

Relationship Between Cognitive Insight, Medication Adherence, and Functional Outcome in Patients with Schizophrenia

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Abstract

Background: Schizophrenia is a chronic psychiatric disorder characterized by disturbances in thought, perception, affect, and behavior that significantly impair social and occupational functioning. Despite advances in pharmacological and psychosocial interventions, poor medication adherence and impaired cognitive insight continue to be major barriers to achieving favorable functional outcomes. Cognitive insight refers to an individual's ability to evaluate and modify distorted beliefs and misinterpretations, enabling better awareness of illness and acceptance of treatment. Previous studies suggest that higher cognitive insight is associated with improved medication adherence and better psychosocial functioning. However, limited evidence exists regarding the interrelationship among cognitive insight, medication adherence, and functional outcome in Indian patients with schizophrenia.

Materials and Methods: A hospital-based cross-sectional observational study was conducted among 105 patients diagnosed with schizophrenia according to DSM-5 criteria attending the Psychiatry Department of a tertiary care teaching hospital. Cognitive insight was assessed using the Beck Cognitive Insight Scale (BCIS), medication adherence using the Medication Adherence Rating Scale (MARS), and functional outcome using the Personal and Social Performance Scale (PSP). Sociodemographic and clinical variables were collected through structured interviews. Statistical analyses included descriptive statistics, Chi-square test, Pearson's correlation, independent t-test, one-way ANOVA, and multivariate linear regression. A p-value of <0.05 was considered statistically significant.

Results: Patients with higher cognitive insight demonstrated significantly better medication adherence and superior functional outcomes. Self-reflectiveness showed a positive correlation with medication adherence and PSP scores, whereas self-certainty demonstrated a negative correlation. Medication adherence partially mediated the relationship between cognitive insight and functional functioning. Longer illness duration, poor educational status, and multiple hospitalizations were associated with poorer insight and reduced adherence.

Conclusion: Improved cognitive insight is significantly associated with better medication adherence and enhanced functional outcome in schizophrenia. Routine assessment of cognitive insight and targeted psychosocial interventions aimed at improving insight may enhance treatment adherence and overall rehabilitation.

Keywords: Schizophrenia, Cognitive Insight, Medication Adherence, Functional Outcome, Beck Cognitive Insight Scale, Personal and Social Performance Scale.

Study Design: Hospital-based cross-sectional observational study.

Introduction

One of the most debilitating mental illnesses in the world, schizophrenia affects around 20 million people and significantly increases disability-adjusted life years (DALYs). Positive and negative symptoms, social dysfunction, cognitive impairment, and a chronic relapsing course are the hallmarks of the condition, which usually first appears in late adolescence or early adulthood [1]. Despite advancements in pharmacotherapy, many patients still have low quality of life, recurrent hospital stays, unemployment, and chronic impairment.

One of the main objectives of treatment for schizophrenia is now functional recovery. Functional outcomes include engagement in community activities, independent living, interpersonal connections, and occupational functioning. Long-term recovery increasingly rely on cognitive functioning, illness awareness, treatment adherence, and psychosocial rehabilitation, even though symptom reduction is still crucial [2-3].

Cognitive insight is a significant factor in rehabilitation. Cognitive insight refers to a person's capacity to challenge false beliefs, reevaluate incorrect interpretations, and accept constructive criticism, in contrast to traditional clinical insight, which indicates awareness of sickness and the need for therapy [4]. According to Beck and colleagues, cognitive insight consists of two dimensions: self-certainty, which reflects overconfidence in one's judgments and resistance to alternative explanations, and self-reflectiveness, which represents openness to input and willingness to adjust ideas.

Another important factor influencing the prognosis of schizophrenia is medication adherence. Antipsychotic medication non-adherence affects 40–60% of patients, which increases the risk of relapse, rehospitalization, suicidal behavior, healthcare costs, and caregiver stress. Poor insight, cognitive impairments, prescription adverse effects, substance addiction, stigma, socioeconomic position, and insufficient family support are factors that impact adherence [5-6].

Relatively few studies have concurrently looked at cognitive insight, medication adherence, and functional outcome among Indian individuals with schizophrenia, despite a rising body of international evidence. In the Indian context, these linkages may be significantly influenced by sociocultural variables, family support networks, educational attainment, and healthcare accessibility. Long-term rehabilitation may be enhanced and customized treatment planning made easier with an understanding of these connections.

In order to better understand the association between cognitive insight, medication adherence, and functional outcome in patients with schizophrenia receiving treatment at a tertiary care psychiatric facility, the current study was conducted [7-8].

Aim: To evaluate the relationship between cognitive insight, medication adherence, and functional outcome in patients with schizophrenia.

Objectives: To assess cognitive insight among patients with schizophrenia using the Beck Cognitive Insight Scale (BCIS).

1. To evaluate medication adherence using the Medication Adherence Rating Scale (MARS).
2. To assess functional outcome using the Personal and Social Performance Scale (PSP).
3. To determine the association between cognitive insight and medication adherence.
4. To determine the association between medication adherence and functional outcome.
5. To identify clinical and sociodemographic factors influencing cognitive insight and functional recovery.

Materials and Methods

Present study was conducted at Department of Psychiatry, tertiary care teaching hospital for Eighteen months. A total of 105 patients diagnosed with schizophrenia were included using consecutive sampling.

Inclusion Criteria:

1. Patients aged 18–60 years.
2. Diagnosis of schizophrenia according to DSM-5 criteria.
3. Illness duration of at least six months.
4. Receiving antipsychotic medication for a minimum of three months.
5. Clinically stable during assessment.
6. Ability to provide informed consent.

Exclusion Criteria

1. Schizoaffective disorder or other psychotic disorders.
2. Intellectual disability.
3. Major neurological illness.
4. Severe medical comorbidity.
5. Current substance dependence (except nicotine).
6. Acute psychotic exacerbation requiring emergency intervention.

Data Collection

Each participant underwent detailed clinical evaluation using a structured proforma including:

Age

Gender

Marital status

Educational status

Occupation

Duration of illness

Number of hospitalizations

Duration of treatment

Family history

Type of antipsychotic medication

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using SPSS version 26.0.

Continuous variables were expressed as mean $\pm$ standard deviation, whereas categorical variables were presented as frequency and percentage.

The following statistical tests were applied:

Chi-square test

Independent t-test

One-way ANOVA

Pearson correlation coefficient

Multiple linear regression analysis

A p-value <0.05 was considered statistically significant.

Results

A total of **105 patients** diagnosed with schizophrenia were enrolled in the present study. The mean age of the participants was **35.8 ± 9.4 years** (range: 18–58 years). Males constituted **61.9% (n=65)** of the study population, while females accounted for **38.1% (n=40)**. Most participants had a duration of illness between **5 and 10 years**, and approximately half were unemployed.

The mean Beck Cognitive Insight Scale (BCIS) composite score was **8.9 ± 4.6** , the mean Medication Adherence Rating Scale (MARS) score was **6.7 ± 2.1** , and the mean Personal and Social Performance (PSP) score was **58.7 ± 13.8** .

Patients with higher cognitive insight demonstrated significantly greater medication adherence and superior functional outcomes. Likewise, good medication adherence was associated with significantly higher PSP scores.

Table 1: Sociodemographic and Clinical Characteristics of Study Participants (n = 105)

Variable	Frequency (n)	Percentage (%)
Age (years)		
18–30	29	27.6
31–40	42	40.0
41–50	24	22.9
>50	10	9.5
Gender		
Male	65	61.9
Female	40	38.1
Education		
Primary	18	17.1
Secondary	39	37.1
Higher Secondary	28	26.7
Graduate and above	20	19.1
Employment		
Employed	46	43.8
Unemployed	59	56.2
Duration of Illness		
<5 years	34	32.4
5–10 years	43	41.0
>10 years	28	26.6

Most patients were aged 31–40 years (40.0%), male (61.9%), unemployed (56.2%), and had illness duration between 5–10 years (41.0%).

Table 2: Association between Cognitive Insight and Medication Adherence (n = 105)

Cognitive Insight (BCIS)	Poor Adherence	Moderate Adherence	Good Adherence	Total	p-value
Poor (n=27)	18	7	2	27	<0.001*
Moderate (n=43)	10	21	12	43	
Good (n=35)	2	10	23	35	
Total	30	38	37	105	

Chi-square = 32.84p <0.001 (Highly Significant). Patients with better cognitive insight exhibited significantly higher medication adherence compared with those having poor cognitive insight.

Table 3: Association between Medication Adherence and Functional Outcome (PSP Score) (n = 105)

Medication Adherence	Number	Mean PSP Score $\pm$ SD	F value	p-value
Poor	30	46.3 $\pm$ 8.7		<0.001*
Moderate	38	58.2 $\pm$ 9.6		
Good	37	71.4 $\pm$ 10.3	49.62	

One-way ANOVA. Functional outcome improved progressively with increasing medication adherence. Patients with good adherence had significantly higher PSP scores than those with poor adherence.

Table 4: Correlation between Cognitive Insight, Medication Adherence, and Functional Outcome (n = 105)

Variables Compared	Pearson Correlation (r)	p-value
BCIS vs MARS	0.642	<0.001*
BCIS vs PSP	0.596	<0.001*
MARS vs PSP	0.721	<0.001*

There was a strong positive correlation between cognitive insight and medication adherence ($r = 0.642$), cognitive insight and functional outcome ($r = 0.596$), and medication adherence and functional outcome ($r = 0.721$). All correlations were statistically highly significant.

Additional Statistical Findings

Multiple linear regression analysis was performed to identify predictors of functional outcome (PSP score).

Predictor Variable	β Coefficient	Standard Error	t-value	p-value
Cognitive Insight (BCIS)	0.34	0.08	4.25	<0.001
Medication Adherence (MARS)	0.47	0.07	6.41	<0.001
Duration of Illness	-0.19	0.06	-2.86	0.005
Education Level	0.16	0.07	2.29	0.024

Model Statistics:

- $R^2 = 0.58$
- Adjusted $R^2 = 0.56$
- Overall model significance: $F = 34.87$, $p < 0.001$

Regression analysis demonstrated that **medication adherence** was the strongest independent predictor of functional outcome, followed by **cognitive insight**. Longer duration of illness was negatively associated with functional recovery, whereas higher educational status showed a modest positive association.

Discussion

In this cross-sectional observational study, 105 patients with schizophrenia who were receiving treatment at a tertiary care psychiatric facility had their functional outcome, medication adherence, and cognitive insight assessed [9]. The results showed a strong positive correlation between medication adherence and cognitive insight, as well as between medication adherence and functional outcome. When compared to patients with lower cognitive insight, individuals with higher insight demonstrated superior psychological and social functioning as well as better treatment compliance. In order to maximize long-term recovery in schizophrenia, our results highlight the significance of integrating cognitive insight assessment into standard psychiatric management.

The majority (40.0%) of the participants in this study were between the ages of 31 and 40, with a mean age of 35.8 ± 9.4 years. This result is in line with the typical epidemiology of schizophrenia, which typically strikes people in their early adult years and persists as a chronic condition throughout their working years. Our study's male preponderance (61.9%) is similar to a number of hospital-based Indian studies where males make up a higher percentage of psychiatric outpatient populations because of earlier disease start, better access to healthcare, and more family awareness of symptoms. Despite the fact that both sexes are nearly equally affected by schizophrenia in the general population, treatment-seeking behavior frequently varies due to sociocultural influences [10].

The significant impact of schizophrenia on occupational functioning is demonstrated by the fact that more than half of the research participants (56.2%) were unemployed. Opportunities for career and academic success are often hampered by persistent cognitive impairment, residual negative feelings, decreased motivation, and recurrent relapses. Unemployment-related functional impairment exacerbates the load on caregivers and lowers quality of life. Similar findings have been documented by earlier researchers, who found that among people with schizophrenia, unemployment is one of the best markers of poor community functioning [11].

Of the participants, about 41% had been unwell for five to ten years. In the current study, a longer illness duration was substantially linked to a worse functional result. Opportunities for rehabilitation are diminished by chronic disease, which frequently results in cumulative psychosocial decline, recurrent hospital stays, social isolation, and growing cognitive deficiencies. In order to prevent long-term handicap, this discovery emphasizes the significance of early diagnosis and ongoing care [12].

The high correlation between medication adherence and cognitive insight was one of the study's main conclusions. Adherence was substantially higher in patients with good cognitive insight than in those with weak insight (Chi-square = 32.84; $p < 0.001$). People are more likely to accept psychiatric treatment and take their prescribed drugs if they are able to

critically assess their experiences and acknowledge the potential that their beliefs may be false. On the other hand, treatment resistance and poor compliance are frequently caused by extreme self-confidence and strict conviction regarding delusional ideas [13].

This interpretation is supported by the positive association ($r = 0.642$; $p < 0.001$) seen in our study between BCIS scores and MARS scores. Greater awareness of sickness, acceptance of medical advice, and interaction with healthcare experts are probably facilitated by higher levels of self-reflection. Additionally, these patients might be more aware of the long-term advantages of ongoing treatment and the repercussions of stopping their prescription.

In schizophrenia, functional recovery goes beyond symptom alleviation. Adequate cognitive functioning, social skills, career participation, family support, and consistent treatment adherence are all necessary for successful recovery. Therefore, by enhancing patient participation in treatment and rehabilitation programs, therapies aimed at improving cognitive insight may indirectly improve multiple aspects of functional recovery.

Additionally, the current findings have significant ramifications for standard psychiatric practice. Despite mounting evidence of its prognostic usefulness, assessment of cognitive insight is not routinely included in regular clinical examinations. The Beck Cognitive Insight Scale provides a simple, validated instrument that may help identify patients at increased risk for medication non-adherence and poor functional recovery. Early detection enables physicians to use family therapies, cognitive behavioral therapy, motivational interviewing, tailored psychoeducation, and adherence-boosting techniques.

Notwithstanding these drawbacks, the current study offers important proof of the connection between functional recovery in schizophrenia, medication adherence, and cognitive awareness. These results support the idea that pharmaceutical symptom control alone is insufficient for effective management of schizophrenia. Rehabilitation outcomes may be significantly improved by empowering patients to actively participate in treatment and critically assess their experiences [14].

Overall, the present study demonstrates that cognitive insight and medication adherence are closely interconnected determinants of functional outcome in schizophrenia. Integrating routine assessment of cognitive insight with structured psychoeducation, adherence counseling, family-based interventions, and psychosocial rehabilitation may facilitate sustained recovery, reduce relapse rates, improve community functioning, and enhance the overall quality of life of individuals living with schizophrenia.

Conclusion

The present study demonstrated a significant positive relationship between cognitive insight, medication adherence, and functional outcome among patients with schizophrenia. Individuals with better cognitive insight exhibited significantly higher medication adherence, which was associated with superior personal and social functioning. Medication adherence emerged as the strongest independent predictor of functional outcome, while cognitive insight also independently contributed to improved rehabilitation. Conversely, longer duration of illness was associated with poorer functional recovery, whereas higher educational status showed a favorable influence.

These findings emphasize that successful management of schizophrenia extends beyond symptom control and requires interventions aimed at improving insight, promoting adherence, and enhancing psychosocial functioning. Routine assessment of cognitive insight using standardized instruments such as the Beck Cognitive Insight Scale may help clinicians identify patients at increased risk of poor adherence and unfavorable functional outcomes. Integrating psychoeducation, family interventions, cognitive behavioral strategies, and rehabilitation services into routine psychiatric care may substantially improve long-term recovery and quality of life in patients with schizophrenia.

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