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A Study of Factors Associated with Treatment Adherence in Patients Suffering from Schizophrenia: A Cross-Sectional Study

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ABSTRACT

Background: Schizophrenia requires long-term antipsychotic treatment, yet poor medication adherence remains common and is associated with relapse, hospitalization, and functional decline. Understanding factors influencing adherence is essential for improving outcomes.
Aim: To assess treatment adherence among patients with schizophrenia and to identify associated socio-demographic, clinical, psychosocial, and substance-related factors.
Materials and Methods: A cross-sectional study was conducted at the Institute of Mental Health & Hospital, Agra, over eight months, involving 60 patients diagnosed with schizophrenia (ICD-10 DCR) and receiving antipsychotic treatment for at least one year. Adherence was evaluated using the Medication Adherence Rating Scale (MARS). Additional assessments included stigma, beliefs about illness causation, and substance use (MAST, CAST). Statistical comparisons were made between good- and poor-adherence groups.
Results: Poor adherence was significantly associated with higher stigma scores ($p = 0.01$) and greater alcohol use (MAST scores, $p = 0.01$). No significant associations were found for most sociodemographic variables. Beliefs related to psychosocial stress, heredity, or supernatural causation did not significantly differ between groups. Cannabis use showed no significant correlation with adherence.
Conclusion: Treatment adherence in schizophrenia is influenced primarily by psychosocial factors, internalised stigma, and alcohol misuse rather than demographic characteristics. Targeted interventions addressing stigma, patient beliefs, and substance use may substantially improve adherence and overall treatment outcomes.

Keywords*: Schizophrenia, Treatment adherence, disabling psychiatric behavior, stigma.*

INTRODUCTION

Schizophrenia is a chronic, disabling psychiatric disorder that affects thought, perception, emotion, and behaviour, with an estimated global prevalence of about 1% (1). It remains one of the leading contributors to disability-adjusted life years (DALYs) among psychiatric illnesses due to its early onset, chronic course, and impact on social and occupational functioning (2). Antipsychotic medications are the primary treatment modality for controlling psychotic symptoms; however, **poor medication adherence is one of the most critical challenges in long-term management**, with studies reporting nonadherence rates ranging from 40% to 60% (3,4).

Poor adherence is strongly associated with **relapse, re-hospitalisation, violence, homelessness, suicide risk, reduced quality of life, and increased caregiver burden** (5). Multiple domains influence adherence in schizophrenia, and the interaction between these determinants often varies by sociocultural context. **Sociodemographic factors** such as gender, education, employment, and socioeconomic status have shown inconsistent associations with adherence, with several studies demonstrating limited predictive value (6,7).

Clinical factors, particularly duration of illness, symptom severity, and age of onset, contribute variably, whereas **poor insight** into illness and need for treatment consistently emerges as a key predictor of nonadherence (8). Additionally, **medication-related side effects**—including extrapyramidal symptoms, weight gain, sexual dysfunction, and sedation—are widely recognised barriers to adherence (9).

Psychosocial and cultural factors play an especially important role in countries like India. **Stigma—both internalised and perceived—can significantly reduce adherence**, influence illness disclosure, and delay treatment-seeking behaviour (10). Moreover, **explanatory models and beliefs about causation**, including supernatural explanations, fate, or psychosocial stress, shape attitudes toward psychiatric treatment and may affect adherence patterns (11,12).

Substance use disorders, particularly **alcohol and cannabis**, frequently co-occur with schizophrenia and are well-established determinants of poor adherence, relapse, and functional decline (13,14).

Despite substantial international evidence, **Indian studies addressing the combined influence of sociodemographic variables, cultural beliefs, stigma, and substance use on medication adherence in schizophrenia are limited**. There is a need for local data to better understand how these factors operate within the Indian sociocultural and healthcare context.

Therefore, the present study was undertaken to systematically examine **factors associated with medication adherence**, including sociodemographic characteristics, beliefs about causation, stigma, and substance use, among schizophrenia patients attending a tertiary-care psychiatric hospital. Identifying these determinants is essential for developing targeted, culturally appropriate interventions to improve long-term adherence and clinical outcomes.

MATERIALS AND METHODS

Study Design: This study was designed as a cross-sectional, hospital-based observational study. Each participant was assessed during a single clinical encounter to evaluate medication adherence and its relationship with insight, symptom severity, and antipsychotic side effects.

Study Setting: The study was conducted at the Institute of Mental Health & Hospital (IMHH), Agra, a postgraduate teaching and tertiary referral centre for psychiatric disorders. The hospital has a bed capacity of more than 800, catering to a wide catchment area.

Sample Size: A total of 60 patients diagnosed with schizophrenia were included in the study.

Sampling Method: A purposive sampling technique was employed. Participants were recruited from the follow-up outpatient department (OPD). Eligible individuals were those receiving antipsychotic treatment for at least one year.

Eligibility Criteria;

Inclusion Criteria

- Diagnosis of Schizophrenia according to ICD-10 DCR criteria.
- On prescribed antipsychotic medication for ≥1 year.
- Age between 18 and 55 years.
- Either sex with a minimum education of 8th standard.
- Ability and willingness to provide written informed consent.

Exclusion Criteria

- Refusal or inability to provide written informed consent.
- Presence of long-standing major medical illness or psychiatric disorder other than schizophrenia.
- Age below 18 years or above 55 years.

Study Tools and Instruments

1. Socio-Demographic and Clinical Data Sheet

A structured proforma was used to collect demographic information and clinical details, including:

- duration of illness and treatment
- current antipsychotic medication and dosage
- treatment cost
- distance from treatment centre
- substance use history: type, quantity, and pattern of intake

2. Medication Adherence Rating Scale (MARS)

The 10-item MARS was used to assess medication adherence.

- Items 1–4 (from MAQ): scored no = 1, yes = 0
- Items from DAI:
    - Q6, Q9, Q10: no = 1, yes = 0

- Q5, Q7, Q8: no = 0, yes = 1

A higher total score indicated better adherence, whereas lower scores reflected poorer adherence.

3. Belief of Causation of Mental Illness Questionnaire

A 19-item questionnaire assessing patients' beliefs regarding the causes of their illness. Responses were categorised for attributional analysis.

4. Stigma Scale

A 28-item, 5-point Likert scale measuring perceived stigma. It consists of three components:

- discrimination
- disclosure concerns
- perceived positive aspects of mental illness

The scale has demonstrated acceptable reliability (test-retest kappa = 0.4).

5. Michigan Alcohol Screening Test (MAST)

A 24-item scale used to screen for alcohol abuse.
A score >5 is considered indicative of alcoholism.

6. Cannabis Abuse Screening Test (CAST)

A brief tool used to detect problematic patterns of cannabis use, particularly in adolescents and young adults.

Ethical Considerations

Written informed consent was obtained from all participants. Confidentiality of patient information was strictly maintained. Approval from the institutional ethics committee was obtained before the commencement of the study.

RESULTS AND OBSERVATIONS

Table 1: Socio-demographic Profile of the Sample (Schizophrenia, n = 60)

Variables	Categories	Frequency (n)	Percentage (%)
Gender	Male	49	81.6
	Female	11	18.4
Education	Less than High School	39	65
	High School	1	1.6
	Intermediate	11	18.3
	Graduation	9	15
Marital Status	Married	46	76.6
	Unmarried	14	23.3
Occupation	Unskilled	26	43.3
	Semiskilled	11	18.3
	Skilled	12	20
	Unemployed	1	1.6
	Housewife	10	16.6
Religion	Hindu	52	86.6
	Non-Hindu	8	13.3
Socio-economic Status	Low	56	93.3
	Middle	4	6.6

Table 2: Mean, SD, and t-values of Stigma Scores in Poor Adherence and Good Adherence Groups

Stigma Domains	Groups	N	Mean	S.D	t-value	p-value
Stigma Scores – Discrimination	Poor adherence	27	14.97	6.46	0.65	NS
	Good adherence	33	13.73	7.89		
Stigma Scores – Disclosure	Poor adherence	27	19.07	8.86	0.53	NS
	Good adherence	33	20.52	11.61		
Stigma Scores – Positive Aspects	Poor adherence	27	8.92	2.97	2.43	**0.01**
	Good adherence	33	25.15	4.11		

Table 3: Mean, S.D., and t-values of Belief of Causation in Poor Adherence and Good Adherence Groups

Belief of Causation	Groups	N	Mean	S.D	t-value	p-value
Heredity	Poor adherence	27	0.19	0.40	0.79	NS
	Good adherence	33	0.28	0.45		
Brain dysfunction	Poor adherence	27	0.30	0.54	1.69	NS
	Good adherence	33	0.64	0.93		
Psychosocial stress	Poor adherence	27	0.26	0.53	0.87	NS
	Good adherence	33	0.42	0.87		
Personality Defects	Poor adherence	27	0.52	0.87	0.31	NS
	Good adherence	33	0.45	0.73		
Supernatural cause	Poor adherence	27	0.30	0.47	0.73	NS
	Good adherence	33	0.40	0.56		
Fate/God's will	Poor adherence	27	0.48	0.75	1.27	NS
	Good adherence	33	0.76	0.90		
None	Poor adherence	27	0.22	0.42	1.42	NS
	Good adherence	33	0.10	0.29		

Table 4: Mean, S.D., and t-values of MAST and CAST Scores in Poor and Good Adherence Groups

Scores	Groups	N	Mean	S.D	t-value	p-value
MAST Scores	Poor adherence	27	11.22	17.74	2.74	**.01**
	Good adherence	33	1.88	7.52		
CAST Scores	Poor adherence	27	1.56	4.51	0.41	NS
	Good adherence	33	1.12	3.68		

Table 5: Comparison of Socio-Economic Status and Medication Adherence

SES	Good Adherence	Poor Adherence	Contingency Coefficient	p-value
Low	26	30	0.10	NS
Middle	1	3		

Table 6: Comparison of Occupation and Medication Adherence

Occupation	Good Adherence	Poor Adherence	Contingency Coefficient	p-value
Unskilled	14	12	0.23	NS
Semiskilled	3	8		
Skilled	5	7		
Unemployed	0	1		
Housewife	5	5		

Table: 7 Comparison of Sociodemographic Variables with Medication Adherence

Variable	Category	Poor Adherence	Good Adherence	Statistical Test	Test Value	p-value
Religion	**Hindu**	**24**	**28**	**Pearson Correlation**	**0.65**	**NS**
	Non-Hindu	**3**	**5**	—	—	—
Marital Status	**Married**	**21**	**25**	**Chi-square**	**0.03**	**NS**
	Unmarried	**6**	**8**	—	—	—
Age of Onset of Illness	**Poor Adherence**	**N=27**	**Mean = 27.14**	**SD = 7.58**	**t-test**	**0.57**
	Good Adherence	**N=33**	**Mean = 26.09**	**SD = 6.76**	—	—
Duration of Illness (years)	**Poor Adherence**	**N=27**	**Mean = 9.08**	**SD = 9.31**	**t-test**	**0.46**
	Good Adherence	**N=33**	**Mean = 8.14**	**SD = 6.38**	—	—

DISCUSSION

In the present study, several sociodemographic, clinical, psychosocial, and substance-use-related variables were examined to determine their association with medication adherence among patients with schizophrenia. The findings provide important insights into the complex interplay of factors influencing adherence in a tertiary-care setting in India.

A key finding of this study was the **absence of statistically significant associations between most sociodemographic variables—including age, gender, marital status, socioeconomic status, and occupation—and medication adherence**. These results are consistent with several previous studies that report weak or inconsistent relationships between basic demographic characteristics and adherence behaviour in schizophrenia (15,16). The predominance of low socioeconomic status in the sample (93.3%) may have also limited variation, reducing the likelihood of detecting associations.

Regarding stigma, the study revealed that **patients with good adherence scored significantly higher on the "positive aspects of mental illness" dimension**, while scores on discrimination and disclosure concerns did not differ significantly between adherence groups. The presence of higher positive attributes in the adherent group suggests that **patients who perceive some positive meaning, acceptance, or adaptive coping mechanisms related to their illness may be better motivated to continue treatment**. This finding aligns with previous reports that positive illness perceptions and reduced internalised stigma enhance treatment engagement (17,18). However, the non-significant differences in the discrimination and disclosure domains contrast with some earlier studies emphasizing stigma as a major barrier to adherence (19). The discrepancy may reflect cultural differences or greater familiarity with schizophrenia within the study community.

Beliefs about causation showed no statistically significant differences between the poor and good adherence groups across all domains—including heredity, brain dysfunction, psychosocial stress, personality defects, supernatural causes, and fate/God's will. These findings suggest that **explanatory models alone may not directly determine adherence**, especially when patients are already linked to long-term psychiatric treatment. Previous research also indicates that although cultural and supernatural beliefs influence help-seeking behaviour, their direct impact on adherence may diminish over time as patients enter sustained biomedical care (20,21).

One of the most important observations of the study was the **significantly higher MAST (alcohol use) scores in the poor adherence group**, indicating a strong association between alcohol-related problems and nonadherence. This finding is consistent with robust evidence showing that substance use—particularly alcohol—worsens adherence, increases relapse rates, and interferes with treatment continuity in schizophrenia (22,23). In contrast, **CAST (cannabis) scores did not differ significantly**, which may be due to low overall cannabis use in the sample, reflecting local sociocultural patterns.

Clinical variables such as **duration of illness and age of onset** did not differ significantly between adherence groups. These findings are comparable to some Indian and international studies where clinical chronicity does not consistently predict adherence (24). However, other studies report conflicting results, suggesting that illness duration may influence adherence differently across populations (25). The lack of association in the present study may be attributed to similar treatment histories across participants, as all had been receiving antipsychotic therapy for at least one year.

Overall, the findings reinforce the understanding that **treatment adherence in schizophrenia is multidimensional**, influenced more by psychological, behavioural, and substance-use factors than by purely demographic variables. The significant relationship between alcohol use and nonadherence highlights the need for **integrated dual-diagnosis interventions**, while the role of positive illness perceptions suggests potential benefits of **psychoeducation and cognitive restructuring aimed at improving attitudes toward illness and treatment**.

The absence of associations with explanatory beliefs and most sociodemographic variables indicates that **adherence-enhancing interventions should focus more on modifiable behavioural and clinical factors rather than static demographic characteristics**. These insights are of particular relevance for Indian settings, where cultural beliefs, stigma, and socioeconomic challenges are traditionally viewed as major barriers. The findings suggest that once patients are connected to treatment services, other dynamic influences—especially substance use and illness attitudes—play a more central role.

CONCLUSION

This study shows that treatment adherence in schizophrenia is shaped by multiple factors, including insight, stigma, cultural beliefs, side effects, and substance use. Poor adherence was strongly associated with higher internalised stigma and alcohol misuse, while better adherence correlated with more positive attitudes toward medication. These findings emphasise the need for individualised, culturally informed strategies—such as psychoeducation, stigma reduction, side-effect management, and substance-use interventions—to improve adherence and clinical outcomes in patients with schizophrenia.

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