

Prevalence and frequency of first rank symptoms in patients of schizophrenia attending tertiary care center in north-eastern part of India

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ABSTRACT

Background: Schizophrenia is perhaps the most tragic manifestation of mental illness known to mankind. The consequences of the illness are devastating. Kurt Schneider tried to make the diagnosis of schizophrenia more reliable by identifying a group of eleven symptoms characteristic of the illness, but rarely found in other disorders, these were his First Rank Symptoms. **Objectives:** 1. To assess the socio-demographic and clinical profile of the schizophrenics. 2. To find the prevalence and frequency of First Rank Symptoms (FRS) **Materials and Method:** This study was prospective cross sectional. 100 consecutive schizophrenic patients from Psychiatric OPD was taken, diagnosed using ICD-10 criteria. FRS was assessed using items from the SCAN and Mellor's Checklist. The data obtained was analyzed using SPSS Version 21. **Results:** Most of the patients were within 27-37 years (41%), females (56%), Muslims (50%), primary school educated (38%), unskilled workers (32%), married (63%), from lower middle class socio-economic status (36%), belonging from rural area (72%). Also, majority were neither first born nor last born (57%), belonged to nuclear families (51%), had a duration of illness of more than twelve months (77%), did not have a family history of psychotic illness (61%). First Rank Symptoms was found in 34% of cases, single FRS in 27%. Commonest FRS was found to be "voices commenting" (21%). **Conclusion:** The study of the symptomatology provides an excellent opportunity to discuss the cross-sectional profile of an illness. The study of FRS is still significant in today's context as they are more objective and easier for clinicians to recognize and there are very few studies in this topic in NE India.

Keywords: First Rank Symptoms, Schizophrenia, Tertiary Care Centre, Prevalence, North Eastern India.

Schizophrenia is perhaps the most tragic manifestation of mental illness known to mankind. It is branded by disordered cognition, including a "gain of function" in psychotic symptoms

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and a “loss of function” in specific cognitive functions, such as working and declarative memory, but without the progressive dementia that symbolizes classical neurodegenerative disorders. Although its phenomenology is fascinating, its pathophysiology and etiology still remain unclear. The concept of schizophrenia as a human brain disease did not develop until the 19th century. It was not until the middle of the 20th century that antipsychotic drug treatments became widely available. Now at the commencement of the 21st century, we have been blessed with two generations of antipsychotic medications, several known risk genes, an evolving anatomy, but still no basic disease formulation have been introduced. There are three pioneer names in the field of schizophrenia, namely **Emil Kraepelin (1856-1926)**, a German psychiatrist described two major patterns of primary insanity: the manic-depressive psychosis and the dementia praecox (dementia of the young) on the basis of long-term prognosis and course of illness. **Eugen Bleuler (1857-1959)**, who in the year 1911, suggested that “dementia praecox” be replaced by the word “schizophrenia” meaning ‘splitting of the mind’. He also proposed the concept of primary and secondary schizophrenic symptoms. His four primary symptoms (also known as the four ‘A’s) were- abnormal associations, autistic behavior and thinking, abnormal affect ambivalence. Of these Bleuler viewed as central to the illness is the loss of association between thought processes and among thought, emotion and behaviour. Next in the line was **Kurt Schneider (1887-1967)** who identified eleven symptoms that are readily perceived and are easily elicited by the clinicians and termed them as ‘First Rank Symptoms’ and contended that they should have a ‘decisive weight’ beyond all others in establishing the differential typology between schizophrenia and cyclothymia¹ (**Schneider, 1959**). They were as follows:-

1. **AUDIBLE THOUGHT**-Auditory hallucinations of a person’s voice being spoken aloud.
2. **VOICES ARGUING OR DISCUSSING:** Auditory hallucinations of two or more voices arguing or discussing, most commonly about the person experiencing the hallucination.
3. **VOICES COMMENTING ON PATIENT’S ACTIONS**-Auditory hallucinations commenting on a person’s behaviors.
4. **SOMATIC PASSIVITY**-The patient is a passive and invariably a reluctant recipient of bodily sensations imposed upon him by some external agency.
5. **THOUGHT WITHDRAWAL**-Thoughts being actively removed from a person’s mind.
6. **THOUGHT INSERTION**-Thoughts inserted into a person’s mind by some external agent.
7. **THOUGHT BROADCASTING**-The sense that person’s thoughts are being experienced as real phenomenon by others-the thoughts are made audible or may be experienced by others through telepathy.
8. **MADE FEELINGS/AFFECT**-Feeling that are not a person’s own are imposed on that person by external agent.
9. **MADE IMPULSES OR DRIVES**-An impulse for action is imposed on a person by some external agent.
10. **MADE VOLITIONAL ACTS**-A person’s actions are from and are controlled by an external agent; the person is a passive participant in the action.
11. **DELUSIONAL PERCEPTION**- It is a two stage phenomenon. The delusion arises from a perception which to the patient possesses all the qualities of a normal perception, and which he recognizes would be regarded same by anyone else. This

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perception however has a private meaning for him, and the second stage, which is the development of the delusion, follows almost immediately.²(Mellor et al.,1970)

However, First Rank Symptoms are not exclusive of schizophrenia and can be found in other conditions as well like affective psychosis, reactive psychosis etc.³(Raguram et al.,1985) Schneider himself recognized this and noted that diagnosis of schizophrenia can be made even in absence of First Rank Symptoms but if present it must have an undisputed precedence when it comes to the allocation of the individual case.⁴(Carpenter et al.,1974). Hence the importance of the FRS cannot be discarded in schizophrenia. and their significance can be judged from the fact that some of them are included as diagnostic criteria in the International Classification of Disease-10th Edition (ICD-10) by the World Health Organization (WHO).

Aims and Objectives

1. To assess the socio-demographic and clinical profile of the schizophrenics.
2. To find the prevalence and frequency of First Rank Symptoms (FRS)

Materials and Method

This study was prospective cross sectional. Total of 100 cases were selected consecutively who fulfilled the inclusion and exclusion criteria and visited the Department of Psychiatry within the period of 1 year from July 2018 to June 2019. Cases were interviewed and their mental status examination was evaluated to find if they fulfilled the ICD-10 criteria for schizophrenia.

Inclusion Criteria

1. All patient between the age group of 16-59 years will be included in the study.
2. Cases of both sexes were included.
3. All patients who have given written consent to participate in the study.

Exclusion Criteria

1. Patients having Intellectual Disability, Dementia, Seizure disorder, head injury or any other neurological deficits or suffering from any severe debilitating condition.
2. Patients abusing any kind of long-term psychotropic drug or substance like alcohol that are known to precipitate schizophrenia like symptoms.
3. Patient information provided for the study is inadequate or unreliable.

Data Collection

100 consecutive schizophrenic patients from Psychiatric Department was taken, diagnosed using ICD-10 criteria. Sociodemographic and clinical data were collected from all the study participants using a standard proforma which was designed and standardized in the department itself. Presence or absence of FRS was assessed using items from the Schedule for Clinical Assessment in Neuropsychiatry (SCAN), Version 2.1⁵(Hembram et al,2014) and Mellor's Checklist.

SCAN (Schedule for Clinical Assessment in Neuropsychiatry) Version 2.1

SCAN or Schedules for Clinical Assessment in Neuropsychiatry is a set of tools created by the World Health Organization (WHO) aimed at diagnosing and measuring mental illness that may occur in adult life. The SCAN system was originally called PSE, or Present State Examination, but since version 10 (PSE-10), the commonly accepted name has been

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SCAN. The entire SCAN interview consists of 1,872 items, spread out over 28 sections. We have used mainly the part two of the Present State Examination subsection for the following study.⁶ (Wing *et al.*,1990) Each item was assessed based on the interviewer’s overall judgement of the presence or absence of a particular symptom during the past month. For purpose of this study, only responses indicating that a symptom was definitely present were considered positive and all other responses indicating doubtful or questionable or uncertain presence were considered negative.

Mellor’s Checklist for FRS

C.S.Mellor in his study gave an account of the eleven Schneiderian First Rank Symptoms in schizophrenics, on admission in mental hospital. Apart from this he also provided a checklist consisting of these symptoms. He defined each of these symptoms along with clinical illustrations so that they can be of use in future studies.^{2,3} (Mellor *et al.*, 1970,Raguram *et al.*,1985)

Statistical Analysis

The data was tabulated and analyzed using the Statistical Package for Social Sciences version 21 (SPSS 21)

RESULTS

Out of the total 100 consecutive schizophrenic patients belonging to age group between 16-59 years who were included in the study, we found that majority (41%) were within 27-37 years, 56% were females and 44% males, 50% were Muslims, 49% Hindus,1% Christian, 63% were married, 29% were single, 4% were widowed,4% were divorced, 72% belonged from rural area and 28% from urban, 51% came from nuclear families,41% from joint families and 8% from extended families. As per birth order is considered, 57% were neither first born nor last born, 33% were first born, 10% were last born. (Table 1)

We found that 38% were primary school followed by high school educated (23%) and illiterate (20%), 32% were unskilled workers followed by housemakers (31%) and daily wage workers. (16%),36% came from lower middle class socio-economic status (36%) followed by lower class (30%) and upper lower class. (16%).(Table 2)

Table 1- Sociodemographic Distribution Od Study Population-Age, Sex, Religion, Residency, Marital Status, Birth Status, Family Type;

AGE IN YEARS	NO OF CASES N=100	PERCENTAGE
16-26	24	24%
27-37	41	41%
38-48	20%	20%
49-59	15	15%
GENDER		
MALE	44	44%
FEMALE	56	56%
RELIGION		
HINDU	49	49%
MUSLIM	50	50%
CHRISTIAN	1	1%
RESIDENCY		

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AGE IN YEARS	NO OF CASES N=100	PERCENTAGE
RURAL	72	72%
URBAN	28	28%
MARITAL STATUS		
SINGLE	29	29%
MARRIED	63	63%
WIDOW/WIDOWER	4	4%
DIVORCED	4	4%
FAMILY TYPE		
NUCLEAR	51	51%
JOINT	41	41%
EXTENDED	8	8%
BIRTH STATUS		
FIRST	33	33%
LAST	10	10%
OTHERS	57	57%

Table 2; Sociodemographic Distribution of Study Population-According to Educational, Employment, Socioeconomic Status

EDUCATIONAL STATUS	NO OF CASES N=100	PERCENTAGE
ILLITERATE	20	20%
PRIMARY	38	38%
HIGH SCHOOL	23	23%
HIGHER SECONDARY	17	17%
GRADUATE AND ABOVE	2	2%
EMPLOYMENT STATUS		
UNEMPLOYED	9	9%
USKILLED WORKER	32	32%
DAILY LABORER	16	16%
STUDENT	5	5%
SERVICEMAN	7	7%
HOMEMAKER	31	31%
SOCIO-ECONOMIC STATUS		
UPPER CLASS	3	3%
UPPER MIDDLE CLASS	15	15%
LOWER MIDDLE CLASS	36	36%
UPPER LOWER CLASS	16	16%
LOWER CLASS	30	30%

We found that 77% of our study population had a duration of illness of more than twelve months followed by 15% had a duration of illness between 6 months and 12 months and 8% had a duration of illness less than 6 months. (Table 3)

As per as family history of psychotic illness is considered, we found that 61% did not have a family history of psychotic illness while 39% had one or more family members suffering from psychotic illness.(Table 3)

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Table 3: Distribution Of Study Population According To Duration Of Illness And Family History Of Psychotic Illness.

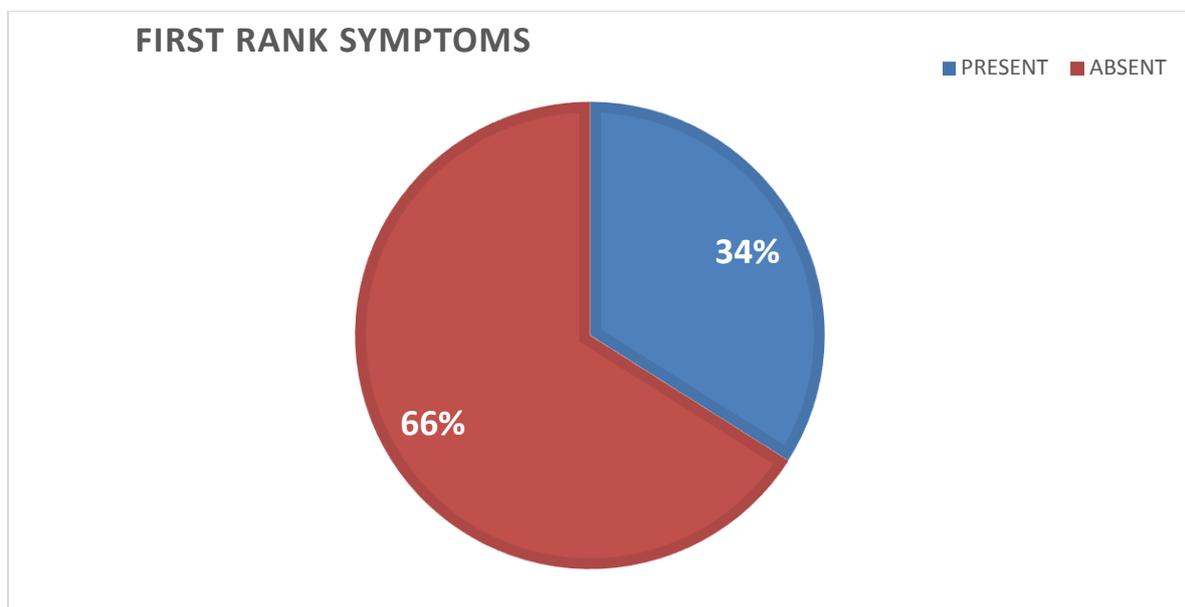
DUARTION OF ILLNESS IN MONTHS	NO OF PATIENTS N=100	PERCENTAGE
<6	8	8%
6-12	15	%
>12	77	77%
F/H OF PSYCHOTIC ILLNESS		
PRESENT	39	39%
ABSENT	61	61%

Now With these socio-demographic and clinical profile of the cases in the background, we tried to assess the presence of First Rank Symptoms in our study. 34% of the study population had one or more First Rank Symptoms while 66% had none.(Table 4 and Graph 4)

Table 4:- Prevalence Of First Rank Symptoms In Study Population.

First Rank Symptoms	No of Cases (N=100)	Percentage
PRESENT	34	34%
ABSENT	66	66%

Graph 1: Pie Diagram Showing Prevalence Of First Rank Symptoms In Study Population



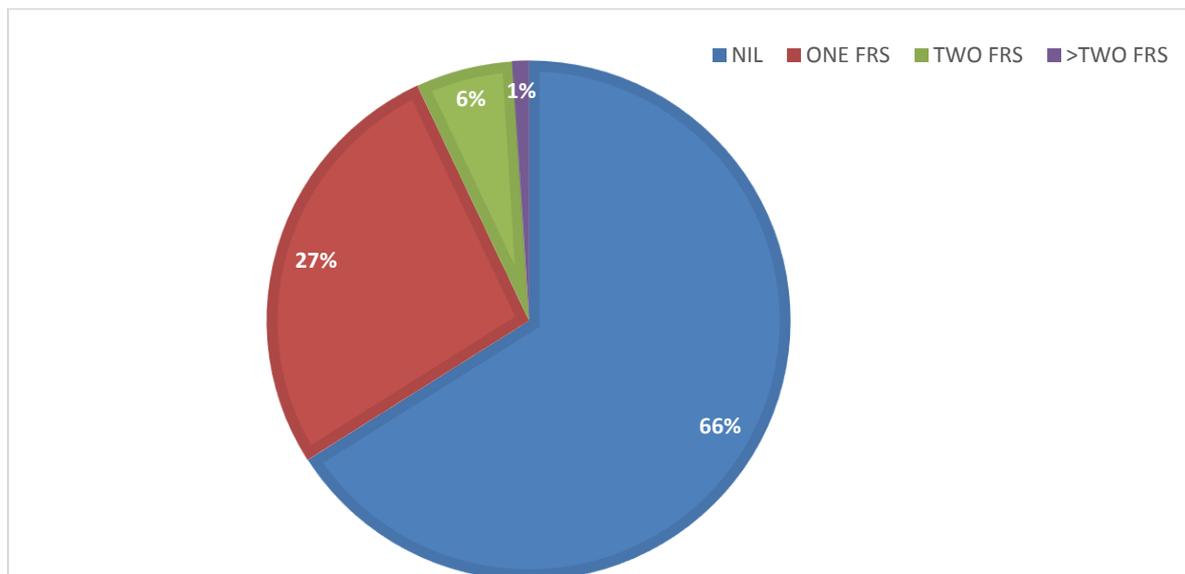
We found that 27% of the patients with schizophrenia had only one First Rank Symptom followed by 6% who had two First Rank Symptoms, and only 1% of them had more than two First Rank Symptoms at the time of presentation. (Table 5)

Table 5: No Of FRS Present In Study Population.

NO OF FRS	NO OF CASES	PERCENTAGE
NIL	66	66%
ONE FRS	27	27%
TWO FRS	6	6%
>TWO FRS	1	1%

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Graph 2: Pie Diagram Showing the Number of First Rank Symptoms in Study Population.



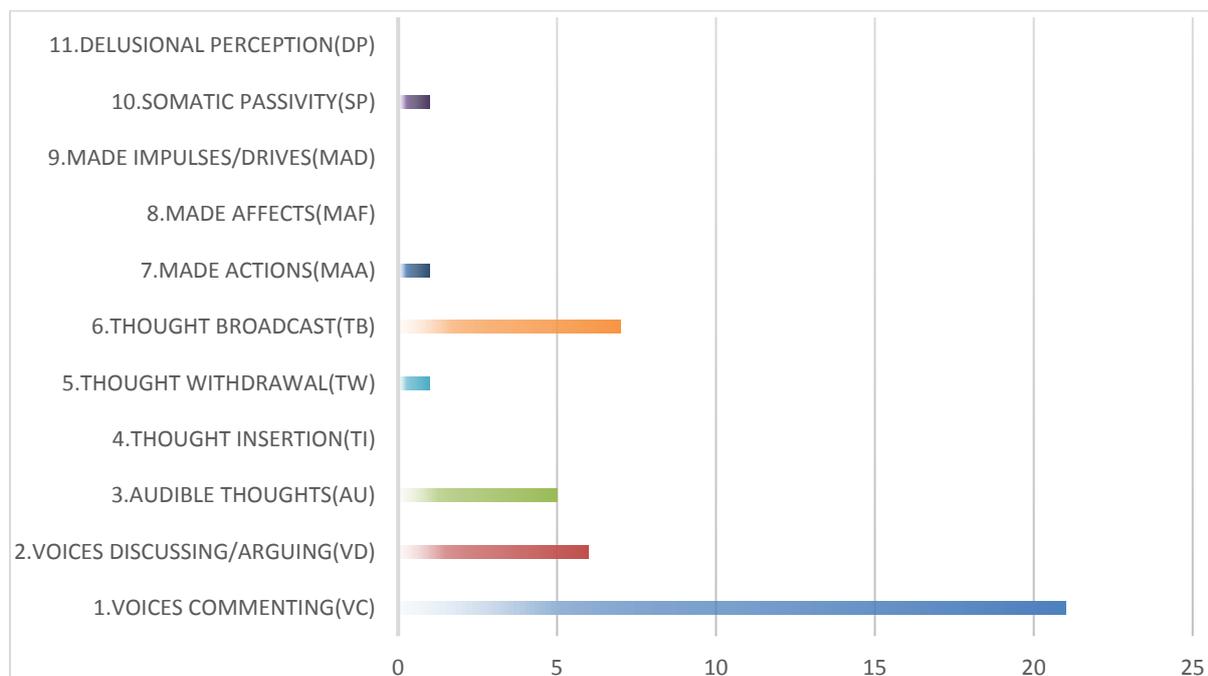
On assessing the frequency at which the First Rank Symptoms appeared in study population, we found voices commenting was present in 21%, thought broadcasting was present in 7% of the cases, voices discussing or arguing was present in 6% of the cases, audible thoughts was present in 5% of the cases, thought withdrawal was present in 1% of the cases, made actions in 1% of the cases, somatic passivity in 1% of the cases and no cases were there where thought insertion, made affect, made drives, delusional perception was present. (Table 6)

Table 6: Frequency of FRS In Study Population.

First Rank Symptoms	No Of Cases(N=100)	Percentage
Voices Commenting	21	21%
Voices Discussing/Arguing	6	6%
Audible Thoughts	5	5%
Thought Insertion	0	0;
Thought Withdrawal	1	1%
Thought Broadcast	7	7%
Made Actions	1	1%
Made Affect	0	0
Made Impulses	0	0
Somatic Passivity	1	1%
Delusional Perception	0	0

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Graph 3: Pictorial depiction of the distribution of First Rank Symptoms among all cases.



DISCUSSION

Different studies have found that there is a wide variation in the prevalence and frequency of Schneiderian First Rank Symptoms in schizophrenia. Many studies have attributed this variation to the different types of culture and population distribution across the world. This study was conducted to determine to depict the demographic and clinical characteristics of as well as to identify the patterns of prevalence and frequency of various First Rank Symptoms in schizophrenics of age group between 16 years to 60 years attending the psychiatry department of a Tertiary Care Center in North-Eastern India during the 1 year period from July 2018 to June 2019. Patients below the age 16 years were excluded with the idea that they are too young to interpret questions put to them using standard questionnaire and those above 59 years were excluded to rule out any age-related cognitive decline which may interfere with the interview procedure and schizophrenia in general is very rare in age groups above 60 years.

In this study we found that majority of the cases (41%) were within age group of 27-37 years with mean age being 36 years, females were slightly more (56%) than males (44%), Muslims (50%) were slightly more than Hindus (49%). **Mellor *et al*², Carpenter *et al*³, Hembram *et al*⁵** in their respective studies interviewed patients within the age group between 16 years-60 years and found majority of the patients to be within age group 20-30 years similar to our study.

Moreover, in our study majority (38%) have received primary level of education followed by 20% who were illiterate, most of them were unskilled workers (32%) followed by homemaker (31%) and majority (63%) were married. Also, the cases were mostly from lower middle class socio-economic status (36%), majority were from rural area (72%). This was in

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concordance with the population distribution of the catchment area. Indian studies like **Chandrasena et al⁷**, **R.Raghuram et al³**, **Radhakrishnan et al⁸** also found similar results.

In our study most of the patients had a duration of illness of more than twelve months (77%) with the average duration being 98 months or 8.16 years and did not have a family history of psychotic illness (61%) similar to **Chandrasena et al⁷** where also most patients had a long duration of illness of more than twelve months.

Now With these socio-demographic and clinical profile of the cases in the background, we tried to assess the presence of First Rank Symptoms in our study. We found that out of 100 schizophrenic cases, only 34 had one or more First Rank Symptoms and majority (79%) among them had only one FRS.

Other studies like that of **C.S.Mellor et al²** found 71.7% of FRS in 166 schizophrenic patients, **Carpenter and Strauss et al⁸** found FRS in 57% of schizophrenics, **Wing et al⁶** found 51% of FRS in 810 schizophrenic patients, **Chandrasena et al⁷** found an overall prevalence of FRS to be 25.4% among 169 schizophrenic patients, prevalence in first episode being 27.5% and in repeat episodes 23.5%, **Raghuram et al³** found one or more FRS in 53.3% of patients of schizophrenia, 33.3% patients of affective psychosis and 23.3% of patients with reactive psychosis, **Radhakrishnan et al⁹** found 35.2% of 88 schizophrenics to have one or more FRS., **Malik et al¹⁰** found FRS in 67% of 75 Pakistani schizophrenics. **Morcillo et al¹¹** found at least one FRS in 43.3% and more than one FRS in 21.6% in 60 people with high risk for psychosis. Thus, different studies have mentioned the prevalence of the FRS in schizophrenia to be from as low as 23.5% to 72%. Our study also demonstrates a finding within this range.

The reason for low prevalence of FRS in our study may be due to low level of education among the study participants for whom the phenomenon of FRS was too complex a concept to be understood clearly. Moreover, as we interviewed consecutive cases many cases were there who were already having antipsychotic medications. So, the effect of antipsychotics might also have played some role in decreasing the prevalence and frequency of First Rank Symptoms in such cases.

Among the FRS “voices commenting” was found in majority of the cases. (21%) followed by thought broadcasting (7%) and voices discussing or arguing (6%). **Ghargagozlu¹² et al** three commonest FRS were “voices commenting”, “voices arguing or discussing”, “thought insertion” (59% each). **Radhakrishnan et al⁹**, **Marneros et al¹³** found the three most common FRS to be “voices commenting”. Recent studies like **Thorup et al¹⁴** **Hembram et al⁵** also found two of the most common FRS to be “voices commenting” and “thought broadcast” much like our study. On the contrary, studies like Mellor et al found “thought broadcast” was found in the majority. Raghuram et al found three commonest FRS found to be were “thought broadcast” (62.8%), “thought insertion” (56.2%) and “thought withdrawal” (56.2%). “Somatic passivity” were mostly present in the study by **Peralta et al¹⁵** and **Malik et al¹⁰**.

The occurrence of maximum number of cases with “voices commenting” in our study group may be due as the subjects were better able to understand the phenomenon of auditory hallucination than the delusions.

CONCLUSION

A significant percentage of patients with schizophrenia have one or more First Rank Symptoms. Majority of them have a single First Rank Symptom. The three most common First Rank Symptoms are “voices commenting”, “thought broadcasting”, “voices discussing or arguing”. This present study was driven by the renewed interest in the concept of FRS which can be understood as a symptom of ego disturbance or an invasion of the boundaries of the self; and are thus considered by some as signs of severe psychopathology. Hence, it will also hopefully shed some light over the relevance of First Rank Symptoms as a predictor of clinical profile of patients with schizophrenia in an age where modern investigation modalities are gradually taking precedence over clinical assessment.

Limitations

A larger sample size would have been more representative of the community at large. The patients were evaluated only once and further evaluation would have been helpful to elicit the diagnostic stability over time. Also, we did not use any scale to determine the severity of illness at the time of presentation. Moreover, since we took 100 consecutive schizophrenic patients for our study many were there who had already received treatment previously, so the antipsychotic medications might have played a role in decreasing the prevalence and frequency of First Rank Symptoms in some cases.

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Conflict of Interest

The author declared no conflict of interest.

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