

# A study of adherence and non-adherence to antipsychotic medication in patients of Schizophrenia

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## Abstract

**Background:** Adherence has always been a major problem in the treatment of Schizophrenia, despite of the advances in the treatment regime. Various factors influence adherence to antipsychotics in patients of Schizophrenia. This study is the first of its kind, done on a specific group of patients of Schizophrenia on antipsychotic medication, at a tertiary referral hospital, in the Indian setting. It was done to highlight the various factors influencing adherence and non-adherence to antipsychotics which will help plan future directives to address barriers in adherence.

**Method:** The study evaluated the socio-demographic profile, clinical features, causes of adherence and non-adherence, and their associations in 60 patients of Schizophrenia on antipsychotics, using the ICD-10 criteria for research, the modified Kuppuswamy socio-economic scale, the MINI-PLUS and the ROMI scale.

**Results:** The most common reason for adherence was the family member's strong belief in the efficacy of medication (96%), while for non-adherence it was the poor financial condition of the patients (71.6%). A significant association was found between the perceived daily benefit, having a strong positive relationship with the clinician, and adherence, as per the ROMI scale. Non-adherence was found in patients who did not perceive any benefit with medication, those who had financial problems and side effects of medication.

**Conclusion:** These findings will help in planning suitable interventions to enhance adherence to antipsychotics in patients of Schizophrenia.

**Keywords:** Schizophrenia, Adherence, Non-adherence.

## Introduction

The WHO defines adherence as "The extent to which a person's behaviour in taking medication, following a diet and/ or executing life style changes corresponds with agreed recommendations from a health care provider."<sup>1</sup> Despite recent progress in the treatment of schizophrenia, non-adherence continues to be a frequent phenomenon, often associated with negative clinical consequences and high expenditure. It has been observed that only one-third patients suffering from Schizophrenia are fully adherent to their medications.<sup>2,3</sup>

There are various factors responsible for non-adherence. The *patient related factors* are age, lack of insight (most important), negative attitude towards treatment and substance use.<sup>4-12</sup> The *family related factors* are ignorance of benefits and unrealistic expectations. The *illness related factors* are aggressive behaviour and cognitive decline.<sup>13,14</sup> *Clinician related factors*, such as prescribing expensive drugs and poly-pharmacy affect adherence in a significant way. The *health care system related factors* which negatively impact adherence are lack of access and social supervision.

There are many consequences of non-adherence; namely- poor prognosis, dangerous behaviour, arrest, violence, drug abuse, low satisfaction with life, stress, increase risk of suicide, longer time to attain remission, break through symptoms, job losses, relapse and hospital admissions.<sup>15-17</sup>

There are various reasons for adherence, such as, having a good therapeutic relation with the treating psychiatrist, patient's positive attitude towards the

medication, having a better global functioning, having a longer duration of illness, good social support and once daily dosing of medication.

Various methods have been used to assess adherence in patients of Schizophrenia, such as prescription renewals, electronic compliance monitors, pill counts, direct observation and serum drug levels. A number of scales have also been designed, each with varying degrees of specificity and limitations.<sup>18</sup>

There are very few recent studies in the Indian setting regarding factors of adherence and non-adherence to antipsychotic medication in patients of Schizophrenia. This study was done to evaluate the socio-economic factors, causes of adherence and non-adherence to antipsychotics; and their associations in patients of Schizophrenia at a tertiary referral hospital. It also compares the factors influencing adherence and those leading to non-adherence in the Indian and foreign setting.

## Materials and Methods

The study was conducted on 60 patients of Schizophrenia attending the Department of Psychiatry of a tertiary referral hospital. The study protocol was approved by the Institutional Ethics Committee.

## Inclusion criteria

1. Patients fulfilling ICD-10 Diagnostic Criteria for research<sup>19</sup> of Schizophrenia with a course of illness more than 1 year

2. Patients who/ who’s relative gave consent to take part in the study.
3. Patients in the age group of 18-60 years.

**Exclusion criteria**

1. Patients with co-morbid medical conditions.
2. Patients having other co-morbid psychiatric disorders.
3. Patients who were not prescribed antipsychotic medication in the past 6 months.
4. Patients with medico-legal issues.
5. Patients with insight less than grade III.<sup>20</sup>

**Tools**

The modified Kuppaswamy socioeconomic scale<sup>21,22</sup> and the MINI-PLUS<sup>23,24</sup> scales were administered to the patient. The severity of the illness was assessed using the Positive and Negative Syndrome scale (PANSS).<sup>25,26</sup> Those patients who did not take their medication for at least one week in the past one month were termed non-adherent and the remaining as adherent. The subjective reasons for adherence and non-adherence were assessed using the Rating of Medication Influences Scale (ROMI).<sup>27</sup>

The statistical analysis of data was performed using Statistical Package for Social Sciences (SPSS) for Windows (version 20.0) and Microsoft Excel 2010. The variables were analyzed using the chi-squared test, the 2 independent sample T test and the Mann Whitney test. Significance levels for all analyses were set at the p value 0.05.

**Results**

**Sociodemographic data:** The age range of patients was from 18 to 58 years, with a mean age of 34.7 years. There were 43.33% males and 56.66% females. Maximum number (40%) of patients were from the lower middle class. Table 1 shows the detailed socio-demographic data.

**Clinical profile and treatment received:** According to the ICD-10 Diagnostic Criteria for Research, most (83.33%) of the patients had Paranoid Schizophrenia. 90% of the patients received oral antipsychotic medication while the rest (10%) received a combination of oral and depot preparations. 60% of the patients were treated with second generation antipsychotics.

**Adherence:** The most common reason for adherence to antipsychotic medications among the patients of Schizophrenia was the family member’s strong belief in medication (96%). The other reasons are mentioned in Fig. 1.

**Table 1:** Socio-demographic data and clinical profile of patients

	N	%
<b>Age group(years)</b>		
18-24	8	13.33
25-34	26	43.33
35-44	11	18.33
45-54	11	18.33
55-60	4	6.66
<b>Sex</b>		

Male	26	43.3
Female	34	56.6
<b>Marital Status</b>		
Married	30	50
Unmarried	18	30
Divorced/ Separated	9	15
Widowed	3	5
<b>Locality</b>		
Rural	32	53.33
Urban	28	46.66
<b>Educational Status</b>		
Illiterate	4	6.66
Primary School	13	21.66
Middle School	8	13.33
High School	9	15
Intermediate	12	20
Graduate	14	23.33
<b>Occupational Categories</b>		
Unemployed	35	58.33
Employed	25	41.67
<b>Socio-Economic Class</b>		
Upper	2	3.33
Upper Middle	18	30
Lower Middle	24	40
Upper Lower	16	26.66
Lower	0	0
<b>Religion</b>		
Hindu	47	78.33
Muslim	4	6.66
Buddhist	8	13.33
Christianity	1	1.66
<b>Family Support</b>		
Living alone	1	1.66
Living with family	59	98.33
<b>Types of Schizophrenia</b>		
Paranoid	50	88.33
Undifferentiated	6	1
Catatonic	2	3.33
Disorganised	2	3.33
<b>Family History of Schizophrenia</b>		
Present	27	45
Absent	33	55
<b>Route of medication</b>		
Oral	54	90
Oral +Depot	6	10
<b>Class of antipsychotic</b>		
FGA	9	15
SGA	36	60
FGA + SGA	15	25
<b>Medication Supervision</b>		
Supervised	38	63.33
Unsupervised	22	36.66
<b>Adherence Rates</b>		
Adherent	31	51.66
Non-Adherent	29	48.34

FGA: First generation antipsychotic  
 SGA: Second generation antipsychotic

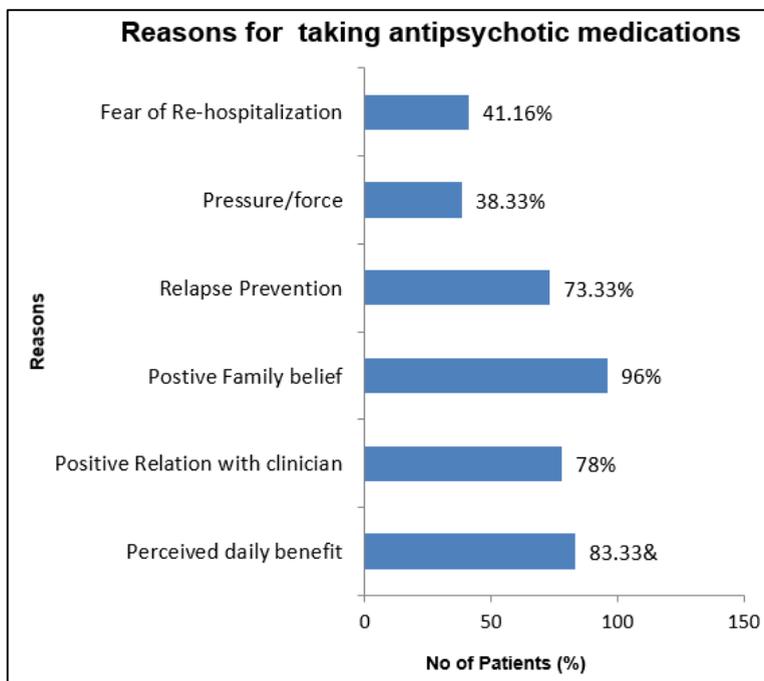


Fig. 1: Bar graph depicting the reasons for taking antipsychotics

Table 2: The degree of Influence over adherence of each ROMI question

S. No	Question	Adherent (n=31)			Non-Adherent(n=29)			Value
		Degree of influence (%)			Degree of influence (%)			
		Strong	Mild	None	Strong	Mild	None	
1	Perceived Daily Benefit	80.64	12.9	6.45	17.24	55.17	27.58	$x^2=24.09$ <b>p&lt;0.001</b>
2	Positive Relation with Clinician	67.7	25.8	6.45	13.7	48.2	37.9	$x^2=14.32$ <b>p&lt;0.001</b>
3	Positive Family Belief	87.09	6.45	6.45	86.2	13.7	0	$x^2=2.67$ p=0.430
4	Relapse Prevention	74.19	16.12	9.6	13.7	41.37	44.82	$x^2=22.4$ <b>p&lt;0.001</b>
5	Pressure/Force	12.9	3.22	83.87	31.03	31.03	37.93	$x^2=14.35$ <b>p=0.001</b>
6	Fear of re-hospitalization	25.8	19.35	54.83	13.7	27.58	58.62	$x^2=1.55$ p=0.5

Table 3: The degree of Influence over non- adherence of each ROMI question

S.No	Question	Adherent (n=31)			Non-Adherent(n=29)			Value
		Degree of influence (%)			Degree of influence (%)			
		Strong	Mild	None	Strong	Mild	None	
1	No perceived daily benefit	9.6	3.22	87.09	6.89	41.3	51.72	$x^2= 12.88$ <b>p&lt;0.001</b>
2	Negative relation with clinician	3.22	0	96.77	0	3.44	96.55	$x^2= 2.004$ p=0.73
3	Practitioner opposed to medication	0	6.45	93.54	0	0	100	$x^2= 1.93$ p=0.492
4	Family/ friend opposed to medication	3.22	3.22	93.54	3.44	0	96.55	$x^2= 1.86$ p=0.99

5	Access to treatment problems	3.22	45.16	51.61	13.79	55.17	31.03	$\chi^2= 3.83$ $p=0.158$
6	Embarrassment or stigma over medication/ illness	6.45	29.03	58.06	6.89	37.93	55.17	$\chi^2= 0.31$ $p=0.916$
7	Financial obstacles	0	70.96	29.03	27.58	44.82	27.58	$\chi^2= 10.31$ <b><math>p=0.004</math></b>
8	Substance use preferred over medication	0	3.22	96.77	0	6.8	93.1	$\chi^2=0.42$ $p=0.606$
9	Denial of illness	6.45	48.38	45.16	10.34	51.72	37.93	$\chi^2= 0.49$ $p=0.797$
10	Medication currently unnecessary	0	32.25	67.74	10.34	37.93	51.72	$\chi^2= 3.98$ $p=0.157$
11	Distressed by side effects	3.22	25.8	70.96	24.13	17.24	58.62	$\chi^2= 7.36$ <b><math>p= 0.02</math></b>
12	Desire Re-hospitalization	6.45	3.22	90.32	3.44	3.44	93.1	$\chi^2= 0.28$ $p=0.99$

### Associations

#### *Associations between Socio-demographic profile and adherence*

Patients > 30 years of age were more adherent to antipsychotic medication than those < 30 years of age ( $p = 0.009$ ). Patients who had completed their education till 10<sup>th</sup> standard or more were more adherent than those who had studied till less than 10th standard ( $p=0.07$ ). Patients who belonged to the Upper and Upper Middle Socio-economic Class were more adherent than those who belonged to the Upper Lower and Lower Middle Class ( $p=0.024$ ). Adherence rates were higher among those patients who were married as compared to others (divorced/ separated/ single/widowed) ( $p=0.03$ ).

#### *Associations between clinical profile and adherence*

The grade of insight was more in the adherent patients compared to the non-adherent patients ( $p=0.0117$ ). The mean PANSS positive symptom score for non-adherent patients was more than that of the adherent patients ( $P=0.014$ ). The mean PANSS negative symptom score was more in the non-adherent patients than in the adherent patients ( $P=0.019$ ).

#### *Associations between patient's subjective attitude towards medication and adherence*

The ROMI questionnaire was used to assess the degree of influence of the various factors over adherence and non-adherence. We found that perceiving daily benefit, having a positive relationship with the clinician and taking medication to prevent a relapse were significantly more in the adherent group of patients than in the non-adherent group ( $p<0.001$ ). (Table 2)

#### *Associations between patient's subjective attitude towards medication and non-adherence*

We found that the patients who were non-adherent reported to have been forced/ pressurized to take the medication significantly more than the adherent patients ( $p<0.001$ ). The other reasons reported for non-adherence which were more for non-adherent than the adherent patients were: no

perceived daily benefit ( $p=0.001$ ), financial obstacles ( $p=0.004$ ) and distress due to side effects ( $p=0.02$ ). (Table 3).

### Discussion

#### **Socio-demographic data**

Our socio-demographic data compares with the Indian studies done by Baby RS et al and Chandra IS et al, where most patients were staying with their family members.<sup>28,29</sup> In most of the foreign studies, such as those done by Coldham et al, the patients were single and staying alone.<sup>18,30-24</sup> This highlights cultural factors, such as the strong family system in the Indian setting.

#### **Clinical profile**

The clinical profile of our patients compared with the Indian studies (Baby et al) and a few foreign based studies done by Meier J et al.<sup>29,35-38</sup> Our studies did not compare with some of the foreign based studies, such as those done by Diaz et al in which patients had higher PANSS scores<sup>28,34,39-42</sup> and were treated with a single antipsychotic only.<sup>37,42-43</sup> This could be because our study had mainly non-acute patients and because of different prescribing practice styles in the Indian setting compared to the foreign setting.

#### **Adherence**

Our findings compared with a few Indian and foreign based studies.<sup>28-29,40,44</sup> They did not compare with a few of the hospital based foreign studies which were prospective in nature and used different methods to assess adherence such as Pill counts. In these studies, the most common reason for adherence was relapse prevention and prevention of symptom exacerbation.<sup>32,35,38-39,43,45-46</sup> This is mainly due to socio-cultural factors and variation in study designs.

#### **Non-adherence**

Our findings of non-adherence which was due to poor financial condition in patients on antipsychotics compared with a few Indian and foreign based studies.<sup>28-29,45-46</sup> Our findings did not compare with a few hospital based foreign

studies.<sup>22,42</sup> This could be explained by the poor financial status of the patients at tertiary care hospitals in the Indian setting, compared to the foreign setting.

### Strengths

Our study highlights the differences between foreign based studies and Indian based studies. It also helps us to better understand the socio-cultural factors prevailing in the Indian setting which affects adherence to antipsychotics.

### Limitations

Our study was conducted over a short period and on a small sample of patients. This may not be representative of all patients of Schizophrenia on antipsychotics, at all tertiary referral hospitals in India. Our study evaluated adherence according to the report of the patient and their informants, which was mainly subjective in nature. The use of more objective methods such as pill counts, MEMS (Medication event monitoring system) were not undertaken.

### Conclusion

Our study will help in planning suitable, customized and targeted interventions in patients of Schizophrenia to prevent non-adherence. The treatment for patients of Schizophrenia should be affordable, accessible and regularly available. The usage of depot preparations of antipsychotics should also be considered to improve adherence.

Mental health professionals need to be trained in the evaluation of non-adherence and to use suitable interventions wherever required. The doctor-patient relationship needs to be improved in order to enhance adherence to antipsychotics. Psycho-education of relatives and patients needs to be undertaken in order to enhance adherence. Patients should be closely monitored for side effects, which is a deterrent to adherence.

The effects of various interventions could be areas of further research and this will go a long way in planning policy for patients of Schizophrenia.

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### Conflicting Interest

Nil.

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