

## Monitoring Readiness Indicators to measure the level of Motivation among Psychiatric Patients for Treatment to Improve Medication Adherence

Mrs Kanwaljeet Kaur, PhD Scholar, MGMIHS (Mahatma Gandhi Mission Institute of Health Sciences), Navi Mumbai.

Email ID :- [docs.kanwaljeet@gmail.com](mailto:docs.kanwaljeet@gmail.com) Mobile No :- +918237215319

Dr Anuradha Mhaske, Director, MGM College of Nursing, Aurangabad, Maharashtra.

Email ID :- [anuradhamhaske@hotmail.com](mailto:anuradhamhaske@hotmail.com). Mobile No :- +919819506042

### ABSTRACT

**Introduction:** For patients suffering from mental diseases non-adherence plays an important role. Strengthening treatment adherence is one of the crucial aspects of the plan to secure sufficient treatment for mental health.<sup>2</sup> Poor adherence to prescribed treatments in psychiatric patients is a global problem of alarming magnitude.<sup>4</sup> Motivational interviewing (MI) helps to enhance the motivational readiness among psychiatric patients for bringing positive behaviour change in improving medication adherence. **Methods:** Sixty Psychiatric patients who were between 18 to 60 years of age were selected for the study with diagnosis of Schizophrenia, Bipolar Disorder and Depression. Tools used to collect data were sociodemographic variables, motivation scale, readiness indicators and morisky medication adherence scale-8 (MMAS-8) **Results:** In experimental group 26.6% (8/30) were mildly motivated, 56.6% (17/30) had moderate motivation, while only 16.6% (5/30) were highly motivated at pretest and after the motivational interviewing it has improved to 26.6% (8/30) were having a moderate motivation and 73.3% (22/30) were highly motivated at post test 3. The mean motivation score among psychiatric patients was found to be statistically significant different in the study group and control group at post test 1 ( $p=0.044$ ), post test 2 ( $p=0.003$ ) and post test 3 ( $p<0.001$ ) whereas there was no statistical significant difference between mean motivation score at pretest ( $p=0.506$ ) in the study group and control group. **Conclusion:** The medication non adherence is a major health concern among psychiatric patients. To improve medication adherence a combined motivational interviewing approach with readiness indicators can be used.

**Key Words :** MMAS, MI, Psychiatric patients, medication non adherence, readiness indicators

### INTRODUCTION

Despite decades of researches, adherence to medication is still a widely acknowledged and persistent concern for the health care systems, healthcare professionals, researchers, and patients, as well. According to World Health Organization (WHO), medication adherence is defined as the extent to which a person's behaviour-taking medication, following a diet, and or executing lifestyle changes, corresponds with agreed recommendations from a health care provider".<sup>1</sup>

Approximately 50% of patients do not take their medication as prescribed, and non-adherence can contribute to the progress of a disease. Although useful drugs have been discovered for many psychiatric disorders, a substantial amount of patients do not take their medication regularly.<sup>2</sup>

Psychiatric disorders are a public health challenge and comprise 13% of the total global disease burden. Schizophrenia and bipolar disorders are severe major psychiatric disorders, with schizophrenia affecting about 23 million people and bipolar disorders affecting about 60 million people worldwide.<sup>3</sup>

Non adherence to treatment remains one of the greatest challenges in mental health care services. Adherence to psychiatric medications is a complex, dynamic behavior requiring patients to initiate treatment and continue to take their medications at the correct time, in the correct dose, for prolonged periods of time.<sup>4</sup> In the last decades, several interventions have been developed to improve adherence rates. Recent treatment recommendations promote focusing on specific targets that may contribute to nonadherence.<sup>5</sup>

Although the rates of non-adherence to psychopharmacological medications differ based on definition and measurement, it has been estimated that between one-third and one-half of psychiatric drugs for long-term diseases are not taken as recommended, 20-30% of patients do not adhere to therapeutic regimens that are curative or relieve symptoms, and 30-40% fail to follow regimens designed to prevent mental health problems.<sup>6</sup>

Motivational interviewing has recently found to be particularly useful for people with addictions or high resistance or reluctance to treatments who are ambivalent to changing their behaviors. This therapeutic approach to behavioral intervention has recently been adopted to enhance adherence to medication in schizophrenia, with positive preliminary evidence on reducing patients' psychotic symptoms and relapse rates.<sup>7</sup> As patients' active involvement in, and receptivity to, the treatment process has been consistently shown to predict positive outcomes, the specific focus of MI on increasing intrinsic motivation and facilitating treatment engagement may hold particular promise in enhancing response rates to treatment.<sup>8</sup>

Willing does not necessarily produce doing, and the road from awakened desire to concerned action. In short, wanting typically constitutes a necessary, yet an insufficient condition for intentional action. We call this psychological state of willing as motivational readiness. By motivational readiness we mean a psychological experience of the willingness to attain a given state of affairs. Motivational readiness may be depicted lying on a dimension of intensity or magnitude, from low to high degrees of readiness.<sup>9</sup>

Adherence and non-adherence are behaviors, and adherence to medication regimens requires behavior change. Motivation is a key factor in successful behavior change and has been shown to promote adherence to chronic therapies. A question that can be put to individuals to help evaluate their readiness to change can be as simple as: "Are you willing to take a medication to treat your condition?" Readiness to change can also be evaluated using a more quantitative scale: "How ready are you on a scale from 1 to 10 to initiate this therapy (medication, diet, exercises) to treat your condition?"<sup>10</sup>

It is important to evaluate a person's readiness to change for any proposed intervention. Interventions that are not staged to the readiness of the individual will be less likely to succeed. Also interventions that try to move a person too the stages of change are more likely to create resistance that impede behaviour change.<sup>11</sup>

The researcher has worked in psychiatric settings and while taking care of mentally ill patients I realized that most of the clients are suffering from many years due non adherence to treatment. Researcher felt the need to know how psychiatric patients should adhere to their medication because mental diseases doesn't disappear in weeks or days, some even stagnate for lifetime, it present a challenge that requires knowledge. Therefore, the aim of this current study is to explore the patient process of becoming motivated and readiness for change so that the patients can attain maximum benefit from the psychiatric medications by adhering to their medications.

## **METHODS**

### **Study Design**

A quasi experimental study was conducted at the outpatient department of Antarang Hospital, Aurangabad, India. The patients were recruited from February 2022 to June 2022. Sixty Psychiatric patients who were between 18 to 60 years of age were selected for the study with diagnosis of Schizophrenia, Bipolar Disorder and Depression. Patients who took psychotropic medications for at least 6 months and who were treated in the outpatient clinics of psychiatric hospitals and should have insight into his illness. The patients who were suffering from severe psychotic symptoms, were unable to undergo interview and patients with no informant or caregiver were excluded from the study. The

total sample were divided into two groups i.e. experimental and control group with 30 patients in each group.

## **Ethics Approval**

The approval for ethical aspects of the study approval was obtained from the ethical committee of MGM Mother Teresa College of Nursing, Aurangabad. Each psychiatric patient and his caregiver was fully explained regarding the procedure and duration of their involvement. Necessary permissions were sought from concerned authorities of the psychiatric hospital for conducting the study. All the participants informed that they can withdraw from the study any time if they wish. No incentives were given to the participants.

Protecting confidentiality and anonymity of the patients was prime responsibility of the researcher and because of that they were instructed not to write their names and other details which could reveal their identity.

## **Study Instruments**

Participants who met the selection criteria were implemented the following tools.

- 1) Sociodemographic variables which included age, gender, marital status, religion, type of family, educational status, occupational status, diagnosis, duration of illness and drug monitoring by which family member.
- 2) Morisky Medication Adherence Scale- This is a self-reporting scale and has 8 items with yes/no response options. Correct response is given 1 point, while incorrect response is scored 0. Score of < 6 indicates low adherence, score of 6-7 indicates medium adherence, and a score of  $\geq 8$  indicates high adherence.
- 3) Motivation scale – This is a self reporting 5-point Likert scale and has 20 items with response options as strongly disagree, disagree, sometimes, agree and strongly agree with scores as 0, 1, 2, 3, and 4 respectively. The score from 0-40 indicates as low motivation, 41-60 indicates moderately motivated and 61-80 indicates highly motivated.
- 4) Readiness Indicators- In this study 3 readiness to change ruler indicators were used which are as follows
  1. How important is it to you to make changes in your medication use  
(on a scale of 0 to 10, with 0 being not important and 10 being important )
  2. How confident are you that could make changes in your medication use  
(on a scale of 0 to 10, with 0 being not confident and 10 being very confident)
  3. How ready are you that could make changes in your medication use  
(on a scale of 0 to 10, with 0 being not ready at all and 10 being fully ready)

Each readiness to change ruler is a linear scale from 0-10 which will be marked by patient their current position in the change process and after intervention again the patient is asked to mark and this change in the score from the previous score indicates the behaviour change whether positive or negative change. A 0 on the left side of the scale indicates “not”, 10 on the right side of the scale indicates “very” and 5 in middle indicates “somewhat”.

## **DATA COLLECTION**

Participants were divided into experimental and control group. The experimental group received intervention in the form of 3 MI sessions at 2<sup>nd</sup> week, 4<sup>th</sup> week and 6<sup>th</sup> week and whereas control group received treatment as routine. The simple random sampling technique is used to allocate the patients to either group. The data were collected from both the groups at first day of enrolment in study, 4<sup>th</sup> week, 6<sup>th</sup> week and 8<sup>th</sup> week.

## **Interventions**

*Motivational Interviewing.* MI is a client-centered, directive method, through which patients are engaged in strategically directed conversations about their problems. It explores personal ideas and ambivalences, eliciting and selectively reinforcing “change talk,” by which discrepancies between the

present behavior and the patient’s own future goals are amplified. The overall goal is to increase the patient’s intrinsic motivation for change.

**OBJECTIVES**

1. To assess the level of motivation in psychiatric patients in study and control group.
2. To monitor the readiness indicators among the psychiatric patients in study and control group.
3. To assess the medication adherence among psychiatric patients in study and control group.

**RESULTS**

**Table No-1 Frequency, percentage and chi square of Sociodemographic variables of Psychiatric Patients in the study and control group**

Characteristics	Categories	Experimental Group n=30	Control Group n=30	$\chi^2$ P Value
		No (%)	No(%)	
Age	18 - 25 years	9 (30)	10 (33.3)	$\chi^2=0.806$ P=0.847
	26 – 35 years	12 (40)	14 (46.6)	
	36 – 45 years	6 (20)	4 (13.3)	
	46 – 60 years	3 (10)	2 (6.6)	
Gender	Male	21 (70)	18 (60)	$\chi^2=0.659$ P=0.416
	Female	9 (30)	12 (40)	
Marital Status	Unmarried	8 (26.6)	6 (20)	$\chi^2=0.659$ P=0.719
	Married	18 (60)	21 (70)	
	Separated/Divorced	4 (13.3)	3 (10)	
Religion	Hindu	17 (56.6)	16 (53.3)	$\chi^2=1.601$ P=0.658
	Muslim	8 (26.6)	6 (20)	
	Christian	2 (6.6)	5 (16.6)	
	Buddhism	3 (10)	3 (10)	
Type of Family	Nuclear	19 (63.3)	15 (50)	$\chi^2=1.086$ P=0.297
	Joint	11 (36.6)	15 (50)	
Level of Education	Illiterate	5 (16.6)	7 (23.3)	$\chi^2=1.519$ P=0.823
	Primary school education	4 (30)	6 (20)	
	Middle school education	8 (26.6)	6 (20)	
	High school education	8 (26.6)	8 (26.6)	
	Graduate and above	5 (16.6)	3 (10)	
Occupational status	Unemployed	13 (43.3)	11 (36.6)	$\chi^2=1.601$ P=0.658
	Private job	6 (20)	5 (16.6)	
	Government job	7 (23.3)	4 (13.3)	
	Agriculture	4 (13.3)	10 (33.3)	
Diagnosis	Depression	8 (26.6)	9 (30)	$\chi^2=0.321$ P=0.851
	Schizophrenia	12 (40)	13 (43.3)	
	Bipolar Disorder	10 (33.3)	9 (30)	
Duration of Current Treatment	6 months-12 months	6 (20)	6 (20)	$\chi^2=1.077$ P=0.782
	1 Year – 3 Years	9 (30)	8 (26.6)	
	3 Years – 5 Years	11 (36.6)	9 (30)	
	5 Years and above	4 (13.3)	7 (23.3)	
Drug monitoring by which family member	Not monitored/self	4 (13.3)	5 (16.6)	$\chi^2=3.111$ P=0.539
	Parents	6 (20)	8 (26.6)	
	Spouse	12 (40)	9 (30)	
	Son/Daughter	5 (16.6)	2 (6.6)	

	Siblings	3(10)	6(20)	
--	----------	-------	-------	--

The Table No 1 has explained that the experimental and control groups had similar characteristics in terms of age, gender, marital status, religion, type of family, educational status, occupational status, diagnosis, duration of illness and drug monitoring by which family member ( $p>0.05$ ).

**Table No 2:- Comparison of motivation level in Experimental and Control group**

Motivation Level	Pre Test		Post Test 1		Post Test 2		Post Test 3	
	F	%	F	%	F	%	F	%
<b>Experimental Group (N=30)</b>								
Mildly Motivated (0-40)	8	26.6	0	0	0	0	0	0
Moderately Motivated (41-60)	17	56.6	21	70	16	53.3	8	26.6
Highly Motivated (61-80)	5	16.6	9	30	14	46.6	22	73.3
<b>Control Group (N=30)</b>								
Mildly Motivated (0-40)	11	36.6	8	26.6	0	0	1	3.3
Moderately Motivated (41-60)	15	50	19	63.3	23	86.6	25	83.3
Highly Motivated (61-80)	4	13.3	3	10	7	23.3	4	13.3

The above Table No 2 show the comparison of motivation level. In experimental group 26.6% (8/30) were mildly motivated, 56.6% (17/30) had moderate motivation, while only 16.6% (5/30) were highly motivated at pretest and after the motivational interviewing it has improved to 26.6% (8/30) were having a moderate motivation and 73.3% (22/30) were highly motivated at post test 3. Whereas in control group 36.6% (11/30) were mildly motivated, 50% (15/30) had moderate motivation, while only 13.3% (4/30) had high motivation at pretest and it has shown improvement to 3.3% (1/30) were mildly motivated, 83.3% (25/30) were having moderate motivation, and 13.3% (4/30) had high motivation at post test 3.

**Table No 3:-Comparison of mean Motivation scale in Experimental and Control group**

Assessment	Study Group	Control Group	Z-Value	P Value
Pre Test	49.40 ± 10.16	50.96 ± 7.81	0.669	0.506
Post Test 1	55.16 ± 8.39	50.73 ± 8.25	2.063	0.044
Post Test 2	59.76 ± 7.08	54.06 ± 7.11	3.109	0.003
Post Test 3	64.83 ± 6.00	56.13 ± 5.76	5.721	< 0.001

The above Table No 3 shows the comparison of mean motivation score among psychiatric patients was found to be statistically significant different in the study group and control group at post test1 ( $p=0.044$ ), post test 2 ( $p=0.003$ )and post test3 ( $p<0.001$ ) whereas there was no statistical significant difference between mean motivation score at pretest ( $p=0.506$ ) in the study group and control group.

**Table No 4:-Mean difference of Motivation scale between Pretest, Post test 1, Post test 2 and Post test 3 in Experimental and Control group.**

Groups	Experimental Group			Control Group		
	Mean Diff	t-value	P Value	Mean Diff	t-value	P Value
Assessments						

Pre TestVsPost test 1	5.76	3.752	<0.001	0.23	0.174	0.863
Pre TestVsPost test 2	10.36	6.521	<0.001	3.10	2.237	0.033
Pre TestVsPost test 3	15.43	9.556	<0.001	5.16	3.836	<0.001

The above Table No 4 shows the mean difference of motivation score in study group at pretest Vs post test 1 was 5.76(p<0.001), pretest vs post test 2 was 10.36 (p<0.001) and at pretest vs post test 3 was 15.43 (p<0.001) whereas in control group at pretest Vs post test 1 was 0.23(p=0.863), pretest vs post test 2 was 3.10 (p<0.03) and at pretest vs post test 3 was 5.16 (p<0.001). It is observed that the mean difference of motivation score in control group were lesser than study group hence it shows the effectiveness of motivational interviewing in study group.

**Table No 5:- How important is it to you to make changes in your medication use**

Ratings	Experimental Group							Control Group					
	4	5	6	7	8	9	10	4	5	6	7	8	9
Pretest	4	14	8	4	-	-	-	9	11	8	2	-	-
Post test 1	-	4	6	17	3	-	-	-	6	11	13	-	-
Post test 2	-	-	1	14	12	3	-	-	3	5	18	4	-
Post test3	-	-	-	2	7	16	5	-	-	2	8	11	9

The above Table No 5 shows the findings of readiness to change ruler of how important for the patient to make changes in their medications use indicate the specific behaviour where patient is asked to mark on a scale from 0-10 at each visit. In experimental group indicate at pretest 4 patients has given score 4, 14 patients marked at score 5, 8 patients shows important at 6 score and 4 patients has shown importance at 7 score. After the implementation of motivational interviewing sessions this has got improved to 2 patients has shown importance at score 7, 7 patients has changed to 8 score, 16 patients has shown tremendous behaviour change at 9 score and 5 patients has shown very important to change behaviour at score 10 atpost test 3. Whereas in control group at pretest 9 patients has given score 4, 11 patients marked at 5, 8 patients shows important at 6 score and2 patients has shown importance at 7 score and in post test 3 it got changed to 2 patients has shown importance at score 6, 8 patients has changed to 7 score, 11 patients has shown tremendous behaviour change at score 8 and 9 patients has shown very important to change behaviour at score 9.

**Table No 6:- How confident are you that could make changes in your medication use**

Ratings	Experimental Group							Control Group						
	4	5	6	7	8	9	10	3	4	5	6	7	8	9
Pretest	6	13	7	4	-	-	-	2	8	12	5	3	-	-
Post test 1	1	6	15	6	2	-	-	-	5	8	9	8	-	-
Post test 2	-	-	3	16	5	6	-	-	-	5	12	9	4	-
Post test3	-	-	-	9	4	11	6	-	-	-	15	5	7	3

The above Table No 6 shows the findings of readiness to change ruler of how confident are you that could make changes in your medication use indicate the specific behaviour where patient is asked to mark on a scale from 0-10 at each visit. In experimental group indicate at pretest6 patients has given score 4, 13 patients marked at score 5, 7 patients showsconfidence at 6 score and 4 patients has given 7 score. After the implementation of motivational interviewing sessions this has got improved to 9 patients has shown confidence at score 7, 4 patients has changed to 8 score, 11 patients has shown tremendous behaviour change at 11 score and 6 patients has shown full confidence to change behaviour at score 10 at post test 3. Whereas in control group at pretest2 patients has given 3 score, 8

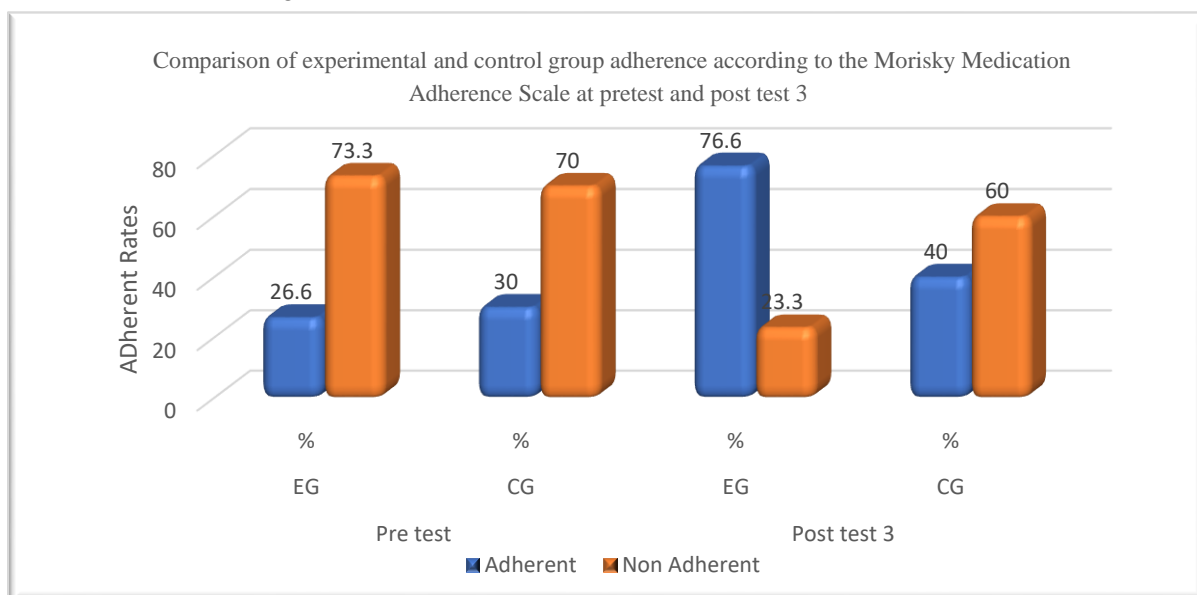


patients has given score 4, 12 patients marked at score 5 and 3 patients shown confidence at 6 score and in post test 3 it got changed to 15 patients has shown importance at score 6, 5 patients has changed to 7 score, 7 patients has shown tremendous behaviour change at score 8 and 3 patients has shown confidence to change behaviour at score 9.

**Table No 7:-How ready are you that could make changes in your medication use**

Ratings	Experimental Group							Control Group						
	4	5	6	7	8	9	10	3	4	5	6	7	8	9
Pretest	8	6	9	7	-	-	-	4	9	9	6	2	-	-
Post test 1	2	3	13	12	-	-	-	-	11	16	2	1	-	-
Post test 2	-	-	7	17	4	2	-	-	-	14	10	4	2	-
Post test3	-	-	-	9	16	7	8	-	-	5	5	6	8	6

The above Table No 7 shows the findings of readiness to change ruler of how ready are you that could make changes in your medication use indicate the specific behaviour where patient is asked to mark on a scale from 0-10 at each visit. In experimental group indicate at pretest 8 patients has given score 4, 6 patients marked at score 5, 9 patients shows readiness at 6 score and 7 patients has given 7 score. After the implementation of motivational interviewing sessions this has got improved to 9 patients has shown readiness at score 7, 16 patients has changed to 8 score, 7 patients has shown tremendous behaviour change at 9 score and 8 patients has shown extremely readiness to change behaviour at score 10 at post test 3. Whereas in control group at pretest 4 patients has given 3 score 9 patients has given score 4, 9 patients marked at 5, 6 patients has given 6 score and 2 patients has given 7 score and in post test 3 it got changed to 5 patients has given score 5, 5 patients has given score 6, 6 patients has changed to 7 score, 8 patients has shown tremendous behaviour change at score 8 and 6 patients has shown readiness to change behaviour at score 9.



**Figure No 1 Comparison of experimental and control group adherence according to the Morisky Medication Adherence Scale-8 at pretest and post test 3**

The above Figure No 1 depicts that at pretest the MMAS scores indicated that 26.6% of the experimental group and 30% of the control group were showing adherence to medications and 73.3% of the experimental group and 70% of the control group were non adherent to medications. After the implementations of the motivational interviewing sessions it has improved to great extent in post test 3. At post test 3 the MMAS scores shows that 76.6% of the experimental group and 40% of the control

group were adherent to medications and 23.3% of the experimental group and 60% of the control group were non adherent to medications.

**Table No 8: Frequency distribution of participants for questions on the MMAS-8 at Pretest**

Morisky Questions	Experimental Group		Control Group	
	Adherent	Non Adherent	Adherent	Non Adherent
Do you sometimes forget to take your medication?	10	20	11	19
Over the past two weeks, were there any days when you did not take your medicine?	7	23	9	21
Have you ever cut back or stopped taking your medication without telling your doctor because you felt worse when you took it?	6	24	7	23
When you travel or leave home, do you sometimes forget to bring along your medications?	8	22	6	24
Did you take your medicines yesterday?	18	12	16	14
When you feel like your illness is under control, do you sometimes stop taking your medicine?	12	18	13	17
Do you ever feel hassled about sticking to your treatment plan?	6	24	8	22
How often do you have difficulty remembering to take all your medications.	11	19	14	16

**Table No 9: Frequency distribution of participants for questions on the MMAS-8 at Post Test 3**

Morisky Questions	Experimental Group		Control Group	
	Adherent	Non Adherent	Adherent	Non Adherent
Do you sometimes forget to take your medication?	23	7	14	16
Over the past two weeks, were there any days when you did not take your medicine?	19	11	11	19
Have you ever cut back or stopped taking your medication without telling your doctor because you felt worse when you took it?	24	6	12	18
When you travel or leave home, do you sometimes forget to bring along your medications?	21	9	13	17
Did you take your medicines yesterday?	25	5	20	10
When you feel like your illness is under control, do you sometimes stop taking your medicine?	22	8	14	16
Do you ever feel hassled about sticking to your treatment plan?	21	9	15	15
How often do you have difficulty remembering to take all your medications.	20	10	17	13

The above Table no 8 & 9 shows the medication adherence and non adherence behaviour according to Morisky medication adherence scale -8 (MMAS-8). The results shows that as compared to pretest score the psychiatric patients has improved whereas in experimental group maximum patients were non adherent during pretest but they increased their adherence behaviour by post test 3 tremendously but on the other hand not much difference was seen in control group at pretest when compared to post test 3.

## DISCUSSION



The above study findings are supported by the following studies. Mean age of the patients was 31.40±6.59 years ranging from 18-60years. Mean income was 12120.00± 5913.11 years & mean illness duration was 32.16±23.82 years ranging from (18-60years). Motivational interviewing is an evidence-based psychotherapeutic intervention that can be used to increase patients' adherence to behavioral health regimens and treatment.<sup>12</sup> As a patient-centered counseling style, motivational interviewing can help individuals discover and resolve ambivalence.<sup>13</sup>

Motivational interviewing would increase readiness for change, daily steps, and functional ability among older adult participants. One-on-one, individualized socialization sessions may have contributed to the overall improvement noted in both groups.<sup>14</sup> Self-monitoring seems to be essential for all groups of motivational readiness what makes it a vital behaviour change technique that should be integrated with regular activities. It might be a good approach to ask participants at the beginning of starting to work with a scoring on change and in the end again scoring for change.<sup>15</sup>

The commonest psychiatric illnesses leading to non-compliance were schizophrenia (26%) followed by BPAD (18%) and MDD (14%).<sup>16</sup> A population of 156 patients were screened, (56) 35.8% of patients had compliance to treatment and (100) 64% of patients had noncompliance to treatment. Hence, the sample consists of the 100 patients who had noncompliance to the treatment.<sup>17</sup> The mean MMAS score in the experimental group was 2.96±0.69 before the program, 0.46±0.83 after 3 months, and 0.14±0.44 after 6 months. The difference in the medication adherence scores of the patients in the experimental group after the program and telephone follow-up was statistically significant ( $p<0.05$ ). There was no significant change in the medication adherence level in the control group ( $p>0.05$ ). At baseline, the MMAS scores indicated that 25% of the experimental group and 34.6% of the control group had moderate medication adherence, and the difference between groups was statistically insignificant ( $p>0.05$ ). In all, 75% of the experimental group and 65.4% of the control group were nonadherent to drug therapy, and the difference was statistically insignificant ( $p>0.05$ ).<sup>18</sup>

## CONCLUSION

This study found that many of the psychiatric out-patients have low adherence level to their prescribed medications and it is difficult to find out the major predictors of nonadherence in this study. Therefore, efforts should be made especially during patient medication counselling to ensure that patients remember to adhere to their medication treatment plan. But with the application of motivational interviewing medication adherence increased significantly in the experimental group and was maintained over time. Extending MI to the treatment of major mental health problems beyond substance abuse is clearly useful in improving medication adherence among psychiatric patients. The mental health care team should apply the MI to the treatment of major health problems.

## DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## FUNDING

The authors received no financial support for the research, authorship, and /or publication of this article.

## REFERENCES.

1. Khalifeh AH, Hamdan-Mansour AM. Prevalence, Barriers, and Interventions Related to Medication Adherence Among Patients With Major Depressive Disorder: A Scoping Review. *J Psychosoc Nurs Ment Health Serv.* 2021;59(1):39-51. doi:10.3928/02793695-20201015-05
2. Kirchner SK et al (2022) Medication Adherence in a Cross-Diagnostic Sample of Patients From the Affective-to-Psychotic Spectrum: Results From the PsyCourse Study. *Front. Psychiatry* 12:713060. doi: 10.3389/fpsy.2021.713060

3. Loots, E.; Goossens, E.; Vanwesemael, T.; Morrens, M.; VanRompae, B.; Dilles, T. Interventions to Improve Medication Adherence in Patients with Schizophrenia or Bipolar Disorders: A Systematic Review and Meta-Analysis. *Int. J. Environ. Res. Public Health* 2021, 18, 10213. <https://doi.org/10.3390/ijerph181910213>
4. S. Nalini, Lisy Joseph, V. Santhi. (2020). Medication Adherence among Patients with Mental Illness Attending Psychiatric OPD & Ward in a Tertiary Hospital at South India. *Indian Journal of Public Health Research & Development*, 11(11), 188–194. <https://doi.org/10.37506/ijphrd.v11i11.11371>.
5. Barkhof E, Meijer CJ, de Sonnevile LM, Linszen DH, de Haan L. The effect of motivational interviewing on medication adherence and hospitalization rates in nonadherent patients with multi-episode schizophrenia. *Schizophr Bull.* 2013;39(6):1242-1251. doi:10.1093/schbul/sbt138
6. Lazary J, Pogany L, De Las Cuevas C, Villasante-Tezanos GA, De Leon J. Adherence to psychiatric medications: Comparing patients with schizophrenia, bipolar disorder and major depression. *Neuropsychopharmacol Hung.* 2021;23(4):363-373.
7. Chien WT, Mui JH, Cheung EF, Gray R. Effects of motivational interviewing-based adherence therapy for schizophrenia spectrum disorders: a randomized controlled trial. *Trials.* 2015;16:270. Published 2015 Jun 14. doi:10.1186/s13063-015-0785-z
8. Westra HA, Aviram A, Doell FK. Extending motivational interviewing to the treatment of major mental health problems: current directions and evidence. *Can J Psychiatry.* 2011;56(11):643-650. doi:10.1177/070674371105601102
9. Kruglanski AW, Chernikova M, Rosenzweig E, Kopetz C. On motivational readiness. *Psychol Rev.* 2014;121(3):367-388. doi:10.1037/a0037013
10. Adult Meducation [Internet]. Adultmeducation.com. Available from: <http://adultmeducation.com/FacilitatingBehaviorChange.html>
11. Zimmerman GL, Olsen CG, Bosworth MF (2000), “stages of change” approach to helping patients change behaviour. *Am Fam Physician.* 2000;61(5):1409-1416.
12. Levensky ER, Forcehimes A, O'Donohue WT, Beitz K. Motivational interviewing: An evidence-based approach to counselling helps patients follow treatment recommendations. *Am J Nurs* 2007;107:50–9.
13. Miller WR, Rollnick S. *Motivational interviewing: preparing people for change.* New York (NY): Guilford Press; 2002..
14. Lamoureux ET, Jacelon C. Motivational Interviewing, Readiness for Change, Walking, and Functional Ability in Older Adults. *J Gerontol Nurs.* 2022;48(3):23-29. doi:10.3928/00989134-20220209-04.
15. Nina Pierick, Motivational readiness and perceived acceptability towards persuasive strategies in health promotion applications, university of twente. (2020)
16. Maan C G et al (2015). Factors Affecting Non-Compliance among Psychiatric Patients in the Regional Institute of Medical Sciences, Imphal. *IOSR Journal Of Pharmacy (e)-ISSN: 2250-3013, (p)-ISSN: 2319-4219 www.iosrphr.org Volume 5, Issue 1 (January 2015), PP. 01-07*
17. MC, George R, Krishnakumar P, Ravindran RK. Noncompliance to treatment among persons with mental illness. *Indian J PsyNsg* 2021;18:43-8.
18. Gulcu ZG, Kelleci M (2022) .Gulcu ZG, Kelleci M. The effect of motivational interviewing and telepsychiatric follow-up on medication adherence of patients with bipolar disorder: A randomized controlled trial. *Journal of Psychiatric Nursing [Internet]. [cited 2022 Dec 4];13(2):101–7.*