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## Research Article

### SCHNEIDER'S FIRST RANK SYMPTOMS IN PATIENTS WITH BIPOLAR AFFECTIVE DISORDERS AND SCHIZOPHRENIA - A CLINICAL STUDY

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#### ABSTRACT

**Background:** Schneider's First Rank Symptoms (FRS) are positive symptoms that are characteristic but not pathognomonic of Schizophrenia. Most of the FRS are among the most significant diagnostic criteria for Schizophrenia in ICD-10. FRS is reported to occur in other psychiatric disorders. They are not uncommon in patients with affective disorders.

**Aims:** This study was to evaluate the frequency of Schneider's First Rank Symptoms and to study symptom clusters associated with FRS in patients with Bipolar Affective (Mood) Disorder and Schizophrenia and to compare the same in the two disorders.

**Methodology:** This study was done in the department of Psychiatry, Father Muller Medical College, Mangalore from March 2016 to July 2016. All the inpatients with diagnosis of Bipolar Affective Disorder and Schizophrenia constituted the population for the study. Consecutive 80 patients admitted to the ward who satisfied the inclusion and exclusion criteria formed the sample for the study, with Bipolar Affective Disorder (n=40) and Schizophrenia (n=40). All the patients in the sample were subjected to clinical examination which included MSE and physical examination. All of them were assessed using Mellor's Symptom Check List for First Rank Symptoms and Scale for Assessing Positive Symptoms (SAPS). The data obtained were analyzed using the student t test and chi square test.

**Results:** First rank symptoms (FRS), were found in 88% of Schizophrenia patients and in 35% of Bipolar affective patients. Statistical analysis revealed highly significant difference in prevalence of FRS ( $p < 0.001$ ). Voices arguing and voices commenting were the most common FRS (65%) in patients with Schizophrenia. Thought insertion, audible thoughts, made acts, thought withdrawal, thought broadcast and somatic passivity were seen in schizophrenia patients. In bipolar affective disorder patients, voices arguing (20%) and voices commenting (37.5%) were more common than thought broadcast and made act, but voices commenting and somatic passivity seen in equal frequency in both disorders. There were no cases with audible thoughts, thought withdrawal and thought insertion.

The SAPS score in schizophrenia patients was high for auditory hallucinations (72.5%). Third person auditory hallucinations manifested in 67.5%, voices conversing in 47.5%, voices commenting in 52.5%, and delusions in 67.5%. In bipolar affective disorder, auditory hallucinations were found in about 37.5%, and voices commenting in 27.5% persecutory delusions in 15% of patients but less than these in Schizophrenia cases.

**Conclusion:** FRS is most common in Schizophrenia. FRS is common in Bipolar Affective Disorder. The difference in frequency and nature of FRS in Schizophrenia and Bipolar affective disorders are statistically significant.

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## INTRODUCTION

Schneider's First Rank Symptoms are positive symptoms that are characteristic but not pathognomonic of Schizophrenia<sup>(1)</sup>. Most of the FRS are among the most significant diagnostic criteria for Schizophrenia in ICD-10<sup>(2)</sup>. FRS are also reported to occur in other psychiatric disorders. They are not uncommon in patients with affective disorders causing diagnostic confusion. There are very few Indian studies in

assessing the frequency or prevalence of first rank symptoms in patients with bipolar affective disorders. This study evaluated the frequency of Schneider's First Rank Symptoms in patients with Bipolar Affective (Mood) Disorder and Schizophrenia and compared the same in the two disorders.

## REVIEW OF LITERATURE

Studies of First Rank Symptoms (FRS) are still important and relevant since FRS are considered to be more objective and

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easier for clinicians to recognize as opposed to non-specific negative symptoms. But currently, their presence is a strong indicator for a diagnosis of schizophrenia if other causes can be excluded as their prevalence in various other conditions.<sup>(3)</sup> A higher prevalence of cultural and sub cultural beliefs among ethnic minorities may contribute towards low prevalence but that a true reduction also appears to be present.<sup>(3)</sup>

The reviewed studies do not allow for either a reconfirmation or a rejection of Schneider's claims about FRS and the simplistic way in which the FRS are conceived in the operational diagnostic systems and in many of the commonly used rating scales tends to add to the confusion. Future studies, should necessarily include a homogenous group of patients across a wide spectrum of diagnoses and perform extensive phenomenological interviews<sup>(4)</sup>.

Carpenter and Strauss confirmed the wide variability across nine countries showing an overall prevalence of FRS in Schizophrenia of 57%, with findings from London and Taipei reporting highs of 76% and 79% respectively, whereas findings in Moscow and Washington reported lower rates of 31% and 20% of patients respectively.<sup>(1)</sup> Various studies shown the prevalence of FRS in other conditions as Carpenter *et al*, (1974) (IPSS study) in Mania- 23%, in Depression- 16%, in Neuroses & Personality Disorders 12.7%.<sup>(1)</sup> Carpenter *et al*, (1973) has found FRS in Affective- Psychoses- 23% and Neuroses- 9%,<sup>(5)</sup> Abrams *et al*, (1974) in Mania- 9%,<sup>(6)</sup> Taylor *et al*, (1973) in Mania- 11.5%<sup>(7)</sup>, Wing *et al*, (1975) (IPSS study) in Mania 16%, in Depression 5%, PD/Neuroses 7.2%.<sup>(8)</sup> Marsha *et al* (1995) in Bipolar Affective Disorder 32%<sup>(9)</sup>.

Recent advances in molecular genetics and family studies have questioned the dichotomy of schizophrenia and bipolar disorder. However, analysis by one study clearly demonstrates it is premature to abandon the neo-Kraepelinian system of classification for psychosis. It suggests redrawing diagnostic boundaries based on old and new empirical findings that remain commensurate with a two-disease model<sup>(10)</sup>.

Together with evidence that the psychotic features are highly recurrent in Major Depressive Disorder (MDD), a study data show that Psychotic features denote a lifetime illness of greater severity and that within individuals, psychotic features may emerge in only the more severe episodes of MDD.<sup>(11)</sup> It means, a follow-up with frequent reassessments over an extended period revealed that psychotic features in MDD have a prognostic significance that is both Short-term (Episode-specific) and Long-term (Illness-specific), underscoring the importance of research into effective prophylaxis for this condition.<sup>(11)</sup> In MDD, response to Tricyclic antidepressants was poor when psychotic features such as Delusions were present<sup>(12)</sup>.

Patients with Delusional depression described greater symptom severity than did those with Nondelusional depression<sup>(13,14)</sup>, particularly with Psychomotor disturbances and Melancholic features<sup>(15, 16, 17)</sup>. Also more likely to have Bipolar illness<sup>(18)</sup>, to show a poor response to placebo<sup>(19)</sup>, to exhibit hypothalamic-pituitary-adrenal axis hyperactivity<sup>(20,21)</sup>, and to have enlarged cerebral ventricles<sup>(22, 23,24)</sup>.

Bipolar I disorders with Mood-Incongruent Symptoms (MIS) are more severe disorders than bipolar I disorders without. And bipolar I disorders with MIS are the epiphenomenon of the overlap, possibly genetic, of a "schizophrenic spectrum" and a "bipolar spectrum" and their antagonistic influence creating a "schizo-affective" area between them as a kind of psychotic continuum between prototypes<sup>(25)</sup>. As polymorphism, other episodes than mood episodes can occur during the long-term course of bipolar I disorders, e.g., schizophreniform and "schizo-affective" episodes (defined as concurrently fulfilling the criteria of both, schizophreniform and mood episodes)<sup>(26,27)</sup>. Schizophrenia patients with FRS during the acute phase are more likely to have poorer long-term outcome than schizophrenia patients who do not have FRS during the acute phase<sup>(28)</sup>.

## METHODOLOGY

This study was done in the department of Psychiatry, Father Muller Medical College, Mangalore from March 2016 to July 2016. Ethical clearance was obtained from the Institutional ethical committee. All the inpatients with diagnosis of Bipolar Affective Disorder and Schizophrenia constituted the population for the study. Consecutive 80 patients admitted to the ward who satisfied the inclusion and exclusion criteria formed the sample for the study. The inclusion criteria were DCR-10 diagnosis of the disorders, among 18 to 65 years of age and with active phase of the disorders. Exclusion criteria were comorbid mental retardation, major medical comorbidity, patients in remission and residual phase of the disorder. Sample consisted of a group of Bipolar Affective Disorder (n=40) and a group of Schizophrenia (n=40). Informed consent was obtained from all the patients and their relatives. All the patients in the sample were subjected to clinical examination which included MSE and physical examination. All of them were subsequently assessed using Mellor's Symptom Check List for First Rank Symptoms and Scale for Assessing Positive Symptoms (SAPS). The data obtained were analyzed using the student t test and chi square test.

## RESULTS

### *Sociodemographic data*

Mean age group of both schizophrenia and bipolar affective disorders were similar (table-1). Most patients were educated upto high school in both groups and from rural and nuclear family background and lower middle class. Family history of psychiatric disorders was more in affective disorder group (62.5%) than in schizophrenia (37%) with p=0.025. Unemployment was about 60% in schizophrenia patients than patients with affective disorder (27.5%) with highly significant difference (p =0.005).

### *Clinical Data*

Mellor's symptoms check list FRS were found in 88% of schizophrenia patients and in 40 % bipolar affective patients (table-2 fig-1) with p < 0.05. Voices arguing (52%) and voices commenting (37.5%), audible thoughts (32.5%), thought insertion (7.5%), made acts (7.5%), thought withdrawal (5%), thought broadcast (15%) and somatic passivity (7.5%) were seen in schizophrenia group.

**Table 1** Sociodemographic data

		Group			
		BPAD		Schizophrenia FRS	
		Count	Column N %	Count	Column N %
Age in years	18-30	11	27.50%	13	32.50%
	31-40	13	32.50%	19	47.50%
	41-50	12	30.00%	6	15.00%
	51-64	4	10.00%	2	5.00%
	Total	40	100.00%	40	100.00%
Sex	Male	26	65.00%	26	65.00%
	Female	14	35.00%	14	35.00%
	Total	40	100.00%	40	100.00%
	Single	25	62.50%	25	62.50%
Marital Status	Living together	1	2.50%	0	0.00%
	Married	14	35.00%	14	35.00%
	Separated	0	0.00%	1	2.50%
	Total	40	100.00%	40	100.00%
Occupation	Unskilled	26	65.00%	11	27.50%
	Skilled Laborer	0	0.00%	3	7.50%
	Gvt. Employ	2	5.00%	2	5.00%
	Pvt. Employ	1	2.50%	0	0.00%
	Not worked	11	27.50%	24	60.00%
	Total	40	100.00%	40	100.00%
	Urban	14	35.00%	17	42.50%
Residence	Rural	26	65.00%	23	57.50%
	Total	40	100.00%	40	100.00%
	Nuclear	31	77.50%	32	80.00%
Family type	Joint	7	17.50%	8	20.00%
	Others	2	5.00%	0	0.00%
	Total	40	100.00%	40	100.00%
SESS Score	I	2	5.00%	1	2.50%
	II	7	17.50%	8	20.00%
	III	13	32.50%	19	47.50%
	IV	16	40.00%	10	25.00%
	V	2	5.00%	2	5.00%
	Total	40	100.00%	40	100.00%

**Table No. 2** Mellor's Symptom Check list for FRSs in both BPAD and Schizophrenia

Mellor's Symptoms	Group				
	BPAD		Schizophrenia FRS		p value
	Count	%	Count	%	
1=AT= Audible thoughts	0	0.00%	13	32.50%	p=0.007
2=VA= Voices arguing	8	20.00%	21	52.50%	p=0.653
3=VC= Voices commenting	15	37.50%	15	37.50%	p=1.000
4=SP= Somatic passivity	3	7.50%	3	7.50%	p=1.000
5=TW= Thought withdrawal	0	0.00%	2	5.00%	p=0.152
6=TI= Thought insertion	0	0.00%	3	7.50%	p=0.077
7=TB= Thought broadcasting	2	5.00%	6	15.00%	p=0.136
8=MF= Made feeling	3	7.50%	1	2.50%	p=0.305
9=MI= Made Impulses	2	5.00%	1	2.50%	p=0.556
10=MVA= Made Volitional acts	1	2.50%	3	7.50%	p=0.305
11=DP= Delusional Perception	4	10.00%	5	12.50%	p=0.723

FRS found in bipolar affective patients were voices commenting (27.50 %), voices arguing (20%), delusional perception (10%), made feelings (7.5%), thought broadcast and made act.

The SAPS scores (table -3, fig- 2) in schizophrenia patients was high for auditory hallucinations (72.5%) with third person auditory hallucinations of 68% (p>0.05), voices conversing of 67.5% (p=0.016), voices commenting of 52.5% (p=0.000), and no significant difference for delusions with frequency of 67.5% (p=0.037). In bipolar affective disorder, auditory hallucinations were found in about 37.5%, grandiose delusions in 45.0% (0.001) and voices commenting in 28.5% with highly significant statistical difference for pressure speech of 45% (p=0.001) and persecutory delusions of 15% (p=0.000) and for religious delusions of 25% (p <0.001).

## DISCUSSION

The present study is conducted on consecutive sample of 80 patients with clinical diagnosis of Bipolar affective disorders and Schizophrenias according to ICD - 10 diagnostic criteria<sup>(2)</sup> to compare the frequency of FRS between them and to study the symptom clustering among each diagnostic group. FRS are assessed on 80 randomly selected patients using both Mellor's symptom check list and SAPS<sup>(29,30)</sup>.

Sociodemographic profile of our patients revealed the significant statistical differences between both disorders in education, family history of psychiatric or psychotic disorders and occupation.

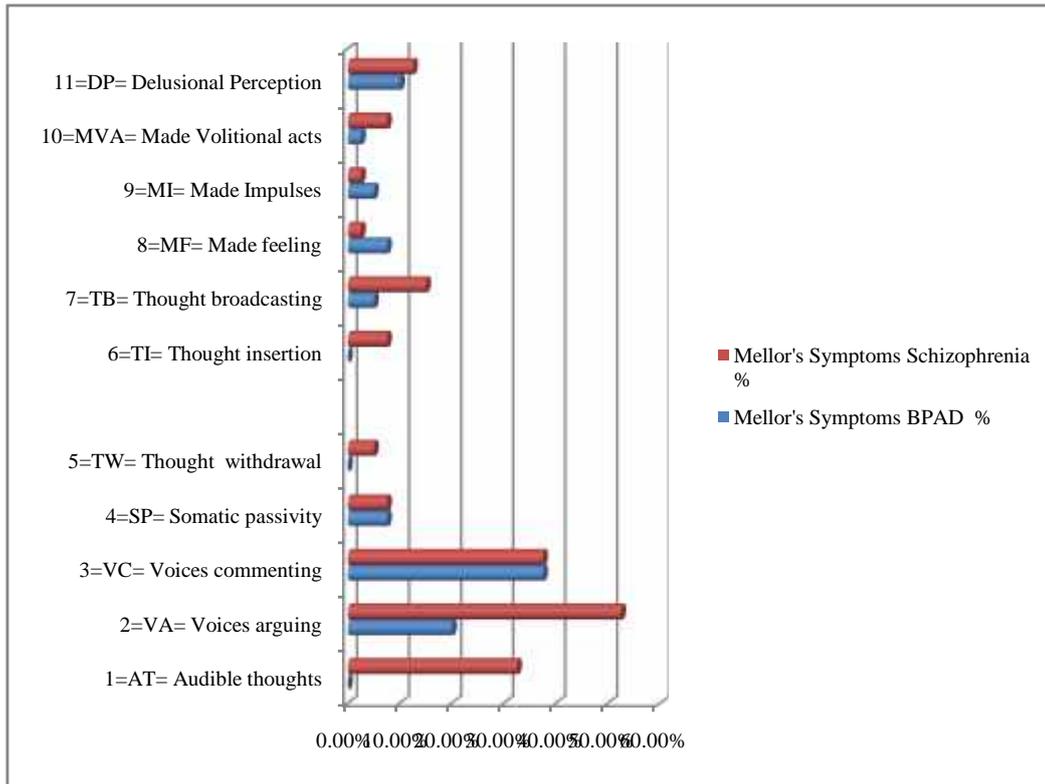


Fig. No. 1 Mellor's Symptom Check list for FRSs for BPAD and Schizophrenia

Table No. 3 SAPS Score of FRS for BPAD and Schizophrenia

	Group		Schizophrenia-FRS	p value	
	BPAD- FRS	Schizophrenia-FRS			
	Count	%	Count	%	
1= Auditory Hallucinations	15	37.50%	27	67.50%	p=0.06
2= Voices Commenting	11	27.50%	21	52.50%	p=0.016
3= Voices Conversing	5	12.50%	19	47.50%	p=0.000
4= Somatic Hallucinations	0	0.00%	3	7.50%	p=0.077
5= Olfactory Hallucinations	0	0.00%	0	0.00%	
6= Visual Hallucinations	1	2.50%	2	5.00%	p=0.222
7=Global Rating Hallucinations	17	42.50%	30	75%	p=0.007
8=Persecutory Delusions	6	15.00%	28	70.00%	p=0.00
9=Delusion Jealously	2	5.00%	2	5.00%	p=0.572
10=Delusion of Guilt	7	17.50%	1	2.50%	p=0.212
11=Grandiose Delusion	18	45.00%	2	5.00%	p=0.001
12=Religious Delusions	10	25.00%	0	0.00%	p=0.022
13=Somatic Delusions	1	2.50%	4	10.00%	p=0.346
14=Delusion of Reference	1	2.50%	9	22.50%	p=0.048
15=Delusion of Control	1	2.50%	8	20.00%	p=0.82
16=Delusion of Mind Reading	1	2.50%	3	7.50%	p=0.562
17=Thought Broad casting	3	7.50%	8	20.00%	p=0.244
18=Thought insertion	0	0.00%	6	15.00%	p=0.090
19=Thought Withdrawal	0	0.00%	3	7.50%	p=0.374
20=Global rating of Delusion	23	57.50%	27	67.50%	p=0.037
21=Appearance/Clothing	1	2.50%	15	37.50%	p=0.001
22=Social & Sexual Behaviour	0	0.00%	4	10.00%	p=0.040
23=Aggressive & Agitated Behaviour	14	35.00%	13	32.50%	p=0.494
24=Stereotyped Behavior	0	0.00%	4	10.00%	p=0.122
25=Global Rating of Bizarre Behavior	13	32.50%	15	37.50%	p=0.645
26=Derailment	1	2.50%	2	5.00%	p=0.603
27=Tangentiality	0	0.00%	0	0.00%	
28=Incoherence	0	0.00%	0	0.00%	
29=Illogicality	0	0.00%	1	2.50%	p=0.314
30=Circumstantiality	0	0.00%	2	5.00%	p=0.359
31=Pressure of Speech	18	45.00%	2	5.00%	p=0.001
32=Distractible Speech	5	12.50%	0	0.00%	p=0.149
33=Changing	0	0.00%	0	0.00%	
34=Global Rating of Positive FTD	18	45.00%	4	10.00%	p=0.006

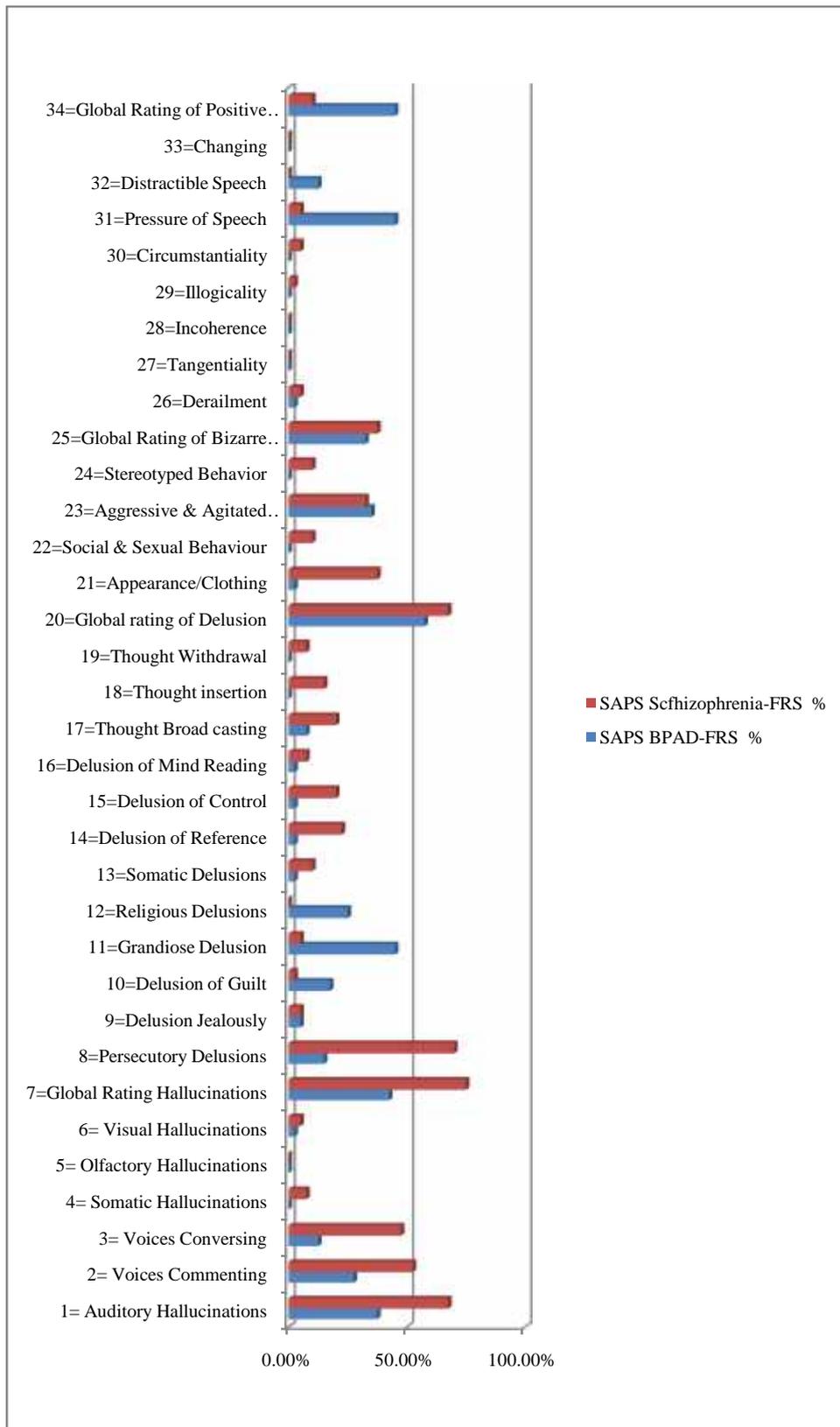


Figure No. 2 SAPS Score of FRS for BPAD and Schizophrenia

Most patients were educated up to high school in both groups with majority of patients with schizophrenia studied up to primary education. Majority of patients were from rural-nuclear family background and lower middle class in case of schizophrenia and upper lower class in case of bipolar affective

disorder. Family history of psychiatric illness was more in affective disorder than in schizophrenia. Unemployment was almost double in schizophrenia patients than patients with affective disorder. But mean age group of both schizophrenia and bipolar affective disorders were similar of about 36 years.

Most of previous studies have not focused on demographic aspects. But a study by Raguram and Kapur have found about 23% of patients with schizophrenia and about 30% with affective disorders had family history of Mental Illness.<sup>(31)</sup>

As per frequency of FRS in each group based on Mellor's symptoms check list for FRS, FRS are found in 88% of schizophrenia patients than in bipolar affective patients (35%) with statistically significant difference especially audible thought. Voices arguing (52%) and voices commenting (37.5%) were the most common FRS in schizophrenia. Audible thoughts (32.5%), thought broadcast (15%), thought insertion (7.5%), made acts (7.5%), thought withdrawal (5%), and somatic passivity (7.5%) were seen in schizophrenia groups.

Study by Raguram and Kapur found only 53.3% of FRS in Schizophrenia using Feinghner's criteria and Mohan Raj and Raguram found FRS in 74.4% of patient with schizophrenia using ICD-10 and DSM-III-R diagnosis<sup>(31,32)</sup> similar to present study. Raguram and Kapur study found that most common FRS in Schizophrenia were Thought broadcast (33.3%), followed by Thought withdrawal (30%), Thought Insertion (30%), Voices arguing (23.3%), Somatic passivity (20%) and 10% each of Audible thought and Voices commenting on one's action. And least common FRS in Schizophrenia were Made feelings, Made impulses, Made volitional acts and Delusional perception, which were 6.6% each which differs from present study as individual symptoms but overall similar frequency to present study.

In present study, bipolar affective patients with voices commenting (37.50%), voices arguing (20%), were more commonly seen than delusional perception (10%), made feelings (7.5%), thought broadcast and made act. But voices commenting and somatic passivity were seen in equal frequency in both disorders. There were no cases with audible thoughts, thought withdrawal and thought insertion. Similar frequency was seen in study by Raguram and Kapur as one or more first rank symptoms were found to be present in 33.3 % of patients with affective psychoses. Voices commenting on one's action and Made volitional act were 16.6% each and frequency of other FRS were ranges from 3.3% to 6.6% in patients with Affective psychosis.<sup>(31)</sup>

The SAPS score in schizophrenia patients was high for auditory hallucinations (72.5%). Third person auditory hallucinations manifested in 67.5%, voices conversing in 47.5%, voices commenting in 52.5%, and delusions in 67.5%. In bipolar affective disorder, auditory hallucinations were found in about 37.5%, and voices commenting in 21% persecutory delusions in 15% of patients but less than these in Schizophrenia cases. Statistically, there was high significant difference found for non FRS such as pressure of speech of 45%, grandiose delusions of 45.0%, religious delusions of 25%, with mean scores for SAPS on ANOVA was found to be very significant difference ( $p < 0.001$ ).

Also study by Raguram and Kapur had found that three first rank symptoms, namely: thought broadcast, thought insertion and thought withdrawal occurred significantly more often in the schizophrenic group as compared to the other two groups ( $p < 0.05$ ).<sup>(31)</sup> Study by Mohanraj and Raguram also found Voices arguing was most common FRS in Schizophrenia.<sup>(32)</sup> Lewine

found that the frequency of each FRS is different with thought broadcast is most common and similar report is found by Carpenter and Strauss.<sup>(5,32)</sup> Carpenter and Strauss found that the made volition was most common FRS followed by audible thoughts.<sup>(5)</sup> There was 63% of prevalence for Delusional perception as reported by Bland and Orn.<sup>(34)</sup> As mentioned above there are many symptom clusters in each disorders.

## CONCLUSIONS

FRS are seen more frequently in schizophrenia than in bipolar affective disorders. But they are seen in significant number of affective disorders. Auditory hallucinations are more common than thought phenomenon in schizophrenia which appears in clusters. FRS are associated with persecutory delusions in schizophrenia and grandiose delusions in affective disorders and most common FRS is third person auditory hallucination.

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