

# Medication adherence and its determinants among psychiatric patients in a tertiary care hospital – A cross sectional study

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## Abstract

**Background:** The extent to which patient complies to medical advice particularly medication usage is a major concern to psychiatrists. Adherence to medication in psychiatric disorders are unique and beyond comparison to other specialties. **Settings and design:** This is a observational cross sectional hospital based study set in rural tertiary care centre. **Materials and Methods:** Patients visiting the psychiatric outpatient department who consented were enrolled in the study. Medication adherence was assessed using the Medication Adherence Rating Scale (MARS) and self designed questionnaire to obtain the socio demographic and clinical variables of the patients **Results:** Non adherence to medication was reported in 34.93%. There was no statistically significant association between the socio demographic variables and non adherence. Irregular follow ups, longer duration of treatment, increased number of relapses were the determinants of non adherence. **Conclusion:** Though the overall adherence was reported as high, there were a proportion of patients with low adherence to the prescribed treatment. Psychiatrists need to be aware of this problem which has long term implications in the care of the patient and have a holistic approach to patient management which includes monitoring of compliance.

**Key Word:** Medication adherence, Non adherence, Psychiatry, patients, outpatient

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## INTRODUCTION

Adherence is the extent to which medication intake behavior corresponds with the recommendations of the treating doctor.<sup>1</sup> Hippocrates was the first to describe that some patients refused to take their prescribed medicines as instructed, and later reported that treatment given had

no results. In fact Hippocrates went on to state that “physician should be aware that patient often lie when they say that they have taken the medicines”<sup>2</sup> Non adherence could be due to various factors which can be broadly grouped into patient, treatment, illness, physician related. Irrespective of the reasons for the non adherence the onus is on the psychiatrist not only in making an accurate diagnosis and initiation of appropriate treatment but also to psycho educate and motivate the patient with regards to the medication intake.<sup>3</sup> Non adherence may affect improvement of patients’ symptoms, with more chances of relapse with consequent distress and suffering to both patients and their families.<sup>4</sup> Factors that may predict non adherence include forgetting to take medications on time, illiteracy, poor comprehension of the purpose of treatment, not understanding the necessity of treatment, mistrust in the treatment, and a lack of knowledge about the therapeutic benefits of treatment.<sup>5,6</sup>

Hence medication non adherence is considered to be a complex, multi dimensional and dynamic behavior that poses a serious global challenge.<sup>7</sup> Nonadherence predicts unfavorable outcomes for patients, including hospitalization, violence, suicide, poor quality of life and premature mortality.<sup>8,9,10</sup> Maintaining adherence to treatment is crucial and decisive in the long term management of chronic psychiatric disorders.<sup>11,12,13</sup> Patients suffering from psychiatric disorders are known to be non adherent to treatment.<sup>14,15</sup> Psychiatric disorders have a negative influence on maintaining adherence due to lack of insight and faulty reasoning capacity of patient.<sup>13</sup> Varying rates of medication non adherence has been documented depending on the psychiatric diagnosis, Major depressive disorder (28–52%), bipolar disorder(20–50%), schizophrenia(20–72%) and anxiety disorders(57%).<sup>16,17,18,19</sup> Unfortunately, many of the clinicians are poorly equipped in the screening and identification of medication non adherence and unaware of the measures to tackle the problem.<sup>20</sup> Though there is a widespread use of the terms adherence and compliance among clinicians and psychiatric literature little attention is paid in addressing this condition.<sup>12</sup> There is a need for extra efforts to be put in to recognize the non adherent patients as these patients would benefit most from interventions to enhance adherence.<sup>21</sup> However detecting patients who are non adherent is not a easy job for the treating psychiatrist. In a study done by Stephenson *et al* to assess non adherence in patients with bipolar disorders and schizophrenia noted that 72% of patients who were non adherent indicated by prescription refill records were rated as adherent by their clinicians.<sup>22</sup> Thus non adherence can be considered as hidden entity in routine clinical consultations. With this background the current study aimed to 1) Assess the level of patients' adherence to psychotropic drugs<sup>2</sup> To determine factors associated with poor medication adherence.

## MATERIALS AND METHODS

This is a cross sectional study conducted at psychiatric outpatient clinic of PES Institute Of Medical sciences and Research, Kuppam, Andhra Pradesh. All consecutive patients with established psychiatric diagnosis of either gender attending the psychiatric outpatient during the study period of March 2018 to August 2018 were included in the study. Informed consent was sought prior to the inclusion of patients in the study after giving adequate information about the nature and purpose of the study. The study received approval from the Institutional Ethics Committee. The sample who consented to participate in the study were to meet the following Inclusion criteria:<sup>1</sup> Patients who are aged above 18 years.<sup>2</sup> Patients diagnosed with a psychiatric disorder according

to ICD-10 by a qualified psychiatrist<sup>3</sup> Those who have been on treatment with psychotropic medications for at least 6 months prior to the commencement of the study<sup>4</sup> Clinically stable at the time of data collection. Exclusion criteria included:<sup>1</sup> Patients with cognitive impairment or intellectual disability disorder and chronic medical conditions. Assessment tools used were:<sup>1</sup> Socio demographic questionnaire: to obtain information about age, gender, employment status, residence, education, marital status, substance use, class of psychotropic medication, duration of illness and treatment.<sup>2</sup> Medication adherence rating scale (MARS): was developed by Thompson *et al*<sup>23</sup> as a measure to determine adherence in patients with psychiatric diagnosis. It is a reliable and validated self reported measure of medication intake.<sup>23,24</sup> MARS is a 10-item self-reporting multidimensional Instrument describing three dimensions: medication adherence behavior (items 1-4), attitude toward taking medication (items 5-8) and negative side effects and attitude to psychotropic medication (items 9-10). Scores for each dimension are obtained by summing the items within each dimension. Each question on the MARS requires only a "yes or no" answer, total score ranging from 0-10, with a higher score indicating better medication adherence.

## RESULTS

Total of 146 patients completed the study after the inclusion and exclusion criteria were applied. The study sample comprised of 77 males (52.74%) and 69 (47.26 %) females. 113 out of 146 patients belonged to the rural background (77.4%). Significant proportion of the study sample were married (n= 95, 65.1%), high school educated (n=74, 50.68%), unemployed (n=56, 38.36%), belonged to a upper lower socio economic status (n= 59, 40.41%) and lived in a nuclear family (n= 74, 50.68%). The bulk of the patient sample belonged to the age group of 26-50 years (n= 90, 61.64%) (Table-1). The various psychiatric diagnosis in the patients reported were adjustment disorder (n= 4, 2.74 %), mood disorders (n= 51, 34.93%), anxiety disorders (n=39, 26.71%), psychosis (n=34, 23.29%), somatoform disorders (n=18, 12.33%). Prescription of the medications received by patients include antipsychotics (n=29), antidepressants (n=89), mood stabilizers (n=3) and combination of two or more than two drugs (n=25) (Table-2). Majority had a duration of illness of 1-5 years (44.52%) followed by <1 year of illness duration in 37.67%. Whereas as the duration of treatment is concerned high proportion received treatment of <1 year (55.48%) followed by 1-5 years of treatment (32.88%). Regular follow-ups as instructed by the treating psychiatrist was observed in (54.79%), while 45.21% had irregular follow ups. The numbers of relapses reported

were 0-5 relapses in 84.25% and more than 6 relapses in 15.75% of patients. Hospitalizations occurred in (n=48, 32.88%), alcohol consumption (n= 22, 15.07%) and smoking (n= 38, 26.03%) of the study sample. The reasons for non adherence were medication side effects(n=23),reduction in symptoms(n=15),financial constraints hindering in purchase of medications(n=8),lack of family supervision in administration of medications(n=6) and lack of insight (n=3),while majority(n=78) reported that they were adherent to medication at the time of the study. Medication adherence was assessed by using Medication Adherence Rating Scale (MARS) which had a mean score of 7.72 out of a possible score of 0-10.For the purpose of the study with the median of 8 poor/low adherence was

considered with scores below 7 and scores above 7 were considered to indicate high/good adherence. Based on these cutoff scores low adherence was observed in 51(34.93%) and high adherence in 95 (65.07%). There was no significant association between socio-demographic variables and MARS scores. However there was a trend noticed of patients from rural background having high adherence which was not statistically significant. High adherence was also noted in age group of 25-50years which was not statistically significant. Considering the various psychiatric diagnosis with the level of adherence, non adherence was noted in psychosis (26.47%), mood disorders (43.14%), adjustment disorder (25%), anxiety disorders (35.90%), somatoform disorders (27.78%).

**Table 1: Socio demographic profile of patient**

Socio demographic data		Frequency(N)	Percentage (%)
<b>Sex</b>	Female	69	47.26
	Male	77	52.74
<b>Background</b>	Rural	68	46.58
	Suburban	45	30.82
	Urban	33	22.6
<b>Marital status</b>	Married	95	65.07
	Separated	10	6.85
	Unmarried	29	19.86
	Widow/Widower	12	8.22
<b>Educational level</b>	Illiterate	29	19.86
	High school	74	50.68
	Diploma	29	19.86
<b>Occupation</b>	Graduate	14	9.59
	Unemployed	56	38.36
	Unskilled	42	28.77
	Skilled	40	27.4
<b>Socioeconomic status</b>	Professional	8	5.48
	Lower (<5)	12	8.22
	Upper lower (5-10)	59	40.41
	Lower Middle (11-15)	56	38.36
	Upper Middle (16-25)	18	12.33
<b>Living conditions</b>	Upper (26-29)	1	0.68
	Single	18	12.33
	Joint Family	54	36.99
	Nuclear Family	74	50.68

**Table 2: Clinical Variables of patients**

Clinical Variables	Frequency(N)	Percentage (%)	
<b>Duration of illness</b>	<1 year	55	37.67
	1-5 years	65	44.52
	6-10 years	15	10.27
	10+ years	11	7.53
<b>Duration of treatment</b>	<1 year	81	55.48
	1-5 years	48	32.88
	6-10 years	10	6.85
<b>Follow-ups</b>	10+ years	7	4.79
	Irregular	66	45.21
	Regular	80	54.79
<b>No. of relapses</b>	0-5 relapses	133	84.25
	6-12 relapses	23	15.75

<b>Inpatient Admission</b>	No	98	67.12
	Yes	48	32.88
<b>Family history of psychiatric illness</b>	No	140	95.89
	Yes	6	4.11
<b>Alcohol consumption</b>	No	124	84.93
	Yes	22	15.07
<b>Smoking</b>	No	108	73.97
	Yes	38	26.03
<b>Class of drugs</b>	Anti-depressants	89	60.96
	Antipsychotics	29	19.86
	Mood stabilizers	3	2.05
	Combination	25	17.1

**Table 3:** Comparison of the clinical variables with the Adherence Measures (\*p value of <0.05 statistically significant)

Clinical data		MARS Score		P value
		<7	>7	
<b>Duration of illness</b>	<1 year	24(43.64%)	31(56.36%)	0.358
	1-5 years	19(29.23%)	46(70.77%)	
	6-10 years	4(26.67%)	11(73.33%)	
	10+ years	4(36.36%)	7(63.64%)	
<b>Duration of treatment</b>	<1 year	18(22.22%)	63(77.78%)	0.001*
	1-5 years	21(43.75%)	27(56.25%)	
	6-10 years	7(70.00%)	3(30.00%)	
	10+ years	5(71.43%)	2(28.57%)	
<b>Follow-ups</b>	Irregular	40(60.61%)	26(39.39%)	0.000*
	Regular	11(13.75%)	69(86.25%)	
<b>No.of relapses</b>	0-5 relapses	34(27.64%)	89(72.36%)	0.000*
	6-12 relapses	17(73.91%)	6(26.09%)	
<b>Inpatient admission</b>	No	32(32.65%)	66(67.35%)	0.409
	Yes	19(39.58%)	29(60.42%)	
<b>Alcohol consumption</b>	No	41(33.06%)	83(66.94%)	0.261
	Yes	10(45.45%)	12(54.55%)	
<b>Smoking</b>	No	39(36.11%)	69(63.89%)	0.614
	Yes	12(31.58%)	26(68.42%)	
<b>Class of drug</b>	Antidepressants	32(35.96%)	57(64.04%)	0.646
	Antipsychotics	9(31.03%)	20(68.97%)	
	Combination	8(32.00%)	17(68.00%)	
	Mood stabilizers	2(66.67%)	1(33.33%)	

It was observed that with <1 year of treatment duration patients were high in adherence which was statistically significant. Similarly those patients who were on regular follow ups were high in adherence which was statistically significant. Statistically significant finding of lesser number of relapses in high adherent group was also observed (Table-3). When logistic regression was done it was analyzed that as the duration of treatment increased the risk of non adherence also increased. Irregular follow ups and increased number of relapses emerged as significant risk factors in determining non adherence (Table-4).

**Table 4:** Logistic regression analysis of the significant clinical variables

	Odds Ratio	Z	p>  Z	95% Conf Interval		
				Min	Max	
<b>6-12 relapses</b>	7.416666	3.88	0.00	2.698275	20.38597	
<b>Irregular follow-ups</b>	9.65035	5.52	0.00	4.312796	21.59371	
<b>Duration of treatment</b>	1-5 years	2.722222	2.53	0.011	1.254974	5.904899
	6-10 years	8.166667	2.84	0.005	1.914894	34.82931
	10+ years	8.75	2.47	0.014	1.564549	48.93583

## DISCUSSION

The study assessed the levels of non adherence and its determinants in a tertiary care hospital in south India. Low adherence was seen in 34.93% of the sample and high adherence in 65.07%. This reflects similar findings in previous studies where rates of non adherence ranged from 24% - 65%.<sup>25, 26, 27, 28</sup> There was a male preponderance in the current study which corroborates with earlier studies in developing countries.<sup>29,30</sup> Males in current study sample also demonstrated high adherence which is in contrast to a study done in Ethiopia where high adherence rates were found in female patients.<sup>31</sup> In a different study by Lacro *et al* gender was not a predictor of non adherence which agrees to similar finding in the present study.<sup>18</sup> Males showing high adherence can be explained due to responsibilities of the male in a cultural setting where they are considered to be the bread winner and taking care of their family. There was no significant association between the socio demographic data of education, occupation, marital status and socio economic status and non adherence. This finding doesn't agree with an Indian study where factors influencing low adherence include female sex, being married, having low level of education, unemployment.<sup>32</sup> Some of the patients (38.36 %) were unemployed which goes in favor of another study done in Nigeria.<sup>33</sup> This could be due to the psychopathology of the psychiatric disorders and its effect on the occupational functioning, also due to the stigma associated with these conditions many may go unemployed. On the other hand significant proportion of the patient sample was employed (61.7%). This could be partly explained by high levels of adherence in the study sample which has attributed to better functioning and employment though this was not statistically significant. Out of 95 in 146 patients who were high on adherence 29(30.5%) belonged to mood disorders followed by anxiety disorders and psychosis (26.3%). Mood disorders have better insight into their illness and hence may account for high adherence whereas residual symptoms and interpersonal difficulties can account low adherence in psychosis. These results corroborate with a previous study which observed that mood disorders patients complied with medication better than psychotic patients.<sup>11</sup> Among the patients who were non adherent, side effects to treatment as the reason for non adherence predominated. Mann reported that better therapeutic alliance between patient and doctor where patients concerns about the side effects being addressed can go a long way in reducing non adherence.<sup>34</sup> In the current study prolonged duration of treatment, irregular follow-ups and number of relapses in the past showcased as determinants of non adherence. In a study done in Nigeria a different set of clinical variables turned out as predictors

of non adherence which included psychiatric diagnosis, level of social support and insight.<sup>35</sup> In this study psychiatric diagnosis was not significantly associated with adherence measures. The association between social support and insight with adherence was beyond the scope of the current study. The limitations of the study are the sample size and that it was conducted in one centre. The cross sectional design of the study limits in finding the cause effect relationship. Being a hospital based study the results cannot be generalized to the population. Self report nature of the assessment tool used to measure adherence carries with it the risk of over reporting of high adherence to medications. As the adherence assessment was purely based on patients report and informants/family members were not interviewed to cross check the information provided could also have biased the study as most of the time it is the family members who supervise the medication administration. Despite the limitations the current study high lights a delicate and crucial but under researched area which requires further in depth analysis as to not only knowing the reasons of adherence/non adherence but also to develop interventions to tackle this ubiquitous problem.

## CONCLUSIONS

Medication adherence in psychiatric outpatient setting in a rural tertiary care centre in south India is high. However there was also a chunk of patients who were non adherent. Before implementing interventions to address non adherence there must be a detailed investigation to familiarize with the reasons and the predictors of non adherence. Great strides have been made in the past to understand medication non adherence with the current study deepening these efforts. Our study concludes that irregular follow ups, longer duration of treatment, increased number of relapses predicted non adherence. Hence the researchers suggest that routine monitoring of medication adherence with a standardized instrument in outpatient setting as necessary requirement and also emphasize on regular follow ups with assessing the need for medication continuation focusing on side effects and over all functioning of the patient.

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