneider ushered into the discipline of psychiatry a new era of prospective diagnosis with a unique approach which was phenomenological i.e., understanding patient's actual and inner world of subjective experience. Schneider stressed that the diagnosis is properly made primarily on the basis of symptoms rather on the course [1].

Schneider enumerated a list of symptoms and arranged empirically into groups of symptoms in an hierarchy of diminishing discriminating value. In cases of functional mental illness, first rank symptoms (FRS) received the highest diagnostic priority. FRS were more important than the second rank symptoms like feelings of emotional impoverishments, delusions and other psychotic features. But these were more important than third-rank symptoms which are abnormal modes of expression and behaviour. Schneider did point out that schizophrenia could also be diagnosed exclusively on the basis of second rank symptoms when otherwise typical clinical picture was present [2]. This reflects Schneider's pragmatic approach to diagnosis.

The clinical relevance of these symptoms lie in the fact that these symptoms lie in the fact that these symptoms can be most easily and reliably elicited at the bedside in many cases of schizophrenia. Also that these symptoms are relatively easy to operationalise and evaluate. Though he claimed the illness to be of organic etiology, he did not offer any theoretical explanation to these symptoms i.e., they are theoretical.

The definitions and Boundaries

Schneider listed eleven FRS. Mellor [3] groups them under three heads:

A. Special forms of auditory hallucinations.
   (a) Audible thoughts
   (b) Voices arguing
   (c) Voices commenting

B. Delusional percept.

C. Disturbances in ego boundaries
   (a) Somantic passivity
   (b) Thought insertion
   (c) Thought withdrawal
   (d) Thought broadcast
   (e) Made feelings
   (f) Made impulses
   (g) Made volitions.

One of the important drawbacks in Schneider's enumeration was that, he did not give the definition nor the detailed description of symptoms. The enumeration was in German. It had to be translated to make it known to the rest of the world. The translation could only be near exact. For example "gedankenlautwerden". There is no exact English term for this. Fish [4] feels that probably the best English term would be "thought echo". An alternative which is rather cumbersome is "thought sonorization".

Schneider's student Karl Koehler [5] brings out the boundaries of each FRS well and infers that they may be wide or narrow. For example, thought broadcast is viewed differently by different Anglo-American authors. Mellor [3] included both shared and non-shared thought broadcast into one category while Wing et al [6], and Fish [4] considered only shared thought broadcast as thought broadcast. The differences in interpretations and boundaries of clinical phenomena might explain discrepant findings in many studies.

Koehler [5] presented an FRS continuum, grouping them from F1-F12 for clinical use. It arbitrarily classifies FRS into 3 groups viz., the delusional, the passivity and the sense deception continua. This scheme is non-theoretical, in that no over riding, non-clinical psychological principle governs this arrangements. Also, the order of arrangement does not reflect the degree of severity nor are they arranged on a sort of dynamic sliding scale. Some dynamically oriented workers like Conrad and Janzarik view the progression along this continuum. Thus, Koehler [5] held that FRS should be viewed as a spectrum or continuum. The views may be wide or narrow. The question as to who is correct is meaningless. But two things seem to be important, to avoid the confusion, viz.,

1. An unmistakably clear statement of their own first rank boundary criteria.
2. A clear statement of the nosologic bias they personally attach to these phenomena. Because some wo [7], Taylor and Abrams [8] and other do not give schizophrenic weightage to first rank or first-rank like symptoms, especially in the presence of strong affective clinical features. This is in contrast to the usual bias influencing the clinical practise of German Schneiderians.

Diagnostic Implications

Prevalence of FRS in schizophrenia

Schneider emphasized that the diagnosis of schizophrenia can be made without FRS but when an FRS is elicited "it should have undisputed precedence when it comes to the allocation of the individual case [9]".

The first to use operational definitions of Schneider's FRS and systematically count their presence in a defined clinical population of schizophrenics was Mellor [3]. He studied 166 patients by interview method and found 71.1% of patients with at least one FRS and 7.2% with one of them retrospectively reported - a total of Rs.78.9%.

Table I shows the prevalence of FRS in Schizophrenia in different studies.

Table I - Prevalence of FRS in schizophrenia as found in several studies - (Modified from Hoenig [10]***)***

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Looking at the table, a wide gap can be seen in the prevalence of FRS, ranging from 33% to 80%. Various reasons have been given for this:

1. Size of the sample: When the size of the sample is very small, they tend to report a higher percentage [10]
2. Methodology: Studies employing chart review depend on the data having been originally recorded. It [10]
3. Various definitions and clinical boundaries of FRS adapted by each worker are quite different. Some [10]
4. A higher prevalence of catatonic schizophrenics in a sample would lower the prevalence of FRS as it is difficult to establish phenomenology in such acutely ill patients in states of stupor.
5. Cultural influences: Patients from oriental countries report relatively lower FRS than their Western counterparts. Many of the FRS like disturbances of ego boundaries are not considered to be abnormal in traditional societies.

Reliability of FRS in making the diagnosis

The diagnositic reliability of FRS depends on the reliability of elicitation of FRS. In the IPSS [11] study, the reliability of elicitation of FRS was assessed. The overall reliability of PSE items in eliciting FRS was significant. It differs according to the item for the same FRS, for example, for thought insertion, the question -

"Are thoughts put into your mind which you know are not your own? Thoughts from elsewhere? How can you tell they are not yours? Who put them there?"

gets a reliability score of 0.89, whereas the question -

"Is there a difference between your own thoughts and other thoughts that have been put into your mind?"

gets a score of 0.55. Thus, the way we elicit determines the number of FRS and in turn its relevance in making the diagnosis of schizophrenia.

The collaborating investigators of IPSS found that most FRS were highly discriminating. Table II shows FRS and probability of receiving a diagnosis of schizophrenia or paranoid psychosis.

Table II - Discriminating value of FRS (out of the data from WHO [11]***)***

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Therefore most of the FRS taken alone, are strong diagnostic indicators of schizophrenia, although they did not exclusively appear in schizophrenia. Presence of FRS in non-schizophrenics is discussed in a subsequent section.

But most of the workers feel that, the reliability of only FRS in making the diagnosis of schizophrenia is very low. And only FRS should not be used in making the diagnosis. The presence of FRS should be viewed in the light of other psychotic symptoms and history. When the diagnosis of schizophrenia with FRS and without FRS are compared, as reported in several studies, it is seen to be varying from 78:22 to 33:67 with several rates in between [10].

FRS in subtypes of Schizophrenia

The prevalence of FRS is known to vary within different subtypes of schizophrenia, with paranoid schizophrenics reporting the highest and latent schizophrenics the least. The IPSS [11] study reveals that this finding is consistent across different countries and cultures. Table III shows the FRS in subtypes of schizophrenia as reported in the IPSS.

Table III - FRS in subtypes of schizophrenia (out of the data from WHO [11]***)***

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The significance of these findings becomes even more striking when we take the actual number of cases into account. When compared to the population of paranoid schizophrenics, hebephrenic schizophrenics are conspicuously less in number (about 1/4th). This might explain the higher percentage among hebephrenic schizophrenics.

Prevalence of FRS in non-schizophrenics

Schneider claimed that FRS in the absence of gross brain pathology do not occur in conditions other than schizophrenia. Investigations have been conducted to assess the validity of Schneider's claim. Taylor's [12] claim. Taylor's [12] study confirmed Schneider's contention. But several other investigators came to different conclusions. Table IV shows the prevalence of FRS in patients with non-schizophrenic diagnosis.

Table IV - Reported prevalence of FRS in patients with non-schizophrenic diagnosis (Modified from Hoenig [10]

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Wing and Nixon [13] utilizing the same data from the IPSS assess the presence or absence of the "nuclear syndrome", which includes "most of the FRS of Schneider". They found the nuclear syndrome in 23 (7.5%) non-schizophrenic patients: 13 of them were said to have mania and 10 various depressives and personality disorders. (See Table V)

Table V - Concordant and discrepant positives and negatives [13]

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Since Wing and Nixon's study is methodologically the most sound, their discrepant findings carry more weight. They do, however, say that there were some false positive ratings. The reasons are:

1. Discrepant cases were not distributed evenly throughout the 9 centres where the investigation was carried out. Of the 23 discrepant cases, 17 or about 2/3rds were all reported from 3 of 9 centres, where the investigation took place, whereas remaining 6 were scattered over 6 centres with a much smaller discrepancy rate.

2. The diagnosis of manic psychosis is questioned.
3. The defects in rating, the complexity of symptoms with varying definitions and clinical boundaries are also the reasons.
4. FRS might actually occur with low but unmistakable frequency in mania, suggesting some form of clinical link between mania and "nuclear syndrome" of schizophrenia.

Because of the above findings, some authors think that Schneider's claim of exclusive presence of FRS in schizophrenia in the absence of gross brain pathology is invalidated. But Wing and Nixon point out that there is only a small relative overspill and that it may well be due to methodological flaws and that Schneider's claim has not been tested at all properly.

Mellor [14] concludes that as these studies do not acknowledge the problems of defining and eliciting these symptoms, their conclusions should not be unreservedly accepted.

It is hardly conceivable as to how a diagnosis of neuroses and personality disorders can be made when a patient unequivocally reports an FRS. A clear statement of which symptoms were found in which diagnostic group and the way it was elicited would provide a better basis for a critical evaluation of the discrepant findings [10].

But recent studies by Ross et al [15], [16] show that there is no significant difference between the number of Schneiderian symptoms reported by patients with multiple personality disorder (MPD) and schizophrenia on structured interview schedule. MPD patients reported more number of FRS than schizophrenics. These findings were replicated by them in another study in 1990, on a larger sample with better design. The average number of FRS in schizophrenics was 1.3 and in MPD, it was 4.5 - 6.4. They feel that it is more appropriate to call these as "First rank symptoms of multiple personality disorder" than "First rank symptoms of schizophrenia". They also bring out differences between the FRS in MPD and those in schizophrenia which need further study.

FRS in current diagnostic systems

Schneider's FRS became so influencing that the users included them in such important documents like the British Registrar Generals Glossary of Mental Disorders [17]. It came to be incorporated in important diagnostic systems as criteria for the diagnosis of schizophernia. The weightage given to those symptoms varies with the diagnostic system.

ICD - 9 [18]

Though the same terms for FRS are not used here, the phenomena are described as..."The most intimate thoughts, feelings and acts are often felt to be known to or shared by others...: - meaning thought broadcast, "... supernatural forces are at work to influence the schizophrenic person's thoughts and actions..."- thought withdrawal, thought insertion and made acts. It is not very clear about made affects and impulses. "Hallucinations especially of hearing ...., may comment on the patient or address him" - voices commenting and voices discussing. Only six of eleven FRS find place here.

ICD - 10 [19]

ICD-10 clearly and specifically mentions eight out of eleven FRS in its diagnostic criteria for schizophernia viz., thought echo, thought insertion, thought withdrawal, thought broadcast, passivity feelings, voices commenting, voices discussing and delusional perception.

DSM - III R [20]

Three of eleven Schneiderian symptoms find place viz., thought broadcast, voices arguing and voices

discussing. Delusion of control has also been included. But none of them have been given any prime importance. Other psychotic symptoms have been emphasized.

RDC criteria includes about eight out of eleven FRS. Other important diagnostic systems like Gabriel - Langfeldt, New Haven Schizophernia Index, St. Louis criteria etc., do not make any specific mention of FRS in their criteria.

All diagnostic systems for schizophernia are based on particular symptoms, course of illness, various exclusion criteria and information from friends, relatives, past psychiatric history etc., Presence or the absence of FRS in each diagnostic system does not alter the specificity in the diagnosis of schizophernia. As there is no objective marker for schizophrenia, none of these systems have construct validity. Some diagnostic systems diagnose schizophernia ten times more than the other systems. But it is incorrect to assume that the more restrictive systems diagnose truer schizophernia [2].

Prognostic implications

Schneider believed that FRS were associated with poor outcome and cited. Baumer's findings as support (quoted in Ref.12). Taylor [12] found the presence of FRS associated with poor prognostic features and the absence of FRS associated with good prognostic features based on a case record review of 78 young male patients diagnosed as schizophernics. He found the poor prognosis Schneider positive group less responsive to short-term treatment, but did not report long term follow-up. Taylor uses prognostic features of Robins and Guze [21] which include measures of chronicity and other indices. Since Taylor does not report relationships between individual indices and poor outcome, it is difficult to determine to what extent the association between FRS and outcome is a function of established chronicity at the time of study.

Two year follow-up study by Carpenter [22] showed no relationship between presence or absence of FRS and individual outcome indices (duration of hospitalisation, work function, social function and symptomatology). Overall outcome was actually, slightly, although insignificantly, better for patients with FRS.

Kendell [23] compared the validity of six operational definitions of schizophernia and found that all were more successful at predicting a poor symptomatic rather than social outcome.

Hawk and Carpenter [24] applied Langfeldt's, Schneider's and Carpenters criteria and found after a 5 year follow-up that none of these criteria significantly identified a group of patients with poor outcome.

IPSS [11] also showed marked variability in course and outcome of patients diagnosed according to strict symptomatological criteria. This is partly related to variables linked to culture and social environment.

Thus, additional variables like family, social support etc., need to be considered to improve the predictive ability.

Newer developments in the conceptualisation of FRS

With so much of diverse information regarding FRS, several workers began looking at them from several different perspectives. They can be broadly classified into two, namely,

1. The relationship between FRS and other commonly occurring psychiatric symptoms, and
2. The relationship within FRS themselves.

Lewine et al [25] found in their study that the frequency of occurrence of each FRS was substantially

different. Thought broadcast was the most common and thought withdrawal, thought echo and primary delusions least common. This finding was similar to that found in other studies by Carpenter et al (1970), Mellor (1970) Orn [3] and others. However, Bland and Orn [26] reported 63% (the highest) prevalence for delusional perception, and thought withdrawal, voices arguing and audible thoughts, the least common. Carpenter and Strauss [17] study reported made volition to be the most common followed by audible thoughts and the least common being voices commenting.

These variations may be attributed to the standardisation of definition and assessment. These studies also suggest that FRS do not form an empirically homogeneous symptom group. More specifically FRS that reflect a lowering of the boundary between the self and the environment, do not covary highly with one another than any other symptom [25].

Lewine et al [25] carried out a factor- analysis of FRS with some defined factors. Some interesting observations were made e.g.,: Thought echo and withdrawal loaded most highly with "anxiety" factor "consistent with the notion that when in high anxiety states individual feels exposed and open to others criticisms.

Mellor [3] found links between first and second rank symptoms he found that made affect was associated with "affective disorder", made impulses and volition with motor disorder and thought insertion with formal thought disorder. Thus, this empirical heterogeneity within FRS could be reflective of different psychopathological processes.

Biological basis of schneiderian delusions

Specific mechanisms by which clinical signs and symptoms of schizophrenia are produced remains largely unknown. Neurochemical models, such as dopamine hypothesis, do not adequately explain the production of actual psychopathology of the schizophrenic syndrome. Several other mechanisms have been hypothesized. Only two of the important ones have been explained here.

Commissurotomy studies have revealed that the two cerebral hemispheres contain two separate and different spheres of consciousness that are fully integrated into one cohesive "self" via the corpus callosum and other interhemispheric commissures. Most vital neural mechanism for interhemispheric integration is the inhibition of the "awareness" by each hemispheric sphere of consciousness that it is, in fact continuously receiving information from and sending information to another sphere of consciousness outside its own. This inhibitory process allows the full exchange of thought, feelings, intentions etc., between the hemispheres without ever questioning the "source" of all the incoming information or the "destination" of all the outgoing information. If this inhibition of interhemispheric awareness is impaired, then the unity of consciousness is lost and the person would then function with two anatomically communicating but neurochemically unintegrated spheres of consciousness [27].

According to this hypothesis, the schizophrenic patient would express (via his/her verbal left hemispheres) the belief that thoughts are being inserted into his/her head or that he/she is made to feel or act in a certain way by an "external force" (in fact, his/her own right hemisphere). Thought broadcasting would be the delusional explanation that the left hemisphere develops as to why its own thoughts are continuously transmitted outside its own self (to the right hemisphere, in fact).Thus, the right hemisphere, which is part of the schizophrenia patient's physcial self, is perceived in schizophrenia (by the left hemispheric consciousness) as part of the external world. Thus, the right hemisphere would become an "alien intruder", which is colored by the patient's cultural background [27].

Based on the evidence from patients with epilepsy who develop schizophernia, like illness, it is argued that the FRS of Schneider, far from having specificity for an anatomical localisation of abnormality related to the temporal lobe structures, particularly, but not necessarily exclusively, in the dominant hemisphere [28].

FRS - The way ahead

From this review, it becomes evident that the constellation of these symptoms have something unique in them. Though they cluster heavily for the schizophrenic illness, clinically significant numbers are seen in nonschizophrenic illness. They can be studied from various different perspectives.

In the past, the attempts to provide biological basis for mental illness were aimed, mainly, at the implication of pathology in specific regions of the brain. Later on, the emphasis was gradually shifted toward the neurotransmitters and other molecular neurobiological mechanisms. But the recent trend, again, is to delineate certain regions of brain in the pathogenesis of psychopathology by using modern techniques like PET.

The biological basis of Schneiderian symptoms tempts one to view them primarily on an anatomical basis. By establishing brain-behaviour relationships more clearly, psychiatric symptoms may be interpreted on neuroanatomical basis which in turn is hoped to minimise the impression in psychiatric classification based primarily on clinical observation and committee decisions [28].

It has been very clearly shown in Northwick Park Study [29], that the symptoms respond to specific medications, irrespective of the diagnosis. Neuroleptics could bring down the psychotic features (of which FRS form a part) and lithium could correct affective deviations, regardless of the diagnosis. This would, perhaps, very well speak about a common or similar neurochemical in the production of FRS. Subtle variations within themselves could explain the differences in prevalence among themselves.

Looking at the distribution of FRS along the continuum proposed by Crow [30], [31], these tend to cluster heavily toward the schizophrenic end, which leads one to suspect a genetic basis. The simplest interpretation of the continuum is proposed to be a variation relating to a single genetic locus, in the pseudoautosomal region of the sex chromosomes.

A further suggestion is that efforts to elucidate to understand the phenomenology and the elicitation should not be abandoned. As these are very cost-effective methods in arriving at reasonable diagnosis and perhaps, anatomical localization, increased attention has to be paid in both research and training, as well. Further, research into the biological basis of these symptoms will, no doubt, throw more light on the mind-brain interaction, on the one hand and on the other, reasearch into the clinical aspects is expected to refine the diagnostic process.

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