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A Comparative Study of Cognitive Insight in Patients with Schizophrenia and Mania with Psychotic Symptoms

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Abstract: ***Background and Objectives: Insight, a multidimensional entity essential for the treatment of psychotic disorders, is often impaired in schizophrenia and mania with psychotic symptoms. This study compares cognitive insight in patients with these conditions, and its relationship with treatment - related outcomes. Materials and Methods: Conducted over 18 months at Mahatma Gandhi Medical College & Hospital, Jaipur, this prospective observational comparative study included 60 patients (30 with schizophrenia and 30 with mania with psychotic symptoms) selected via purposive sampling. Diagnoses followed ICD - 10 criteria, confirmed by two consultant psychiatrists. A semi - structured proforma gathered clinical and socio - demographic data. Cognitive insight was assessed using the Beck Cognitive Insight Scale (BCIS), and psychotic symptoms were evaluated with the Brief Psychiatric Rating Scale (BPRS) and Young Mania Rating Scale (YMRS). Assessments were repeated four weeks after treatment to evaluate insight changes. Statistical analyses used chi - square tests for categorical variables and t - tests for continuous data, with significance at $p < 0.05$. Results: Schizophrenia patients had a mean age of 30.47 years, while the mania with psychotic symptoms group's mean age was 32.1 years. The schizophrenia group included more women (53.33%) compared to the mania group, which had more men (80%). Most patients across both groups were educated, Hindu, single, and middle - class. Employment differed significantly, with higher unemployment in the schizophrenia group (53.33%) than in the mania group (26.67%). Both groups showed significant improvements in BPRS, YMRS, and BCIS scores following treatment. Conclusion: This study concludes that patients of schizophrenia and mania with psychotic symptoms differ in cognitive insight. Observed improvements suggest that targeted interventions can effectively enhance cognitive insight.***

Keywords: Cognitive Insight, Schizophrenia, Mania with psychotic symptoms, BPRS, YMRS, BCIS

1. Introduction

Over the past century, insight has evolved into an intricate concept that has multiple dimensions. It has primarily been described as the "aha - erlebnis, " a feeling that one may experience when they finally figure out how to resolve a problem.[1] A complex metacognitive process called insight is compromised among individuals suffering from psychotic conditions like schizophrenia. A lack of understanding is directly associated with poor outcomes and a poor response to current treatment modalities.[2]

Cognitive insight encompasses the ability to self - reflect and assess one's own characteristics, as well as self - certainty, which is the capability to rectify incorrect interpretations and judgments. Mania and schizophrenia both cause variable degrees of impairment to these capacities.[3] Neurocognitive impairment is common in individuals with bipolar disorder and schizophrenia. One of the most frequently discussed neurocognitive domains in relation to psychosocial adjustment is executive function.[4] The primary symptoms of schizophrenia, usually referred to as "positive" symptoms, are delusions and hallucinations. Schizophrenia is a persistent and crippling mental condition. People may also suffer from "negative" symptoms including reduced affect, social isolation, impoverishment of words and thinking, and loss of sense of enjoyment.[5]

Moreover, bipolar disorder (BD) is among the most severe and potentially incapacitating mental illnesses. Besides being linked to considerable psychological distress, BD has also been connected to higher suicide rates. Unlike schizophrenia, when persistent symptoms are predicted even during remission, bipolar disorder was for many years thought to be characterized by complete recovery between mood episodes.[6] Numerous cognitive processes are impacted, including IQ, motor abilities, memory, attention, and executive functioning. Due to significant deficits in episodic memory, it was suggested that the disease's cognitive changes originated from malfunction in the hippocampus and medial temporal lobe regions.[5] Impaired cognitive insight is a multifaceted clinical challenge that has a substantial burden of disability. Patients continue to have extremely variable and generally bad outcomes. Not enough attention has yet been paid to other important domains, like cognition and social cognition, despite tremendous advances in managing positive symptoms and in understanding the molecular foundation of the condition. The primary factor influencing functional disability and the disease's indirect costs is cognitive impairment, a hallmark of schizophrenia that affects over 80% of patients.[7]

This study aims to assess cognitive insight in patients of mania with psychotic symptoms and schizophrenia. Moreover, it explores how cognitive insight relates to the results of treatment. This study will shed light on the relationships between cognitive insight and management outcomes and clinical trajectories.

2. Materials and Method

This study was conducted at a Tertiary Care Hospital in Jaipur, Rajasthan following approval from the Institutional Ethical Committee.
Study type: Observational Study
Study design: Prospective Observational Comparative Study
Duration of study: 18 Months

Procedure Methodology
It is a hospital - based prospective study. Purposive sampling was conducted, selecting a total of 60 patients from the Psychiatry OPD or IPD diagnosed with schizophrenia or mania with psychotic symptoms according to ICD - 10 DCR criteria by two consultant Psychiatrists. The study included 30 patients with schizophrenia and 30 patients with mania with psychotic symptoms. As per ICD - 10 DCR the diagnosis of Schizophrenia can be made if the symptoms persist for a period of atleast 1 - month, whereas, the diagnosis of mania with psychotic symptoms can be made if the symptoms persist for a period of atleast 1 - week or any duration if hospitalisation is required. Written informed consent was obtained from the patients or attendants of the patients.

The selected patients, who met the inclusion and exclusion criteria, were interviewed in detail at the time of consultation using a semi - structured proforma for socio - demographic and clinical variables. The BPRS (Brief Psychiatric Rating Scale) [8] and YMRS (Young Mania Rating Scale) [9] were used to assess the psychotic symptoms in patients with schizophrenia and mania with psychotic symptoms, respectively. The BCIS (Beck's Cognitive Insight Scale) [10] was then used to assess cognitive insight in patients.

After four weeks of treatment, instruments were used again to study the changes that occurred following the treatment.

Inclusion criteria
- Newly diagnosed, drug - naive patients diagnosed with schizophrenia or mania with psychotic symptoms, as confirmed by two consultant psychiatrists using ICD - 10 diagnostic criteria.
- Patients aged 18 - 65 years of either gender.

Exclusion criteria
- Co - morbid psychiatric disorder.
- Substance abuse or dependence (except caffeine and nicotine).
- Intellectual disability.
- With evidence of chronic medical illness or neurological disorder.
- Patients who are not communicating.
- Patients, or their legal guardians, who are unable to understand or provide written informed consent

Statistical analysis
For statistical analysis, data were entered into Microsoft Excel and analyzed using SPSS (version 27.0; SPSS Inc., Chicago, IL, USA). Data were summarized as mean and standard deviation for numerical variables, and as count and percentages for categorical variables. Two - sample t - tests assessed differences in means for independent samples, and the chi - squared test (χ^2 test) compared unpaired proportions, with the test statistic following a chi - squared distribution under the null hypothesis. Test statistics approximating a t - distribution were used with appropriate degrees of freedom, applicable for one - tailed or two - tailed tests. A p - value was determined using Student's t - distribution table, and significance was set at p - value <0.05.

3. Result

The table - 1 shows socio - demographic profile of patients with schizophrenia and mania with psychotic symptoms shows notable differences. The schizophrenia group had a higher percentage of females (53.33%) compared to the mania group, which had predominantly males (80%) (p=0.0073). Employment status also differed significantly, with a higher unemployment rate in the schizophrenia group (53.33%) versus 26.67% in the mania group (p=0.035). Both groups were primarily in the 21 - 40 age range, with similar distributions across marital status, religion, and family type. However, income levels varied, with more schizophrenia patients in the low - income category (66.67%) compared to mania patients, who largely fell in the middle - income bracket (63.33%) (p=0.0132).

Table 1: Socio - Demographic Comparison of Schizophrenia and Mania with Psychotic Symptoms Patients

Socio - demographic Factors	Schizophrenia (N=30)	Mania with Psychotic Symptoms (N=30)	p - value	Chi - square Value
Age Group	≤20: 13.33%, 21 - 40: 70.00%, ≥41: 16.67 Mean ±SD 30.47±11.24	≤20: 10.00%, 21 - 40: 70.00%, ≥41: 20.00 Mean ±SD 32.1±10.6	0.5649	-
Gender	Male: 46.67%, Female: 53.33%	Male: 80.00%, Female: 20.00%	0.0073	7.177
Marital Status	Unmarried: 46.67%, Married: 43.33%, Divorced/Separated: 6.67%, Widow: 3.33%	Unmarried: 56.67%, Married: 43.33%, Divorced/Separated: 0.00%, Widow: 0.00%	0.349	3.29
Religion	Hindu: 76.67%, Muslims: 16.67%, Sikhs: 3.33%, Christian: 3.33%	Hindu: 90.00%, Muslims: 6.67%, Sikhs: 3.33%, Christian: 0.00%	0.4564	2.606
Employment Status	Employed: 46.67%, Unemployed: 53.33%	Employed: 73.33%, Unemployed: 26.67%	0.035	4.444
Education	Primary: 6.67%, Elementary: 10.00%,	Primary: 3.33%, Elementary: 10.00%,	0.281	6.267

	Secondary: 10.00%, Senior Secondary: 33.33%, Graduate: 33.33%, Post - graduate: 6.67%	Secondary: 23.33%, Senior Secondary: 16.67%, Graduate: 46.67%, Post - graduate: 0.00%		
Family Type	Nuclear: 50.00%, Joint: 50.00%	Nuclear: 36.67%, Joint: 63.33%	0.2973	1.086
Monthly Income	Low: 66.67%, Middle: 26.67%, Upper: 6.67%	Low: 30.00%, Middle: 63.33%, Upper: 6.67%	0.0132	8.654
Duration of illness	≤12 months: 66.67% 13 - 24 months: 20.00 % >24 months: 13.33%	≤7 days: 40% >7 days: 60%	-	-

The Table - 2 shows that the mean BPRS score in Schizophrenia patients before treatment is 80.30 with majority having severe symptoms. After treatment mean BPRS score is 43.33 with majority (53.33%) having mild symptoms followed by 33.335 having moderate symptoms and 13.335 having severe symptoms. There is statistically significant difference in BPRS score before and after treatment (p - value - <0.0001)

Table 2: BPRS Scores Before and After Treatment

BPRS Level	Before - Number	Before - Percentage (%)	After - Number	After - Percentage (%)
Mild (31 - 40)	0	0.00%	16	53.33%
Moderate (41 - 52)	0	0.00%	10	33.33%
Severe (>52)	30	100.00%	4	13.33%
Mean ± SD (Before):	80.30±11.20		43.33±13.19	
p - value:	<0.0001			

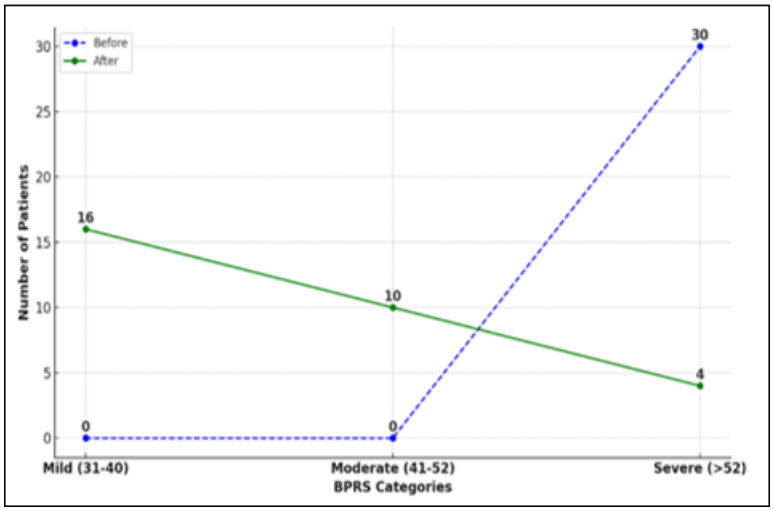

Figure 1: Comparison of BPRS before and after treatment in schizophrenia (line - chart)

The table - 3 shows that in Mania with psychotic symptoms patients mean YMRS score is 46.2 with majority having very severe mania (83.33%) followed by 13.33% having severe mania and 3.335 having moderate mania. After treatment mean YMRS score is 9.63 with majority having no manic symptoms (76.67%) followed by 23.33% having mild mania. There is statistically significant difference in YMRS score before and after treatment (p - value <0.0001)

Table 3: YMRS Scores Before and After Treatment

YMRS Score	Before - Number	Before - Percentage (%)	After - Number	After - Percentage (%)
No Manic Symptoms (0 - 12)	0	0.00%	23	76.67%
Mild Mania (13 - 19)	0	0.00%	7	23.33%
Moderate Mania (20 - 25)	1	3.33%	0	0.00%
Severe Mania (26 - 37)	4	13.33%	0	0.00%
Very Severe Mania (38 - 60)	25	83.33%	0	0.00%
Mean ± SD:	46.2±10.27		9.63±3.75	
p - value:	<0.0001			

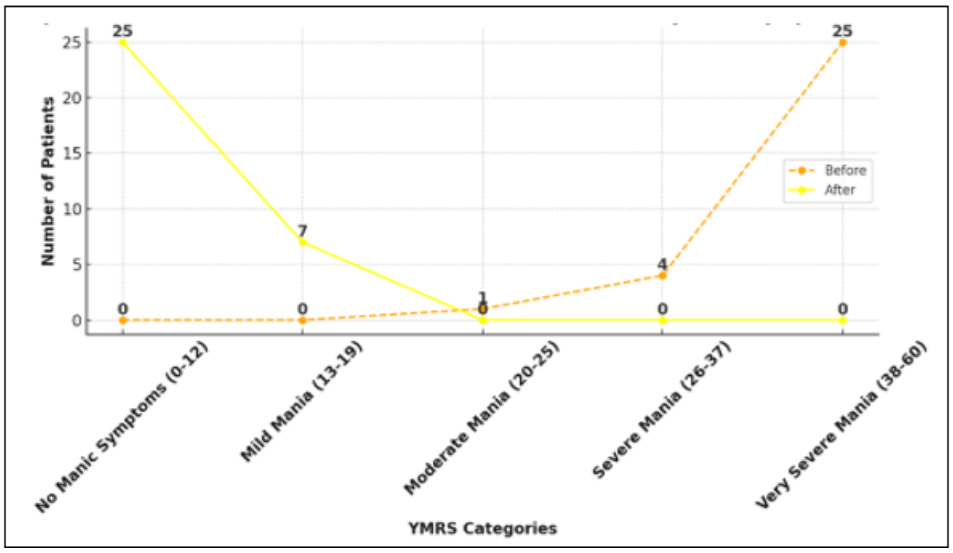

Figure 2: Comparison of YMRS before and after treatment in mania with psychotic symptoms (line - chart)

The table - 4 shows the BCIS comparison between schizophrenia and mania with psychotic symptoms patients showed significant improvements post - treatment, especially in self - reflectiveness and the composite index. Before treatment, the mania with psychotic symptoms patients had higher self - reflectiveness scores (Mean: 8.13) than the schizophrenia group (Mean: 4.80), with a significant p - value (<0.0001). Post - treatment, self - reflectiveness scores rose to 11.43 for schizophrenia and 18.57 for mania with psychotic symptoms patients. The composite index also improved, shifting from - 8.83 to 4.40 in schizophrenia and - 6.33 to 11.40 in mania with psychotic symptoms patients, indicating enhanced cognitive insight in both groups after treatment.

Table 4: Comparison of insight in schizophrenia and mania with psychotic symptoms patients before and after treatment

BCIS	Schizophrenia (Before)	Mania with Psychotic Symptoms (Before)	p - value (Before)	Schizophrenia (After)	Mania with Psychotic Symptoms (After)	p - value (After)
Self - reflectiveness	Mean: 4.80, SD: 2.25	Mean: 8.13, SD: 2.61	<0.0001	Mean: 11.43, SD: 3.38	Mean: 18.57, SD: 4.55	<0.0001
Self - certainty	Mean: 13.63, SD: 1.99	Mean: 14.47, SD: 1.76	0.0886	Mean: 7.03, SD: 1.94	Mean: 7.17, SD: 2.29	0.7992
Composite Index	Mean: - 8.83, SD: 2.98	Mean: - 6.33, SD: 2.60	0.0010	Mean: 4.40, SD: 3.87	Mean: 11.40, SD: 5.67	<0.0001

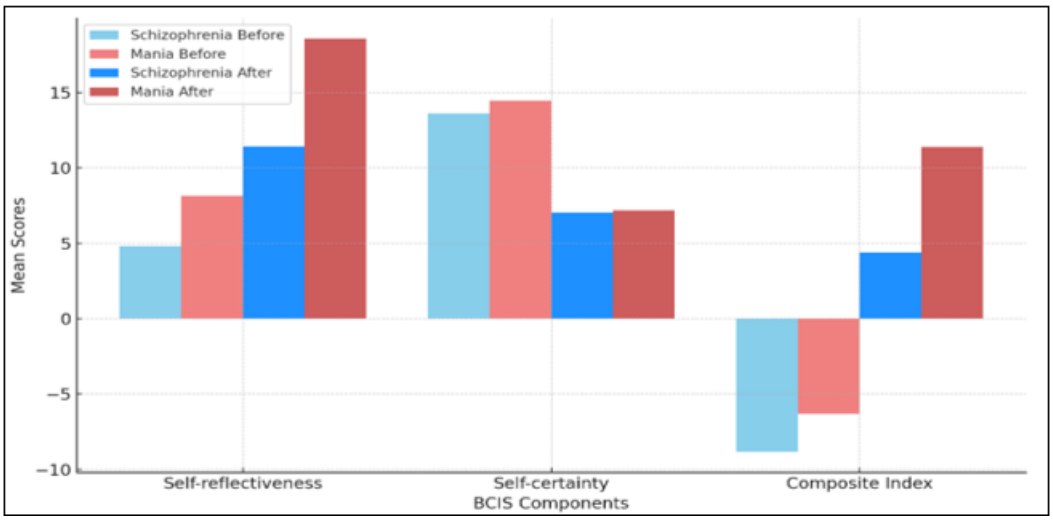

Figure 3: Comparison of insight in schizophrenia and mania with psychotic symptoms patients before & after treatment

4. Discussion

In our study, most schizophrenia (70%) and mania with psychotic symptoms (70%) patients were aged 21 - 40, with mean ages of 30.47 and 32.1, respectively, showing no significant difference (p = 0.5649). Gender differences were noted: men constituted 46.67% of schizophrenia and 80% of mania cases, a significant variation (p = 0.0073), aligning with Arnold et al. 's findings.[11] Employment rates differed significantly, with 73.33% of mania patients employed versus 53.33% of unemployed schizophrenia patients (p = 0.0350), reflecting studies by Marwaha et al. and Reddy et al.[12, 13] Educational attainment showed no significant difference (p = 0.2810) between groups, and many had high education levels. Regarding family structure, 63.33% of mania patients came from joint families compared to 50% of schizophrenia patients from nuclear families, though not statistically significant (p = 0.2973). Schizophrenia patients often remain single, influenced by cognitive deficits, while mania patients face marital instability from episodic stress (92, 93).[14, 15]

Religiously, both groups were predominantly Hindu, with no significant difference (p = 0.4564). Socioeconomically, 63.33% of mania patients were middle - class, and 66.67% of schizophrenia patients were low - income (p = 0.0132). Schizophrenia's chronic, relapsing course often results in untreated periods, with 66.67% having illness duration ≤12 months, whereas 60% of mania patients had illness durations over seven days.[16, 17]

This study examined cognitive insight in schizophrenia and mania with psychotic symptoms, focusing on pre - and post - treatment changes using BCIS. The Beck's Cognitive Insight Scale (BCIS), developed by Aaron T. Beck and colleagues, is a tool designed to assess cognitive insight by measuring a patient's ability to recognize and adjust distorted beliefs, making it particularly valuable in psychiatric settings, especially with schizophrenia. The scale consists of 15 items divided into two subscales: Self - Reflectiveness and Self - Certainty. Self - Reflectiveness evaluates the patient's capacity to critically assess their own thoughts, recognize errors, remain open - minded, and consider alternative explanations, with scores ranging from 0 to 36. In contrast, Self - Certainty assesses the patient's level of overconfidence in their interpretations, reflecting rigidity in their beliefs, and ranges from 0 to 27. Each item on the scale is rated on a four - point scale, from 1 ("Do not agree at all") to 4 ("Agree completely"). A Composite Index is calculated by subtracting the Self - Certainty score from the Self - Reflectiveness score, yielding a range from - 27 to 36, where higher values indicate better cognitive insight. Through these measures, the BCIS provides a nuanced understanding of a patient's self - awareness and cognitive processing.[10]

Initially, schizophrenia patients exhibited lower self - reflectiveness (i. e., the ability to critically assess their own thoughts) than those with mania, but treatment significantly increased self - reflectiveness in both groups ($p<0.0001$), indicating enhanced self - awareness and critical thinking across different illness durations. A decline in self - reflectiveness might indicate reduced illness awareness, which can negatively affect treatment adherence.

Self - certainty, or confidence in one's beliefs, was initially high in schizophrenia patients but decreased significantly with treatment ($p<0.0001$). Mania patients also showed reduced self - certainty post - treatment, though it remained relatively higher than in schizophrenia. Reduced self - certainty may be beneficial, as it suggests cognitive flexibility, improving openness to treatment and different perspectives. Declines in self - certainty were positively correlated with better treatment outcomes in both groups, as shown by improved YMRS and BPRS scores ($p<0.0001$). Yen et al. (2002) observed that a balanced level of self - certainty promotes recovery and treatment adherence.[18]

The composite index, calculated by subtracting self - certainty from self - reflectiveness, provides an overall measure of cognitive insight. Schizophrenia patients initially had lower composite index scores, suggesting poor insight. Post - treatment, both groups showed substantial increases in the composite index ($p<0.0001$), reflecting improved adaptive functioning.

Insight differs significantly between schizophrenia and mania. Schizophrenia patients often exhibit impaired insight due to cognitive deficits, delusions, and hallucinations, which negatively impact treatment adherence and prognosis.[19] Conversely, mania patients retain better insight during remission but may lack insight during manic episodes due to elevated mood and grandiosity, affecting treatment compliance.[20, 21]

5. Conclusion

This study reveals significant differences in cognitive insight between patients with schizophrenia and those with mania with psychotic symptoms. Schizophrenia patients typically have lower self - reflectiveness, which improves with treatment, while mania patients show higher initial self - certainty that decreases post - treatment, suggesting enhanced cognitive flexibility. The findings highlight the importance of cognitive insight in treatment adherence and outcomes, indicating that targeted interventions can improve prognosis. Overall, addressing cognitive insight in psychotic disorders can lead to better patient functioning and quality of life.

6. Positive Aspects & Limitations

This study provides valuable insights into the differences in cognitive insight between schizophrenia and mania with psychotic symptoms, highlighting the importance of self - reflectiveness and self - certainty in treatment outcomes. The use of established tools like BCIS, BPRS, and YMRS ensures reliable assessment of cognitive insight and symptom severity. Additionally, the study's prospective design allows for a clear evaluation of changes post - treatment, emphasizing the potential benefits of targeted interventions. However, study's limitations include a small sample size and single - center design, which restrict generalizability. The use of purposive sampling may introduce selection bias, and the short follow - up period limits assessment of long - term insight changes. Also no standard treatment protocol for all patients was followed as treatment depends on multiple factors. Further research with larger, multi - center samples and extended follow - up is recommended.

Acknowledgement
We wish to extend our sincere gratitude to the patients who participated in this study. Their willingness to share personal experiences and insights has provided invaluable data, and without their cooperation, this research would not have been possible. This study aims to contribute meaningfully to patient care and psychiatric practice, and it is the patient's contributions that make such advancements possible for their invaluable role in this endeavor.

Conflict of Interest
The author declares no conflict of interest. This research was conducted with full independence and transparency, without influence from any external entities or organizations. All findings and interpretations presented in this thesis reflect the author's objective analysis and are solely intended to contribute to the field of psychiatry and patient care.

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