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Original Research

Clinical Profile and Predictors of Functional Outcome in Patients with Schizophrenia: A Prospective Study.

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Abstract

Background: Schizophrenia is a chronic and disabling psychiatric disorder associated with significant impairment in social, occupational, and personal functioning. Although advances in treatment have improved symptom control, many patients continue to experience functional disability. Identification of clinical predictors associated with functional outcomes may help in early risk stratification and individualized management. **Aim:** The present study was conducted to evaluate the clinical profile of patients with schizophrenia and identify demographic and clinical predictors associated with functional outcomes. **Materials and Methods:** This prospective observational study included 85 patients diagnosed with schizophrenia according to established diagnostic criteria. Detailed demographic and clinical characteristics were recorded, including age at onset, duration of illness, relapse history, medication adherence, symptom profile, insight, and cognitive impairment. Functional outcomes were assessed using a standardized functional assessment tool. Factors associated with poor functional outcomes were analyzed using appropriate statistical methods, and multivariate analysis was performed to identify independent predictors. **Results:** Among 85 patients, the mean age was 38.6 ± 10.8 years, with male predominance (61.2%). Poor functional outcomes were observed in 47.1% of patients. Negative symptoms (85.0% vs 51.1%; $p=0.001$), cognitive impairment (75.0% vs 37.8%; $p<0.001$), poor medication adherence (62.5% vs 31.1%; $p=0.004$), and impaired insight (67.5% vs 31.1%; $p=0.001$) were significantly associated with poor functional recovery. Multivariate analysis identified cognitive impairment, negative symptoms, longer duration of illness, and poor adherence as independent predictors of unfavorable functional outcomes. **Conclusion:** Functional outcomes in schizophrenia are determined by multiple interacting clinical factors. Early identification of negative symptoms, cognitive deficits, and treatment-related factors may facilitate personalized interventions and improve long-term functional recovery.

Keywords: Schizophrenia; Functional outcome; Clinical profile; Negative symptoms; Cognitive impairment; Predictors; Psychosocial rehabilitation.

Introduction

Schizophrenia is a chronic, severe, and disabling psychiatric disorder characterized by disturbances in perception, thought processes, emotions, behaviour, and social functioning.[1] It is one of the major contributors to global psychiatric morbidity and disability due to its early age of onset, prolonged course, recurrent episodes, and significant impact on personal, occupational, and interpersonal functioning.[2] The disorder commonly develops during late adolescence or early adulthood, a period associated with important educational, occupational, and social development.[3] Although schizophrenia affects approximately 1% of the global population, its impact extends beyond psychiatric symptoms and includes substantial impairment in functional capacity, independence, and quality of life.[4,5] The clinical presentation of schizophrenia is highly heterogeneous, with considerable variation in symptom patterns, disease progression, treatment response, and long-term outcomes.

The disorder is characterized by positive symptoms such as delusions, hallucinations, and disorganized speech; negative symptoms including social withdrawal, reduced motivation, diminished emotional expression, and anhedonia; and cognitive impairments involving attention, memory, executive functioning, and information processing.[6-8] Additional features such as affective symptoms, anxiety, sleep disturbances, substance use, impaired insight, and poor medication adherence may further influence disease severity and recovery.[9] Despite advances in antipsychotic medications and psychosocial interventions, achieving symptomatic remission does not always result in complete functional recovery. [10,11] Functional outcome has emerged as an important indicator of recovery in schizophrenia and includes the ability to maintain interpersonal relationships, perform occupational activities, live independently, and participate effectively in society.[12]

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A significant proportion of patients continue to experience social and occupational disability despite adequate treatment, emphasizing the importance of identifying factors associated with poor functional outcomes.[13] The long-term outcome of schizophrenia is influenced by multiple interacting demographic, clinical, cognitive, and psychosocial factors.[14] Important determinants include age at onset, duration of untreated psychosis, duration of illness, frequency of relapses, hospitalization history, treatment adherence, severity of symptoms, cognitive functioning, level of insight, premorbid adjustment, and social support.[15] Among these factors, persistent negative symptoms and cognitive impairment have consistently been recognized as major contributors to functional disability. While positive symptoms generally show better response to antipsychotic treatment, negative and cognitive symptoms frequently persist and interfere with occupational performance, social relationships, and independent living. [16,17] Functional recovery in schizophrenia is a multidimensional process that extends beyond reduction of psychiatric symptoms. Patients may demonstrate improvement in psychotic symptoms while continuing to experience difficulties in social skills, employment, interpersonal functioning, and daily activities.[18]

Therefore, assessment of functional outcomes requires evaluation of multiple domains, including clinical symptoms, cognition, psychosocial functioning, and environmental factors. Identifying patients at increased risk of poor functional recovery can help clinicians implement early interventions and optimize rehabilitation strategies.[19] In recent years, research has focused on identifying reliable predictors of functional outcomes through longitudinal and prospective studies.[20] Various clinical and psychosocial factors, including symptom severity, negative symptoms, cognitive performance, social support, illness duration, and treatment adherence, have been evaluated as potential determinants of long-term recovery.

Although several predictors have been identified at the population level, their predictive value may vary according to patient characteristics, healthcare settings, and stages of illness.[21] Therefore, prospective evaluation of clinical characteristics and outcome predictors remains essential for improving prognostic assessment in schizophrenia. Early identification of factors associated with poor functional outcomes may assist clinicians in developing individualized treatment plans, selecting appropriate psychosocial interventions, and allocating rehabilitation resources effectively. A comprehensive assessment of clinical profile and functional trajectory may facilitate a shift from symptom-focused management toward recovery-oriented care, with the aim of improving independence and quality of life among patients with schizophrenia.[22] Therefore, the present prospective study was undertaken to evaluate the clinical profile of patients with schizophrenia and identify demographic and clinical predictors associated with functional outcomes.

Materials and Methods

The present study was conducted as a prospective observational study to evaluate the clinical profile and identify predictors associated with functional outcomes among patients diagnosed with schizophrenia. The study was carried out in the Department of Psychiatry at a tertiary care teaching hospital.

Study Population a

A total of 85 patients diagnosed with schizophrenia according to established diagnostic criteria were enrolled in the study. Patients fulfilling the eligibility criteria were consecutively recruited from the psychiatry outpatient department and inpatient services during the study period. All participants underwent detailed clinical evaluation and were followed prospectively for assessment of functional outcomes.

Study Objectives

The study was conducted with the following objectives:

1. To evaluate the clinical profile of patients with schizophrenia.
2. To assess functional outcomes among patients with schizophrenia.
3. To identify demographic and clinical factors associated with functional outcomes.
4. To determine predictors of poor functional outcome in patients with schizophrenia.

Inclusion Criteria

Patients were included in the study if they fulfilled the following criteria:

- Patients diagnosed with schizophrenia according to DSM-5 diagnostic criteria.
- Age group of 18 years and above.
- Patients of either sex.
- Patients who were willing to participate and provide written informed consent.
- Patients who were available for clinical assessment and follow-up evaluation.

Exclusion Criteria

Patients were excluded if they had:

- Diagnosis of other major psychiatric disorders such as bipolar disorder, schizoaffective disorder, or severe depressive disorder with psychotic features.
- History of neurological disorders, intellectual disability, or significant cognitive impairment due to organic causes.
- Severe medical comorbidities affecting functional assessment.
- Substance dependence requiring active management during the study period.
- Patients unwilling to provide consent or unable to complete assessment procedures.

Clinical Assessment and Data Collection

After obtaining informed consent, detailed demographic and clinical information was collected using a structured proforma. Demographic variables included age, sex, educational status, occupational status, marital status, and socioeconomic background. Clinical variables assessed included age at onset of illness, duration of illness, duration of untreated psychosis, number of previous episodes, history of hospitalization, treatment adherence, family history of psychiatric illness, and presence of comorbid psychiatric symptoms. A detailed psychiatric evaluation was performed to assess the severity and pattern of schizophrenia symptoms. Positive symptoms, negative symptoms, affective symptoms, insight, and cognitive complaints were documented. Treatment details, including type and duration of antipsychotic medication, were also recorded.

Assessment of Symptom Severity

The severity of psychopathology was assessed using a standardized symptom rating scale. The scale evaluated different symptom domains of schizophrenia, including positive symptoms, negative symptoms, and general psychopathology. Higher scores indicated greater symptom severity.

Assessment of Functional Outcome

Functional outcome was assessed using a validated functional assessment scale at baseline and during follow-up. The assessment included domains related to social functioning, occupational performance, interpersonal relationships, independent living skills, and overall adaptive functioning. Patients were categorized into groups based on their functional outcome scores, and factors associated with better or poorer functional outcomes were analyzed.

Follow-up Assessment

All enrolled patients were prospectively followed during the study period. Clinical status, treatment response, adherence to medication, symptom changes, and functional status were reassessed during follow-up visits. Any changes in treatment regimen, relapse episodes, or hospitalization during follow-up were documented.

Statistical Analysis

The collected data were entered into a structured database and analyzed using SPSS. 25 statistical software. Continuous variables were expressed as mean $\pm$ standard deviation (SD) or median with interquartile range, while categorical variables were presented as frequency and percentage. The association between categorical variables was assessed using the Chi-square test or Fisher's exact test. Continuous variables between groups were compared using the independent sample t-test or Mann-Whitney U test depending on data distribution. Correlation analysis was performed to evaluate relationships between clinical variables and functional outcome scores. Variables showing significant association with functional outcomes on univariate analysis were further evaluated using multivariate analysis to identify independent predictors of functional outcome. A p-value <0.05 was considered statistically significant.

Results

The present prospective observational study included 85 patients diagnosed with schizophrenia who were evaluated for their clinical profile and factors associated with functional outcomes. All enrolled participants underwent detailed demographic, clinical, symptom severity, and functional assessment during the study period. The findings of the study are presented below. The mean age of the study participants was 38.6 ± 10.8 years. The majority of patients belonged to the 31-40 years age group (36.5%), followed by 41-50 years (28.2%). Males constituted the majority of study participants (61.2%), while females accounted for 38.8% of cases. Regarding marital status, 52.9% of patients were unmarried, while 47.1% were married. Nearly half of the patients had secondary-level education (48.2%), followed by higher education (30.6%). Regarding occupational status, 55.3% of patients were unemployed, whereas 44.7% were employed or involved in some form of occupation. The baseline demographic profile of study participants is summarized in Table 1.

Table 1: Baseline Demographic Characteristics of Study Participants (n=85)

Parameter	Number (n)	Percentage (%)
Age group (years)		
18-30	18	21.2
31-40	31	36.5
41-50	24	28.2
>50	12	14.1
Sex		
Male	52	61.2
Female	33	38.8
Marital status		
Married	40	47.1
Unmarried	45	52.9
Education status		
Primary education	18	21.2
Secondary education	41	48.2
Higher education	26	30.6
Occupational status		
Employed	38	44.7
Unemployed	47	55.3

The mean age at onset of schizophrenia was 26.8 ± 7.5 years, with the majority of patients developing symptoms before 30 years of age. The mean duration of illness was 11.4 ± 6.8 years. A history of previous psychiatric hospitalization was present in 58.8% of patients, while 41.2% had no previous hospitalization history.

Relapse episodes were reported in 62.4% of participants. Poor medication adherence was observed in 45.9% of patients. A positive family history of psychiatric illness was present in 24.7% of cases. The distribution of clinical characteristics is shown in Table 2, Figure 1

Table 2: Clinical Characteristics of Study Participants (n=85)

Clinical Variable	Number (n)	Percentage (%)
Age at onset <30 years	58	68.2
Duration of illness >10 years	46	54.1
Previous psychiatric hospitalization	50	58.8
History of relapse	53	62.4
Poor medication adherence	39	45.9
Family history of psychiatric illness	21	24.7
Comorbid substance use	18	21.2

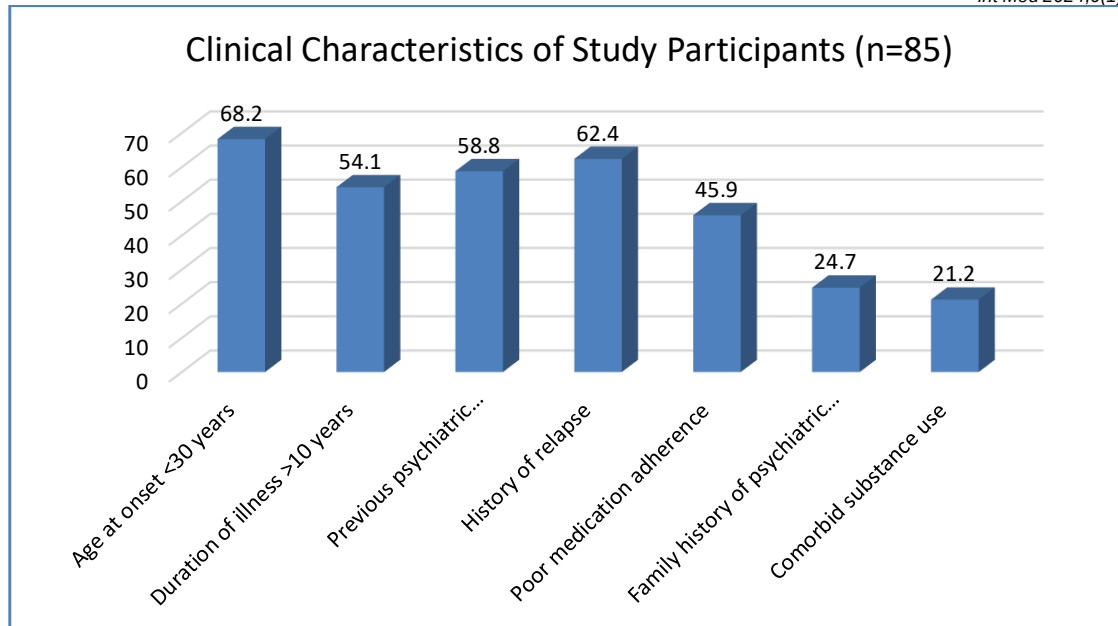


Figure 1 Clinical Characteristics of Study Participants (n=85)

Assessment of symptom domains revealed that positive symptoms were present in 72.9% of patients, negative symptoms in 67.1%, and cognitive impairment in 55.3% of participants. Impaired insight was observed in 48.2% of patients.

Based on overall symptom severity assessment, mild symptom severity was observed in 24.7%, moderate severity in 50.6%, and severe symptoms in 24.7% of patients. The symptom distribution and severity pattern are presented in Table 3, Figure 2

Table 3: Symptom Profile and Severity Distribution Among Study Participants (n=85)

Symptom Domain	Number (n)	Percentage (%)
Positive symptoms	62	72.9
Negative symptoms	57	67.1
Cognitive impairment	47	55.3
Impaired insight	41	48.2
Affective symptoms	28	32.9
Mild symptom severity	21	24.7
Moderate symptom severity	43	50.6
Severe symptom severity	21	24.7

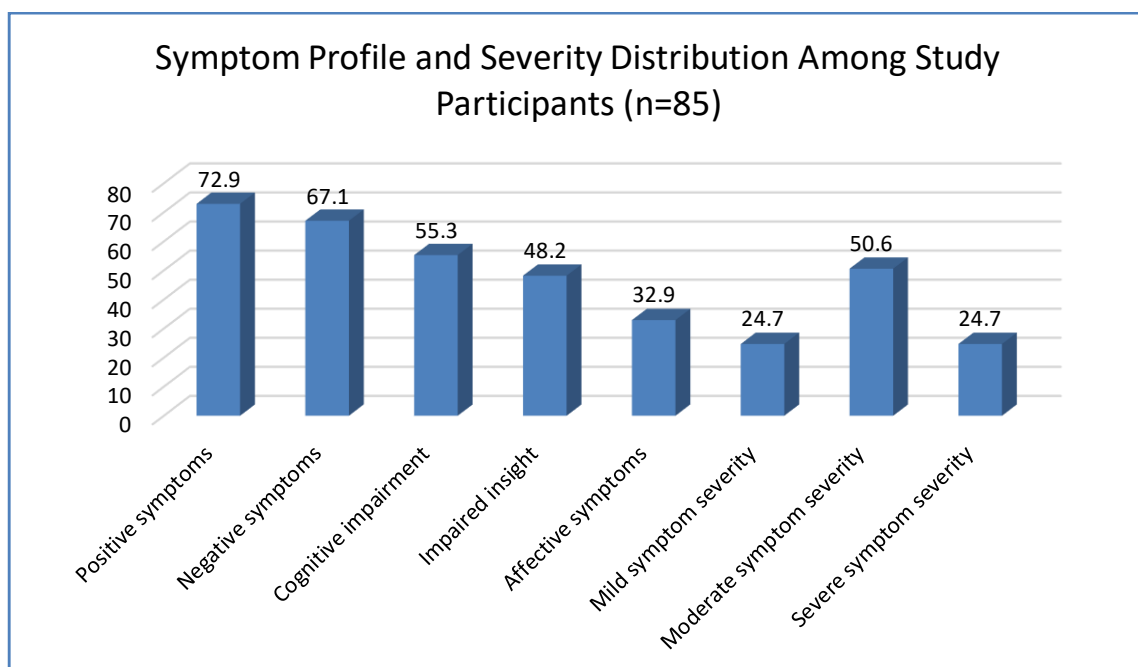


Figure 2 Symptom Profile and Severity Distribution Among Study Participants (n=85)

Functional outcome assessment demonstrated that 47.1% of patients had poor functional outcomes, whereas 52.9% showed satisfactory functional status at follow-up.

Patients with poor functional outcomes had significantly higher symptom severity scores, longer duration of illness, greater frequency of relapse, and higher prevalence of negative symptoms compared with those with better functional outcomes.

The distribution of functional outcomes is summarized in Table 4, Figure 3

Table 4: Functional Outcome Distribution Among Study Participants (n=85)

Functional Outcome	Number (n)	Percentage (%)
Good functional outcome	45	52.9
Poor functional outcome	40	47.1

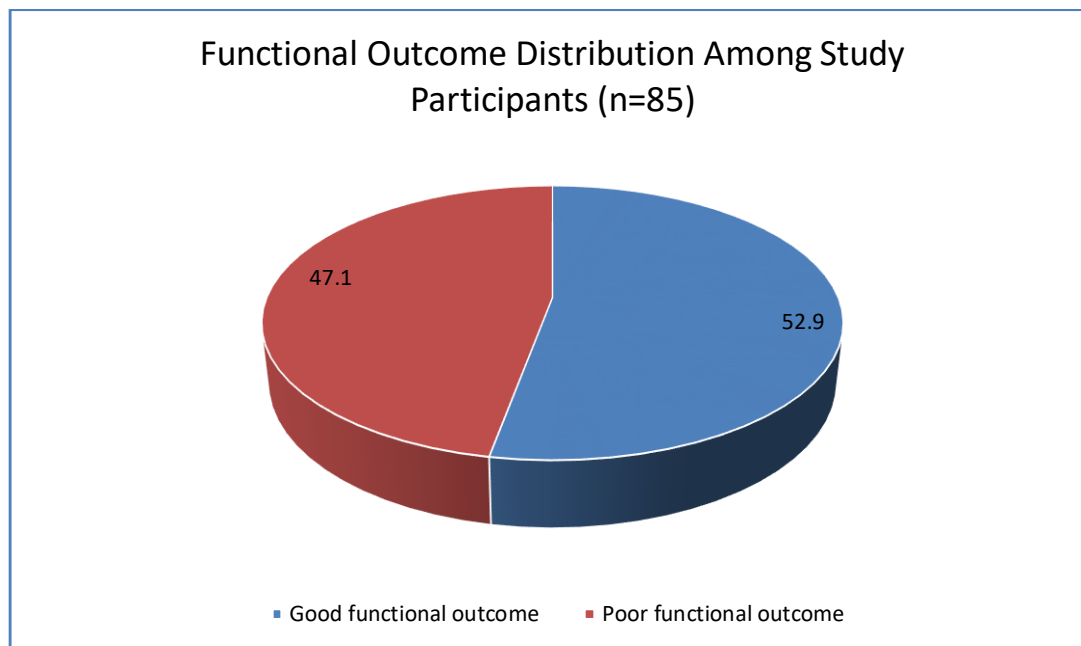


Figure 3 Functional Outcome Distribution Among Study Participants (n=85)

On comparative analysis, patients with poor functional outcomes had significantly longer duration of illness (13.8 ± 6.7 years vs 9.2 ± 5.8 years; $p < 0.001$) and higher relapse frequency compared with patients having good functional outcomes. Negative symptoms and cognitive impairment were significantly more common among patients with poor functional outcomes.

Poor medication adherence and impaired insight were also significantly associated with unfavorable functional outcomes. The association between clinical factors and functional outcome is shown in Table 5.

Table 5: Association Between Clinical Variables and Functional Outcome (n=85)

Variable	Good Outcome (n=45)	Poor Outcome (n=40)	p-value
Mean duration of illness (years)	9.2 ± 5.8	13.8 ± 6.7	<0.001
History of relapse (%)	48.9	77.5	0.006
Negative symptoms (%)	51.1	85.0	0.001
Cognitive impairment (%)	37.8	75.0	<0.001
Poor medication adherence (%)	31.1	62.5	0.004
Impaired insight (%)	31.1	67.5	0.001

Multivariate logistic regression analysis identified negative symptoms, cognitive impairment, longer duration of illness, and poor medication adherence as independent predictors of poor functional outcome. Presence of cognitive impairment showed the strongest association with poor functional outcome. Patients with cognitive impairment had approximately 3.6 times higher odds of poor functional outcome compared with those without cognitive impairment. The independent predictors identified on regression analysis are presented in Table 6.

Table 6: Multivariate Logistic Regression Analysis for Predictors of Poor Functional Outcome

Predictor	Adjusted Odds Ratio (AOR)	95% CI	p-value
Duration of illness > 10 years	2.48	1.12-5.49	0.025
Negative symptoms	3.12	1.34-7.28	0.009
Cognitive impairment	3.64	1.56-8.48	0.003
Poor medication adherence	2.71	1.18-6.21	0.018
Impaired insight	2.86	1.21-6.76	0.016

Discussion

The present prospective observational study evaluated the clinical profile and predictors of functional outcome among 85 patients with schizophrenia. The study demonstrated that 47.1% of patients had poor functional outcomes, indicating substantial impairment despite ongoing treatment. Longer duration of illness, recurrent episodes, negative symptoms, cognitive impairment, poor medication adherence, and impaired insight were significantly associated with unfavorable functional outcomes. Multivariate analysis identified cognitive impairment, negative symptoms, prolonged illness duration, poor adherence, and impaired insight as independent predictors of poor functional recovery. In the present study, the mean age of participants was 38.6 ± 10.8 years, with the majority belonging to the 31-40 years age group (36.5%), and males constituted 61.2% of cases.

This demographic pattern reflects the typical epidemiology of schizophrenia, which commonly affects individuals during late adolescence and early adulthood, resulting in impairment during productive years of life. Similar demographic trends have been reported in previous studies, emphasizing the impact of schizophrenia on occupational, social, and independent functioning. The mean age at onset of illness in the current study was 26.8 ± 7.5 years, with 68.2% of patients developing symptoms before 30 years of age. Early onset schizophrenia is associated with disruption of education, employment, social relationships, and long-term functional recovery. Carrión et al. [23] reported that baseline neurocognitive performance and functional status were important predictors of future social and occupational outcomes, highlighting the importance of early prognostic assessment. More than half of the patients in the present study (54.1%) had illness duration exceeding 10 years, and prolonged illness duration was significantly associated with poor functional outcome (13.8 ± 6.7 years vs 9.2 ± 5.8 years; $p < 0.001$). Chronic illness contributes to functional decline through persistent symptoms, repeated relapses, social withdrawal, and reduced rehabilitation opportunities. Milev et al. [24] demonstrated that negative symptoms and cognitive domains such as memory and attention significantly predicted long-term work and interpersonal outcomes in schizophrenia. The present study observed positive symptoms in 72.9% and negative symptoms in 67.1% of patients.

Negative symptoms were significantly more frequent among patients with poor functional outcomes (85.0% vs 51.1%; $p = 0.001$). Symptoms such as avolition, social withdrawal, reduced motivation, and blunted affect directly interfere with occupational performance and social relationships. Yang et al. [25] reported that negative symptoms independently predicted real-world functioning and employment outcomes among patients with schizophrenia, supporting their role as major determinants of disability. Cognitive impairment was one of the strongest

predictors of poor functional recovery in the present study. It was observed in 55.3% of participants and was significantly higher among patients with poor outcomes (75.0% vs 37.8%; $p < 0.001$).

Multivariate analysis showed that cognitive impairment increased the likelihood of poor functional outcome by approximately 3.64 times (AOR 3.64; $p = 0.003$). Cognitive deficits affecting attention, memory, executive function, and problem-solving ability negatively influence daily functioning and vocational performance. Previous studies, including Carrión et al. [23], have demonstrated that neurocognitive impairment is a major determinant of long-term functional outcomes. Poor medication adherence was observed in 45.9% of patients and was significantly associated with poor functional outcomes (62.5% vs 31.1%; $p = 0.004$). Non-adherence contributes to symptom recurrence, relapse, hospitalization, and progressive functional deterioration. Similarly, impaired insight was significantly associated with poor outcomes (67.5% vs 31.1%; $p = 0.001$), as reduced awareness of illness may affect treatment compliance and participation in rehabilitation.

Conclusion

The present study demonstrated that functional outcomes in patients with schizophrenia were influenced by multiple clinical and demographic factors. Longer duration of illness, negative symptoms, cognitive impairment, poor medication adherence, and impaired insight were significantly associated with poor functional recovery. Cognitive impairment and negative symptoms emerged as important independent predictors of unfavorable functional outcomes. Early identification of these factors and implementation of individualized pharmacological and psychosocial interventions may improve rehabilitation outcomes and overall quality of life in patients with schizophrenia.

Limitations

The study was conducted with a relatively limited sample size of 85 patients from a single centre, which may restrict the generalizability of the findings to broader populations. The follow-up duration was limited, preventing assessment of long-term changes in functional outcomes. Assessment of certain psychosocial and environmental factors that may influence recovery was not extensively explored. Further multicentric studies with larger sample sizes and longer follow-up periods are required to validate these findings.

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