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A Study of Prevalence & Pattern of Psychotic Features in Patients with Bipolar Mood Disorder

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Abstract:
Background*: Mood disorders are best considered as syndromes consisting of cluster of sign and symptoms that represent a marked departure from a person's habitual functioning and tend to recur, often in periodic or cyclical fashion. Manic and mixed episodes represent the hallmark of what was once termed 'Manic-depressive psychosis' and is currently termed Bipolar I Disorder. Psychotic features are especially prevalent phenotype in Bipolar Disorder and it generally represents a more severe form of illness. Depending upon their appropriateness to the mood, can be mood-congruent or mood-incongruent and can be present in both manic and depressive phase. Impact of psychotic features on the natural history of Bipolar Disorder is determined by multiple factors like age at onset, life events, familiality, etc and can also affect the outcome.*
Aim and Objectives: ***1.*** *To evaluate prevalence and pattern of psychotic features in patients with Bipolar Mood Disorder during the active phase of the current episode.* ***2.*** *To assess correlation of various socio-demographic factors, age at onset of illness and family history of psychiatric illness with presence of psychotic features in Bipolar Mood Disorder.****3.*** *To study relationship between presence of psychotic features and severity of mood symptoms.*
Materials and Methods*: This cross-sectional study was carried out at the tertiary care hospital indoor set up, Psychiatry Ward, PDU Government Medical College and Hospital, Rajkot. 120 patients were taken and diagnosed according to DSM-5. Young Mania Rating Scale (YMRS), Montgomery-Åsberg Depression Rating Scale (MADRS), and Scale for the Assessment of Positive Symptoms (SAPS) were the instruments used.*
Results*: Psychotic features were present in 47.50% of Bipolar Disorder patients, majority being mood-congruent (91.23%). Delusions were predominant psychotic features, grandiose delusion being the most common (76.36%). Statistically significant difference between age at onset, precipitating life event prior to the onset of current episode as well as family history of psychiatric illness and prevalence of psychotic features was found.*
Conclusion: *Precipitating life event and family history of psychiatric illness were more prevalent in psychotic features present group.*
Key Word: *Bipolar Disorder, Mood-congruent psychotic features, Mood-incongruent psychotic features, Age at onset, Family history.*

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I. Introduction

Bipolar disorder is one of the most common psychiatric illnesses with lifetime prevalence about 3% worldwide.[1] Psychosis is an especially prevalent phenotype in bipolar disorder, with greater than half of all individuals diagnosed with bipolar disorder experiencing psychotic mood episodes in their lifetime. Psychotic symptoms are common in both manic and depressive phases of bipolar disorder. Grandiose delusions are the most common type of psychotic symptom, but any kind of psychotic symptom can present as a part of manic episode.[2]There is a common clinical assumption that bipolar disorder with psychotic features represent a more "severe" form of bipolar illness than without them.[3,4] The sub typing of a manic episode into congruent versus incongruent psychotic features which was introduced in the DSM-III.[5,6] Multiple dimensions influence manic symptoms including early age at onset, family history of mental illness, treatments response, the disorder's natural history and the stability of symptoms across episodes. Several studies in bipolar patients had examined differences in outcome between patients presenting with or without psychosis.[7] Relatively few studies have examined demographic, clinical, and neuropsychological differences among individuals diagnosed with affective-only Bipolar disorder and psychotic Bipolar disorder, with few conclusive findings.[8]

II. Material And Methods

Study Design: Observational cross-sectional study
Study Location: The study was carried out at the tertiary care hospital indoor set up, Psychiatry Ward, PDU Government Medical College and Hospital, Rajkot.
Study Duration: June 2018 to May 2019
Sample size: 120 patients.
Subjects & selection method: Patients were clinically evaluated in detail with history and mental status examination and diagnosis of Bipolar Mood Disorder was confirmed using DSM-5 diagnostic criteria. A semi-structured proforma was used to record patient's socio-demographic details along with clinical variables such as diagnosis, duration of illness, age of onset, relevant psychiatric and other history. Young Mania Rating Scale (YMRS) was applied to all the patients whose current episode was manic. Montgomery-Åsberg Depression Rating Scale (MADRS) was applied to all the patients whose current episode was depressive. Scale for the Assessment of Positive Symptoms (SAPS) was applied to all the patients with bipolar mood disorder with or without psychotic features. All the collected data was appropriately tabulated and data was analyzed to find out statistical significance with the help of t-test & chi-square test. Probability value less than 0.05 was taken as statistically significant. Pearson correlation co-efficient was used to find out correlations between scales. Result was presented and discussed in reference to previous studies.

Inclusion criteria:

1. Patients admitted in psychiatry ward that are newly diagnosed as well as previously diagnosed as having Bipolar Mood Disorder and presents with acute episode as per DSM-5 diagnostic criteria.
2. Patients of either sex from 18 to 65 years of age.
3. Patients or their relatives who gave written informed consent.
4. Both, patients taking medications for Bipolar Mood Disorder or drug naïve were included.

Exclusion criteria:

1. Patients having Bipolar Mood Disorder secondary to Medical or Neurological illness, Medication/Substance induced.
2. Patients who are not willing to participate in study.
3. Patients who could not communicate in Gujarati, Hindi or English.

Procedure methodology

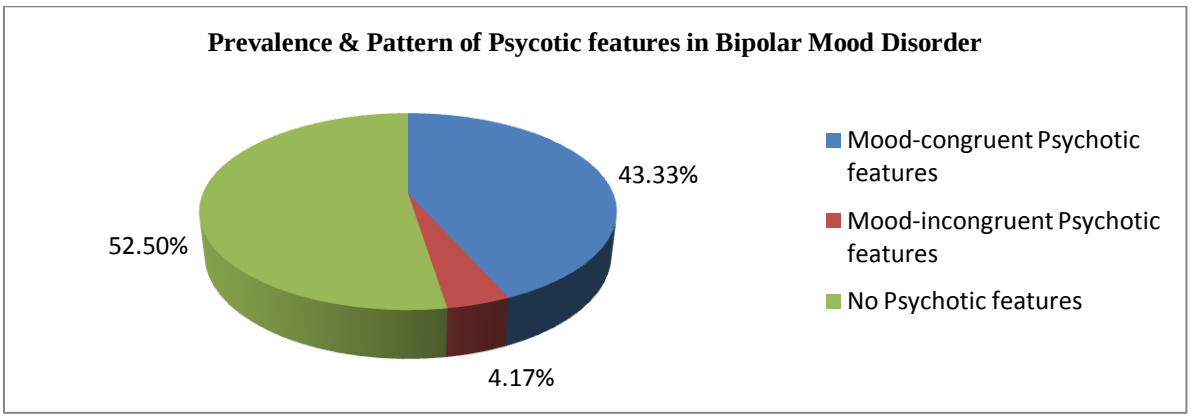
- Initially, we planned to administer our proforma to 20 patients falling under Bipolar Mood Disorder spectrum as per DSM-5 diagnostic criteria admitted in Psychiatry Ward, PDU Government Medical College and Hospital, Rajkot to find out any problems & if required to modify the proforma based on this experience. The Study of these pilot cases revealed that there was no problem in administering the proforma in these 20 patients; so we later on included these patients as a part of the main study.
- During the study, we approached total 122 patients and explained them about the study in detail. We planned to take all the cases of Bipolar Mood Disorder admitted in Psychiatry Ward during study period. Out of these, 2 patient's relatives took discharge before detailed evaluation, and rest all agreed to participate in the study. We obtained their informed verbal and written consent.
- All the patients were clinically evaluated in detail with history and mental status examination and diagnosis of Bipolar Mood Disorder was confirmed using DSM-5 diagnostic criteria.
- A semi-structured proforma was used to record patient's socio-demographic details along with clinical variables such as diagnosis, duration of illness, age of onset, relevant psychiatric and other history. Young Mania Rating Scale (YMRS) was applied to all the patients whose current episode was manic. Montgomery-Åsberg Depression Rating Scale (MADRS) was applied to all the patients whose current episode was depressive. Scale for the Assessment of Positive Symptoms (SAPS) was applied to all the patients with bipolar mood disorder with or without psychotic features.
- All the collected data was appropriately tabulated and data was analyzed to find out statistical significance with the help of t-test & chi-square test. Probability value less than 0.05 was taken as statistically significant. Pearson correlation co-efficient was used to find out correlations between scales.
- Result was presented and discussed in reference to previous studies.

III. Result

Table 1

Prevalence & Pattern of Psychotic features in Bipolar Mood disorder

Psychotic features	Frequency (n=120)	Percentage (%)
Mood-congruent Psychotic features	52	43.33
Mood-incongruent Psychotic features	05	4.17
No Psychotic features	63	52.50

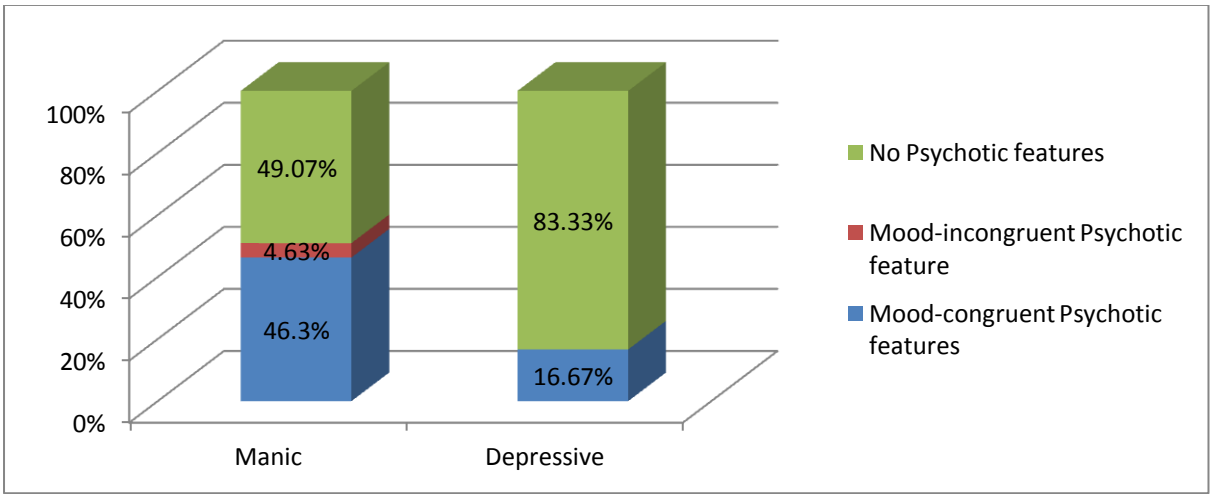


- ***PREVALENCE OF PSYCHOTIC FEATURES IN OUR STUDY (57 OUT OF 120 PATIENTS): 47.50%.***
  - Out of total 120 patients in our study, 52(43.33%) had mood-congruent psychotic features, 5(4.17%) had mood-incongruent psychotic features whereas 63(52.50%) had no psychotic features.
  - Out of 57 patients with psychotic features, 52 (91.23%) had mood-congruent whereas 5 (8.77%) had mood-incongruent psychotic features.

Table 2

Prevalence & Pattern of Psychotic features in Bipolar Mood disorder

Psychotic features	Current episode	
	Manic n=108, (%)	Depressive n=12, (%)
Mood-congruent Psychotic features	50(46.30)	02(16.67)
Mood-incongruent Psychotic features	05(4.63)	00(00)
No Psychotic features	53(49.07)	10(83.33)

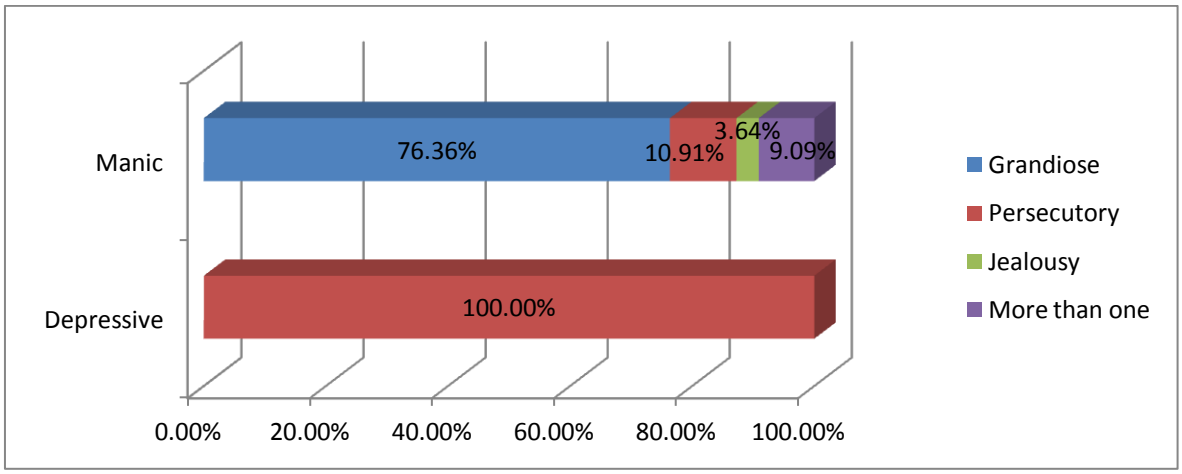


- Out of total 120 patients, 108 had current episode manic and 12 had current episode depressive.
- In manic patients, 50(46.30%) had mood-congruent psychotic features, 5(4.63%) had mood-incongruent psychotic features and 53(49.07%) had no psychotic features.

- In depressive patients only 2(16.67%) had psychotic features that were mood-congruent, whereas 10(83.33%) had no psychotic features.

Table 3
Types of delusions in psychotic features in bipolar mood disorders

Type of Delusion	Current episode	
	Manic n=55, (%)	Depressive n=2, (%)
Grandiose	42(76.36)	00(00)
Persecutory	6(10.91)	02(100)
Jealousy	2(3.64)	00(00)
Referential	0(0)	00(00)
Guilt	0(0)	00(00)
More than one of above	5(9.09)	00(00)
Too many zeroes and n is small so p value is inconclusive		



- Out of 55 patients who had current episode manic with psychotic features, 42(76.36%) had grandiose delusion, 6(10.91%) had persecutory delusion, 2(3.64%) had delusion of jealousy whereas 5(9.09%) had more than one type of delusion.
- Both the patients, who had current episode depressive with psychotic features, had persecutory delusions (100%).

Table 4
Correlation of Age at Onset and presence or absence of psychotic features

Age at onset (in years)	Psychotic features	
	Present n=57, (%)	Absent n=63, (%)
≤20 (n=39)	13(33.33)	26(66.67)
>20 (n=81)	44(54.32)	37(45.68)
χ^2=2.09, df=1, p=0.03		

- Out of 39 patients who had age at onset below 20 years, 13(33.33%) had psychotic features, whereas 26(66.67%) had no psychotic features.
- Out of 81 patients who had age at onset above 20 years, 44(54.32%) had psychotic features, whereas 37(45.68%) had no psychotic features.
- There was **statistically significant difference** between Age at onset of illness and presence or absence of psychotic features.

Table 5
Relationship between Precipitating Life event and Psychotic features

Precipitating Life event	Psychotic features		
	Mood-congruent n=52, (%)	Mood-incongruent n=5, (%)	No psychotic features n=63, (%)
Present (n=64)	44(84.62)	5(100)	15(23.81)
Absent (n=56)	8(15.38)	0(0)	48(76.19)
χ^2=42.80, df=2, p=0.00			

- Out of 52 patients with mood-congruent psychotic features, 44(84.62%) had history of some precipitating life event whereas 8(15.38%) did not have history of precipitating life event prior to the onset of current episode.
- Out of 5 patients with mood-incongruent psychotic features, all 5(100%) had history of some precipitating Life event prior to the onset of current episode.
- Out of 63 patients without psychotic features, 15(23.81%) had history of some precipitating life event whereas 48(76.19%) did not have history of precipitating life event prior to the onset of current episode.
- There was **high statistical significance** between presence of Precipitating Life event prior to the onset of current episode and presence or absence of psychotic features.

Table 6

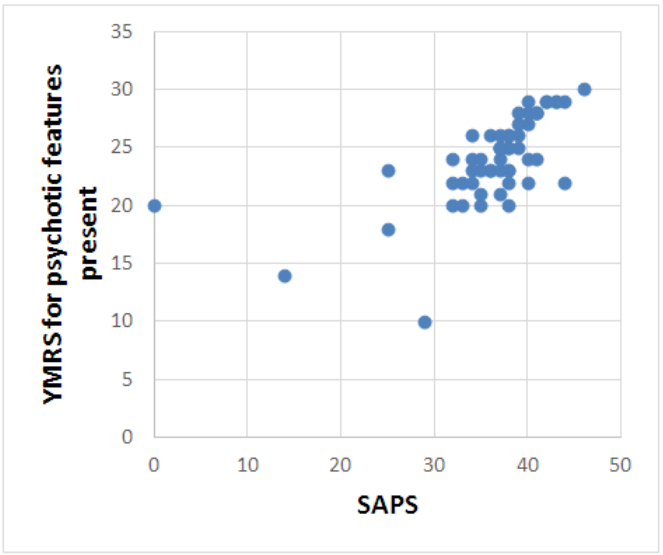
Relationship between Family history of psychiatric illness and Psychotic features

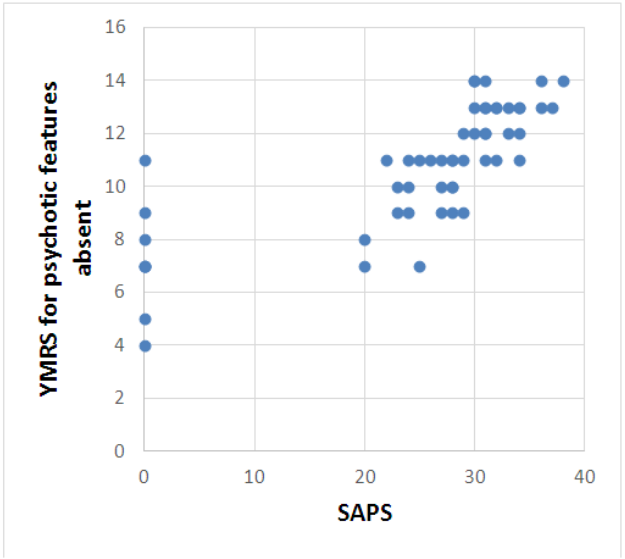
Family history of psychiatric illness	Psychotic features		
	Mood-congruent n=52, (%)	Mood-incongruent n=5, (%)	No psychotic features n=63, (%)
Present (n=61)	40(76.92)	4(80)	17(26.98)
Absent (n=59)	12(23.07)	1(20)	46(73.02)
χ2=27.27, df=2, p=0.00			

- Out of 52 patients with mood-congruent psychotic features, 40(76.92%) had positive family history of some psychiatric illness whereas 12(23.07%) did not have.
- Out of 5 patients with mood-incongruent psychotic features, 4(80%) had positive family history of some psychiatric illness whereas 1(20%) did not have.
- Out of 63 patients without psychotic features, 17(26.98%) had positive family history of some psychiatric illness whereas 46(73.02%) did not have.
- There was **high statistical significance** between family history of psychiatric illness and presence or absence of psychotic features.

Correlation of YMRS and SAPS in psychotic features present group

There was **moderate positive correlation** between YMRS for psychotic features present and SAPS. (r=0.6310, p=0.000).





Correlation of YMRS and SAPS in psychotic features absent group

There was **strong positive correlation** between YMRS for psychotic features absent and SAPS. (r=0.7688, p=0.000).

IV. Discussion

➢ Prevalence of Psychotic features in Bipolar Mood Disorder:

In present study, we found prevalence of psychotic features in 47.50% patients with Bipolar Mood Disorder. 50.93% of patients whose current episode was manic had psychotic features, whereas 16.67% of patients with current episode depressive had psychotic features. Similar findings were observed in various studies. **Azorin JM et al (2006)**[9] found a prevalence rate of 49.9% and **Canuso CM et al (2008)**[10] found that 51.3% had psychotic features during manic episodes. **Belteczki Z et al (2018)**[11] reported 52.66% patients with bipolar disorder had psychotic symptoms. In a study by **Lorenzo Mazzarini et al (2010)**[12]**,** 19.5% and by **Caldieraro MA et al (2017)**[13]**,** 10.6% of bipolar patients had a history of psychosis during depression. Some studies have taken lifetime history of psychotic symptoms. Slightly higher prevalence of psychotic symptoms was found in these studies: **Keck et al (2003)**[14] found that 68% patients had history of psychotic features during at least one mood episode. **Van Bergen et al (2018)**[15] reported lifetime history of psychotic symptoms in 73.8% of bipolar disorder patients.

➢ Pattern of Psychotic features in Bipolar Mood Disorder:

In our study, out of 57 patients with psychotic features, 52 (91.23%) had mood-congruent whereas 5 (8.77%) had mood-incongruent psychotic features. Patients who had current episode manic with psychotic features, 76.36% had grandiose delusion, 10.91% had persecutory delusion, 3.64% had delusion of jealousy, and 9.09% had more than one type of delusion. In both mood-congruent and mood-incongruent psychotic features group, delusions were predominant psychotic symptom. No hallucinations were found in any of the patients in our study.

As per a review study by **Goodwin FK et al (1990)**[16], mood-congruent delusions were the most common type of psychotic symptoms in mania; delusions occur up to three times more frequently than hallucinations in bipolar mood disorder patients. Between 35% and 60% of manic episodes were accompanied by grandiose delusions and 18%-65% by persecutory delusions. In a study by **Azorin JM et al (2006)**[9], out of 49.9% manic patients with psychotic features, 33.4% were classified as having mood-congruent psychotic features and 16.5% as mood-incongruent psychotic features. **Canuso CM et al (2008)**[10] reported that grandiose delusions were noted in 78% of patients with a diagnosis of current episode bipolar manic with psychotic features. **Van Bergen et al (2018)**[15] found that among bipolar disorder patients with psychotic features, 68.9% had delusions and 42.6% had hallucinations. In a systematic review by **Toh WL et al (2015)**[17], prevalence rate of auditory verbal hallucinations in bipolar disorder was 11.3%-62.8%.

Depressive patients presenting with psychotic symptoms were 44% in a study by **Belteczki Z et al (2017)**[18], their delusions were characterized by feeling of guilt, hypochondria and impoverishment, whereas in our study, in depressive episode, prevalence of psychotic features was 16.67%, and delusion were of persecutory type; though being inconclusive as sample size for depressive episode was inadequate.

➢ Relationship between age at onset and psychotic features in bipolar disorder:

In our study, we found that out of 57 bipolar patients who had psychotic features, 77.19% had above 20 years of age at the onset of illness, whereas only 22.81% had below 20 years of age and it was found to be statistically significant (p=0.03). Whereas **Van Bergen et al (2018)**[15]**, Belteczki Z et al (2018)**[11], and **Bernardo Dell'Osso et al (2017)**[19] found that bipolar disorder patients with psychotic feature had earlier age at onset as

compared to patients without psychotic features. **Burton CZ et al (2018)[20]**, **Joslyn C et al (2016)[21]** and **Yildiz A et al (2003)[22]** found no significant difference in age of onset between the psychotic and non-psychotic groups in bipolar mood disorder patients.

- **Family history and psychotic features in bipolar mood disorder:**

In our study, we found that 77.19% of patients with psychotic features had positive family history of some psychiatric illness, whereas 26.98% of patients without psychotic features had positive family history of some psychiatric illness. High statistical significance (p=0.00) was found for the same. **Carlson GA et al (2012)[23]** reported that in bipolar disorder patients with psychosis one-fifth had a family history of bipolar disorder and 44.8% had a family history of depression. **Belteczki et al (2018)[11]** found positive family history (26% vs 21%) in psychotic versus non-psychotic group. Conversely, **I Özyıldırım et al (2010)[24]** found that the history of bipolar disorder among the first degree relatives was more prevalent in non-psychotic group (p=0.032). While **Burton CZ et al (2018)[19]** found no significant differences between the two groups on history of first-degree family relative with bipolar disorder.

- **Precipitating Life event and psychotic features in bipolar mood disorder:**

In our study, we found that 85.96% of patients with psychotic features had history of some precipitating life event prior to the onset of current episode, whereas 23.81% of patients without psychotic features had history of some precipitating life event prior to the onset of current episode. High statistical significance (p=0.00) was found for the same. **Azorin JM et at (2006)[9]** found a significant difference between the two groups and the percentage of stressor in the current episode (p=0.01). While in a study by **Sivin PS et al (2019)[25]**, the association of pre-onset stressful life event with presence of psychotic symptoms in bipolar disorder was not statistically significant (p=0.158).

V. Conclusion

We conclude from our study that there is 47.50% prevalence of psychotic features in patients with Bipolar Mood Disorder. Mood-congruent psychotic features were more prevalent (91.23%) than mood-incongruent psychotic features (8.77%). In both the groups, delusions were predominant psychotic symptom. 76.36% of manic episodes were accompanied by grandiose delusions. No hallucinations were found in any of the patients in our study.

There was no significant difference in prevalence of psychotic features with socio-demographic variables like age, gender, area of domicile, religion, marital status, education, occupation, type of family, socio-economic class, etc. There was statistically significant difference between age at onset and prevalence of psychotic features. Significant number of patients with psychotic features had age at onset above 20 years. There was significant difference between precipitating life event prior to the onset of current episode as well as family history of psychiatric illness and prevalence of psychotic features. Both were more prevalent in psychotic features present group. There was moderately positive correlation between YMRS and SAPS for psychotic features present group, whereas strong positive correlation between YMRS and SAPS for psychotic features absent group. We were not able to find correlation between MADRS and SAPS due to difficulty in statistical analysis due to inadequate subsample size.

Limitations of the Study

The major limitation of this study was that it is cross-sectional in nature. We have studied the prevalence and pattern of psychotic features in patients with bipolar mood disorders who had acute episode and were admitted & follow up study of the patients was not done.

Some of the patients of bipolar mood disorder in the present study were on long-term treatment. Therefore, improvement with medication and irregular treatment may have altered the prevalence & pattern of psychotic features.

We have conducted the study on the patients admitted in psychiatric ward of our hospital. These patients may not be representative of all the patients in the community, particularly those who have no access to mental health care. The sample size of patients in the study and especially patients with current episode depressive were small, resulting in limitation of statistical analysis. A larger sample size is needed to comment more accurately on the prevalence and pattern of psychotic features in patients with bipolar mood disorder.

Direction for Future Study

To get a more accurate idea of prevalence and pattern of psychotic features in patients with bipolar mood disorder, a large scale, community based, case control, longitudinal study of such patients can be helpful.

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