



## Research Article

www.ijrap.net



### EFFECTIVENESS OF CLINICAL PHARMACIST LED COLLABORATIVE APPROACH TOWARDS MEDICATION ADHERENCE IN PATIENTS WITH SCHIZOPHRENIA RECEIVING ATYPICAL ANTIPSYCHOTICS AT TERTIARY CARE HOSPITAL

Tanveer Ahamad <sup>1\*</sup>, Kamble Namit Ananda <sup>1</sup>, Sangaokar Dhanashree Ghanashyam <sup>1</sup>, Tekkalaki Bheemsain V <sup>2</sup>

<sup>1</sup>Doctor of Pharmacy, Department of Pharmacy Practice, KLE College of Pharmacy, KLE Academy of Higher Education And Research (Deemed-to-be-University), Belagavi-590010, India

<sup>2</sup>Assistant Professor, Department of Psychiatry, J.N. Medical College, KLE Academy of Higher Education And Research (Deemed-to-be-University), Belagavi-590010, India

Received on: 28/03/19 Accepted on: 18/05/19

\*Corresponding author

E-mail: drtanveerahmad94@gmail.com

DOI: 10.7897/2277-4343.100369

#### ABSTRACT

Medication adherence is one of the most important factors that determine therapeutic outcomes in the patient's illness. Adherence is a major problem in the patients with psychotic disorders and constitutes additional challenges. Eight-item Morisky Medication adherence is based on medication adherence questionnaire wherein, first seven items are Yes/No responses while the last item is 5-point Likert response. The additional item concentrates on medication-taking behaviors, especially in forgetfulness, so barriers to adherence can be identified more clearly. Objective: The study was to assess the effectiveness of the collaborative approach by clinical pharmacist towards medication adherence in schizophrenia patients with Atypical Antipsychotics. Methods: The study was prospective, randomized and interventional study comprising of total 60 patients, 30 in each arm i.e. control and interventional for a duration of 6 months with follow-up after 2 months. Result: The resultant data analyzed for adherence score in the interventional group (baseline: follow-up) was  $p < 0.05$  representing as clinically as well as statistically significant. Conclusion: The study helps to cut through the stigma associated in the Indian educational disciplinary wherein the pharmacist should represent themselves as a part of an interdisciplinary solution that resolves the gaps by helping diligently to adhere to the medication-related services. This enhances the pharmacotherapy outcomes which facilitates the rapid retrieval of improved mental health.

**Keywords:** Collaborative, Medication Adherence, Schizophrenia, Atypical Antipsychotics, Morisky Medication Adherence Scale-8, Randomized, Prospective Study.

#### INTRODUCTION

The collaborative care model for psychiatric disorders brings many of the components integrated into the medical setting firstly the systematic psychiatric assessment, secondly the use of a non-physician care manager to perform longitudinal symptom monitoring, treatment interventions, and care coordination, and lastly the specialist-provided the stepped-care recommendations. The collaborative care interventions have been assessed in the broad aspects of care settings (area, environments) and offer a way of increasing quality of life of patients, improving the health of patients and reducing the cost of medications. [1] The pharmaceutical care functions such as patient education, the patient follow-up to track depression outcomes, management of adverse events, medication adherence to treatment and adjustment of treatment plans for patients who do not improve. [2]

Schizophrenia in Greek 'skhizein' 'to split' and 'phrên' 'mind', is a chronic and severe mental disorder that affects how a subject think, feels and behaves. It is referred by the fifth Diagnostic Manual of Mental Disorders (DSM-V) as Individuals suffering from characteristic psychotic symptoms and a noted deterioration in adaptive functioning. Two or more from a list of symptoms must be present, with at least one of them being delusions, hallucinations, or disorganized speech. The time frame is an active phase of the disorder lasting approximately one month and these symptoms, with possibly less intensity, continuing for the duration of at least six months. [3] It is one of the most serious of all mental illnesses. [4] The global prevalence of schizophrenia in

adults is found to be 0.3% to 0.7% of the population, with variations. [5]

The drug of choice for patients with mental disorders focuses on schizophrenia to control symptoms to allow the return to normal levels of psychological functioning and rapid control of symptoms like agitation, aggression, delirium, visual hallucinations, etc. The commonly prescribed Atypical Antipsychotics drugs are; Amisulpride, Aripiprazole, Clozapine, Olanzapine, Quetiapine, Risperidone, Zotepine. [6]

Medication Adherence is defined as "the extent to which a patient's medication-taking behavior coincides with the intention of health advice he or she is given". It is one of the most important factors that determine therapeutic outcomes, mostly patient's illnesses. [7] Non-adherence is a very common problem in patients with psychotic disorders and constitutes additional challenges that increase its risk. Non-adherence is likely to remain a major public health problem despite treatment advances. However, increasing knowledge about factors affecting adherence and using novel technologies can enhance its early assessment and adequate management. [3]

The study was to assess the effectiveness of the collaborative approach involving clinical Pharmacist-Psychiatrist in the patients on Atypical Antipsychotics towards the medication adherence of schizophrenic patients using the MMAS-8 Questionnaire.

**MATERIALS AND METHODS**

**Location of the study**

This study was conducted at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre for the duration of six months. The hospital is located in Belagavi, the second capital of Karnataka state, India. The hospital is a 2000 bed capacity tertiary healthcare center. It receives consultation from primary and secondary healthcare facilities in the state as well as from the neighbouring states.

**Subjects**

The sample size was calculated as per the Department of Psychiatry, Schizophrenic patients flow statistics is 15 per month. So the total sample size of the study is 60 patients 30 in each group. The sample consisted of one hundred and sixty-five (N=165) patients with schizophrenia were screened and out of which 62 subjects were randomly selected based on the table of random number on each inpatient and outpatient visit. A subject was enrolled if he/she met the following inclusion criteria: a diagnosis of Schizophrenia and stable on atypical antipsychotics study entry, adults above the age of 18-65 years and who have signed consent. The exclusion criteria were: Adults with cardiovascular diseases specifically CAD, Cardiac Arrest, CHF, Congenital Heart disease, stroke, history of seizures, head injury or brain tumor, liver or kidney disease and mental retardation.

**Procedure**

Approval for the study was obtained from the Institutional Ethics Committee for Human Ethics of KLE College of Pharmacy, Belagavi. The informed consent was obtained from patients and their Legal Acceptable Representative (LAR). Patients who met the inclusion criteria were recruited into the study after a thorough psychiatric evaluation by psychiatry. The concealed randomization allocation was used to randomize the subjects in the control and interventional groups (Figure 01).

**Measures**

**Semi-structured Questionnaire**

A questionnaire designed by the researchers used to obtain information Measures evaluated included socio-demographic details (age of the patient, gender, religion, marital status, socioeconomic status, habits) at the baseline as control and interventional group. The data was obtained online using the Cognito form.<sup>[7]</sup>

**Medication Profile**

The medication profile of each subject was obtained through review of the medication record files based in the hospital. Data collected include: The number of atypical antipsychotic medicines on the patient’s treatment regimen, the frequency of medication.<sup>[8]</sup>

**Morisky Medication Adherence Scale (MMAS-8)**

Eight-Item Morisky Medication Adherence Scale (MMAS-8) is based on the Medication Adherence Questionnaire (MAQ), developed by Morisky et al., in 2008. The first seven items are Yes/No responses while the last item is a 5-point Likert response. The additional items focus on medication-taking behaviors, especially related to underuse such as forgetfulness, so barriers to adherence can be identified more clearly.<sup>[9]</sup> The MMAS-8 scores range from 0 to 8 and have been stratified into 3 levels to classify adherence levels: high adherence score of 8, moderate scores of 5 to 7 and low adherence score of less than or equal to 4. The questionnaire was obtained online using Google forms.<sup>[10]</sup> The data were collected twice, firstly at baseline and secondly after 2 months as follow in control and interventional groups.

**Data Analysis**

For socio-demographic, descriptive statistics such as frequencies, median, mean and standard deviation were computed. Chi-square and t-test were used as relevant inferential statistics to determine the relationship between the outcome and independent variables using a statistical package SPSS.20.0. Significance was calculated at  $p < 0.05$ .

**Table 1: Prevalence of Schizophrenic Patients**

Age (years)	Group		Total
	Control	Interventional	
18 to 29	8(13.33%)	7(11.66%)	15(25.00%)
30 to 39	9(15.00%)	9(15.00%)	18(30.00%)
40 to 49	10(16.66%)	10(16.66%)	20(33.33%)
50 to 59	2(3.33%)	3(5.00%)	5(5.00%)
More than 60	1(1.6%)	1(1.6%)	2(3.33%)
<b>Total</b>	30(50%)	30(50%)	60(100%)

**Table 2: Demographic data of the patients**

Domains		Number	%
Age (years)	18 to 29	15	25.00
	30 to 39	18	30.00
	40 to 49	20	33.33
	50 to 59	5	5.00
	More than 60	2	3.33
Gender	Male	34	56.66
	Female	26	43.33
Religion	Hindu	57	95
	Muslim	3	5
Marital Status	Unmarried	17	28.33
	Married	41	68.33
	Widow	1	1.66
	Divorced	1	1.66
Socioeconomic Status	Govt. Job	2	6.66
	Private Job	18	30
	Daily Basis	2	3.33

	Homemaker	21	35
	Farmer	9	15
	Student	1	1.66
	Unemployed	7	11.66
Habits (Tobacco)	Smoker	7	11.66
	Chewing	6	10
	Nil	47	78.33
Habits (Alcohol)	Yes	7	11.66
	No	53	88.33

**Table 3: Morisky Medication Adherence Questionnaire**

Domains	Control Group n=30		Interventional Group n=30		Chi Square Test	P
	YES	NO	YES	NO		
Do you sometimes forget to take your pills? Baseline	13	17	10	20	0.635	0.426
Follow-up	16	14	10	20	2.443	0.118
People sometimes miss taking their medicines for reasons other than forgetting. Thinking over the past 2 weeks, were there any days when you did not take your medicine? Baseline	15	15	13	17	0.268	0.605
Follow-up	7	23	0	30	7.925	0.005*
Have you ever cut back or stopped taking your medicine without telling your doctor because you felt worse when you took it? Baseline	16	14	19	11	0.617	0.432
Follow-up	5	25	0	30	5.455	0.020*
When you travel or leave home, do you sometimes forget to bring along your medicine? Baseline	1	28	0	30	2.069	0.355
Follow-up	12	18	6	24	2.857	0.091
Did you take all your medicines yesterday? Baseline	25	5	22	8	0.884	0.347
Follow-up	30	0	30	0	-	-
When you feel like your symptoms are under control, do you sometimes stop taking your medicine? Baseline	13	16	14	16	1.037	0.595
Follow-up	19	11	8	22	8.148	0.004*
Taking medicine every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan? Baseline	17	13	14	16	0.601	0.438
Follow-up	5	25	1	29	2.963	0.085
How often do you have difficulty remembering to take all your medicine? Baseline	9	21	12	18	2.382	0.666
Follow-up	4	26	7	23	1.584	0.453

\*p<0.05

**Table 4: Medication Adherence with respect to control and interventional groups**

Levels	Adherence		Non-Adherence	
	Control	Intervention	Control	Intervention
Baseline	3(5%)	13(21.66%)	27(43.55%)	17(28.33%)
Follow-up	9(15%)	26(43.33%)	21(35%)	4(6.66%)
<b>Total</b>	12 (20%)	39 (64.99%)	48(80%)	21(34.99%)

**RESULTS**

**Table 01: Prevalence of Schizophrenic Patients**

Of the 165 participants in the study, 105 were screen failure, so the result of 60 subjects was used for analysis. 30 patients were segregated in each control group and interventional group respectively. The analysis for the data was performed only for those patients who completed the study. The 40-49 years age group 33.33% (n=20) were more prevalent to schizophrenia and more than 60 years age group 3.33% (n=2) were less prevalent to schizophrenia (Figure 02).

**Table 02: Demographic data of the patients**

The disease prevalence was more in male 56.66% (n=34) as compared to female schizophrenic patients i.e 43.33% (n=26). The socioeconomic status stated majorly 35% (n=21) of homemakers and 30% (n=18) of private job seekers were suffering from the disorder in both control and interventional group. In the control group, 10% (n=3) and 6.66% (n=2) were found smoking and chewing tobacco respectively whereas in interventional group 13.33% (n=4) were observed for both respectively. While drinking habits were observed in control for 16.66% (n=5) and 6.66% (n=2) in the interventional group.

**Table 03: Morisky Medication Adherence Questionnaire**

The domain 2, 3, 6 were clinically as well as statistically significant ( $p < 0.05$ ) whereas domain 1,5,7,8 were clinically significant ( $p > 0.05$ ) but not statistically.

**Table 04: Medication Adherence with respect to control and interventional groups**

The Adherence in control group at baseline was observed to be 5%(n=5) whereas in follow-up was 15%(n=9) and in intervention

group baseline was 21.66%(n=13) and for follow-up was 43.33%(n=26) which reflected total medication adherence of being 64.99%(n=39) for interventional group justifying pharmaceutical care importance. At the baseline level adherence was seen 28.33% (n=17) whereas it was observed after pharmaceutical intervention observed to be 64.99% (n=39) similarly, non-adherence decreases in the follow-up level.

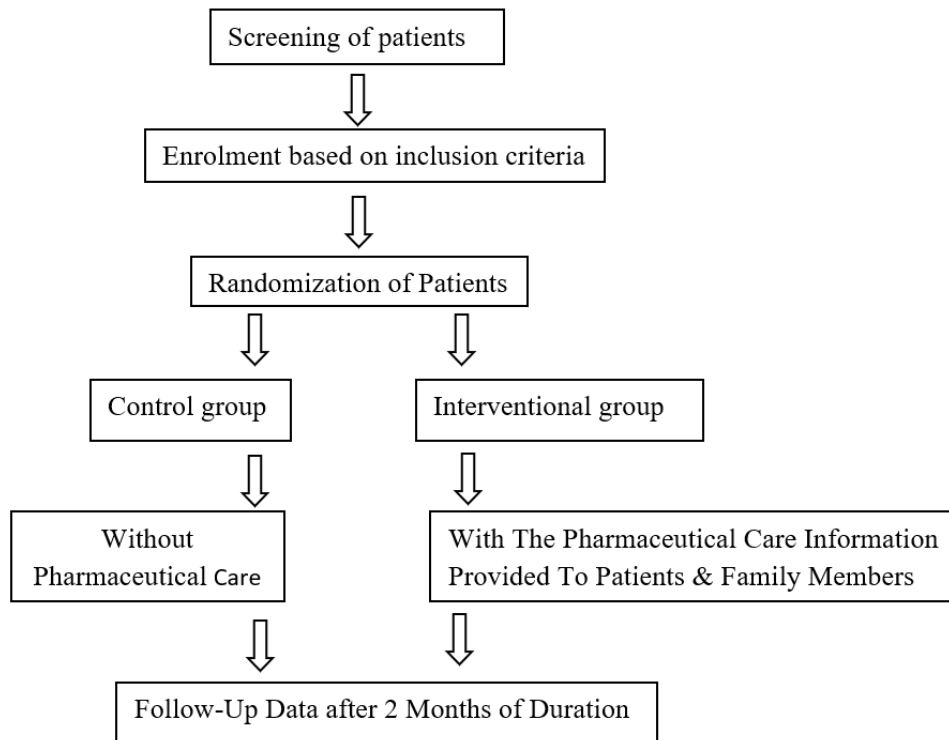


Figure 1: Flow-chart of the methodology used in the study

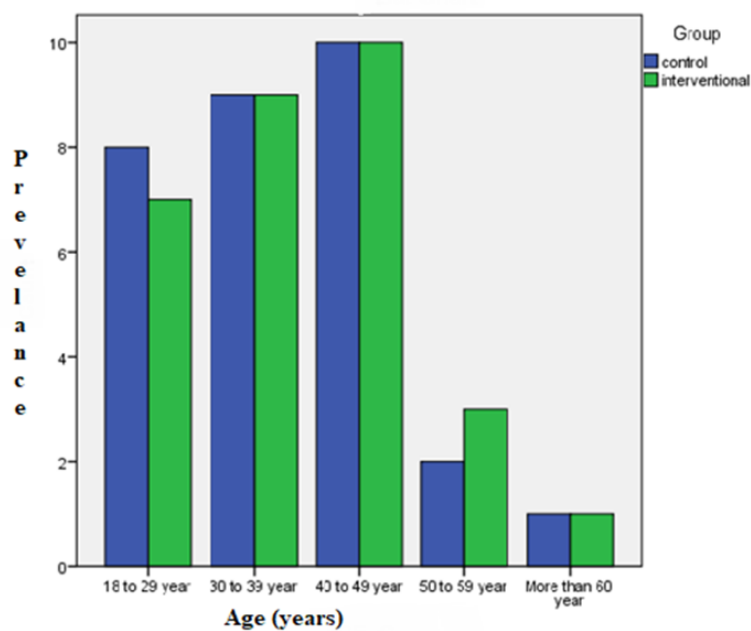


Figure 2: Prevalence of Schizophrenic Patients

## DISCUSSION

Effiong J.H. et al.<sup>[11]</sup> conducted a study to determine the prevalence of non-adherence in schizophrenic patients and identified factors associated with it. 28.3% of the subjects were categorized as low adherence, 23.4% were medium adherence and 48.3% were on high adherence. The overall prevalence of non-adherence was 51.7% using MMAS. In this study the disease prevalence was more in male 56.66% (n=34) as compared to female schizophrenic patients i.e 43.33% (n=26). The overall medication adherence was found to be more as compared to the above study that is 64.99% for interventional group justifying pharmaceutical care importance.

This study states the collaborative work of pharmacist and psychiatrists in schizophrenia. It was observed that the domain 2, 3, 6 were clinically as well as statistically significant ( $p < 0.05$ ) whereas domain 1,5,7,8 were clinically significant ( $p > 0.05$ ) but not statistically. Likewise, in this study, the positive effect of pharmaceutical care was more in the interventional group rather than the control group. Hence, this study indicates that the MMAS-8 is a valid instrument for the assessment of medication adherence in patients with Schizophrenia.

The conducted study shows that, clinical pharmacist collaborative care can enhance the patients' medication adherence in compared to the control group, which shows that, the involvement of clinical pharmacist in psychiatry settings may lead to integral segment in health care delivery systems.

## ACKNOWLEDGMENT

We wish to thank the people with Schizophrenia who freely participated in the study that provided the data used in the article. The Head of Departments, the staff of Psychiatry and Pharmacy Practice was cooperative until the completion and publication of the study.

## REFERENCES

- Huffman JC, Niazi SK, Rundell JR, Sharpe M, Katon WJ. Essential Articles on Collaborative Care Models for the Treatment of Psychiatric Disorders in Medical Settings: A Publication by the Academy of Psychosomatic Medicine Research and Evidence-Based Practice Committee. *Psychosomatics*. 2014 Mar-Apr;55(2):109-22
- Tallian KB, Hirsch JD, Kuo GM, Chang CA, Gilmer T, Messinger M, et al. Development of a pharmacist-psychiatrist

- collaborative medication therapy management clinic. *Journal of the American Pharmacists Association*. 2012 Nov 1;52(6):e252-8.
- Kane JM, Kishimoto T, Correll CU. Non-adherence to medication in patients with psychotic disorders: epidemiology, contributing factors and management strategies. *World Psychiatry*. 2013;12(3):216-26.
- Honer WG, Thornton AE, Chen EY, Chan RC, Wong JO, Bergmann A, Falkai P, Pomarol-Clotet E, McKenna PJ, Stip E, Williams R. Clozapine alone versus clozapine and risperidone with refractory schizophrenia. *New England Journal of Medicine*. 2006; 2;354(5):472-82.
- Micromedexsolutions.com [homepage on the internet] New York [updated December 2017] 2017. Available from: <https://www.micromedexsolutions.com/micromedex2/librarian/PFDDefaultActionId/evidencexpert.DoIntegratedSearch?navitem=topHome&isToolPage=true#>.
- Dziegielewski SF. DSM-5 in Action. John Wiley and Sons. 2015; 149-197.
- Cognitofirms.com [homepage on the Internet] Suite D Columbia [updated November 2017] 2017. Available from: <https://www.cognitofirms.com/KLECOP/PatientDataCollectionForm>.
- Pompili M1, Serafini G, Del Casale A, Rigucci S, Innamorati M, Girardi P, et. al. Improving adherence in mood disorders: the struggle against relapse, recurrence and suicide risk. *Expert Rev Neurother*. 2009 Jul;9(7):985-1004. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/19589049>.
- Google.com [home page on the Internet]. California 2017. Available from: [https://docs.google.com/forms/d/11nBOMJyrf7RjGLtaZtDKgAjELFzEgu\\_G30VJIanytRM/edit](https://docs.google.com/forms/d/11nBOMJyrf7RjGLtaZtDKgAjELFzEgu_G30VJIanytRM/edit).
- Effiong JH, Umoh KA. Medication non adherence in schizophrenia: prevalence and correlates among outpatients in a tertiary healthcare facility in Uyo, South-South Nigeria. *Clinical Medicine and Diagnostics*. 2015,5(6):107-113. Available from: <http://article.sapub.org/10.5923.j.cmd.20150506.01.html>.

## Cite this article as:

Tanveer Ahamad et al. Effectiveness of clinical pharmacist led collaborative approach towards medication adherence in patients with schizophrenia receiving atypical antipsychotics at tertiary care hospital. *Int. J. Res. Ayurveda Pharm*. 2019;10(3):87-91 <http://dx.doi.org/10.7897/2277-4343.100369>

Source of support: Nil, Conflict of interest: None Declared

Disclaimer: IJRAP is solely owned by Moksha Publishing House - A non-profit publishing house, dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJRAP cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of IJRAP editor or editorial board members.