# International Journal of
# Preclinical & Pharmaceutical Research

**Journal homepage: www.preclinicaljournal.com**

# A PROSPECTIVE STUDY ON TO ASSESS BARRIERS AFFECTING MEDICATION ADHERENCE OF OBSTRUCTIVE LUNG DISEASE PATIENTS IN A TERTIARY CARE TEACHING HOSPITAL

**Chinnu Johnson[1], V.Karthikeyan[1], Fathima[1], Shilpa Elizebth Stephen[1], Afeefa KM[1], DR.Kiran[2]**

[1]Department of Pharmacy Practice, Grace College of Pharmacy, Palakkad, Kerala, India.
[2]Department of General Medicine, Karuna Medical college Hospital, Chittur, Palakkad, Kerala, India.

**ABSTRACT**

Medication adherence is an important factor in disease management. Medication management capacity (MMC), or the ability to self manage medications, is a function of a patient's cognitive and functional abilities and the complexity of the medication regimen. Adequate capacity is necessary for adherence in patients who self-administer medications. To assess medication adherence of obstructive lung disease patients in a tertiary care teaching hospital. The medication adherences of the patients were assessed using the MORISKY Medication Adherence Scale (MMAS-8). MMAS-8 Questionnaire includes 8 close-ended questions, if the answer is Yes score 1 is given and if No score 0 is given. Thus medication adherence as well as barriers affecting medication adherence can also be analysed. The major barrier associated with medication adherence include the patient felt better and stopped the medications 32(37.6%) , since OLD requires a symptomatic treatment whenever the symptoms subsides the patients stops the drug. Other barriers associated with medication adherence include Fear of side effects 29 (34.1%) and Inadequate knowledge regarding the therapy 25(29.4%). Medication adherence is the degree to which the patient adheres to the prescribed medications. It is an important factor in obtaining proper therapeutic outcome. Medication adherence is very low among the OLD patients and the main barriers involved are patient related and therapy related factors like Felt better and stopped and Fear of side effects.

**Key Words**: Medication Adherence, OLD, Morisky scale.

## INTRODUCTION

Obstructive lung diseases (OLD) consist of a group of respiratory disorders characterized by airway obstruction in the lungs of affected patients. It results in severe respiratory morbidity that often results in pulmonary failure and disease-associated mortality [1]. Types of obstructive lung disease include Asthma, Bronchiectasis, Bronchitis and Chronic obstructive lung disease (COPD) [2]. Asthma and COPD, the 2 most common types of obstructive lung disease [3].

COPD is a lung disease that is characterized by a persistent reduction of airflow. The more familiar terms chronic bronchitis and emphysema have often been used as labels for the condition [4]. Asthma is a major non communicable disease characterized by recurrent attacks of breathlessness and wheezing, which vary in severity and frequency from person to person. The Global Burden of Disease Study reports a prevalence of 251 million cases of COPD globally in 2016.Globally, it is estimated that 3.17 million deaths were caused by the disease in 2015 (that is, 5% of all deaths globally in that year). More than 90% of COPD deaths occur in low and middle income countries. According to the latest WHO estimates, released in December 2016, there were 383 000 deaths due to asthma in 2015 [4].

### Medication Adherence

Medication adherence is a very important factor in

---

Corresponding Author

**Chinnu Johnson**
Email: chinnuivysjohnson8@gmail.com

drug use by obstructive lung disease patients. Many factors can affect drug adherence in these patients. The factors may include disease related factors, treatment related factors (such as actual or perceived unpleasant side-effects, regimen complexity and treatment duration) and patient related factors (sensory or cognitive impairment, economic problems and educational deficiencies). Pharmacists have roles in resolving these adherence related problems. In particular, pharmacists can be involved in educational activities such as provision of drug adherence counseling and also providing safe effective and affordable drugs.

### Reason for non adherence in OLD

Non adherence can also occur when the medication regimen is complex which could include improper timing of drug administration, or administration of numerous medications at frequent or unusual times during the day. These patient behavioural factors may or may not be perceived by the physician and results in decreased therapeutic outcome. Most deviations in taking medication occur as omission of doses (rather than additions) or delays in the timing of doses. Patients with low literacy may have difficulty understanding instructions; this ultimately results in decreased adherence and poor medication management [5].

Based on Morisky et al. developed this 8-item Morisky Medication Adherence Scale MMAS (MMAS-8) 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 behaviours. The additional items focus on medication-taking behaviours, especially related to underuse, such as forgetfulness, so barriers to adherence can be identified more clearly [5].

### Methodology

A Prospective observational study conducted in Karuna medical college, Palakkad. The study protocol was approved by Institutional Ethics Committee with number SDAT/KMC/E C/12-2017/86 of Karuna Medical College. In our study inpatients and outpatients of both genders above 18 years of age suffering from Asthma, COPD, and Bronchiectasis was included. Lung cancer patients, TB patients, physically inactive patients, mentally retarded patients and patients not willing to participate were excluded from the study.

A total of 90 cases were collected. Patient consent form was prepared and written consent was obtained. Specially designed data entry form was used to collect data related to the patient's demographics, education status, dietary habits, and social habits, past medical and medication history, laboratory values, current treatment of Obstructive Lung Disease. The medication adherences of the patients were assessed using the MORISKY Medication Adherence Scale (MMAS-8). MMAS-8 Questionnaire includes 8 close-ended questions, if the answer is Yes score 1 is given and if No score 0 is given. Thus medication adherence as well as barriers affecting medication adherence can also be analysed.

Among the 90 prescriptions, 66.6% of patients showed low adherence to the medication.27.7% patients showed medium adherence and 5.5% patients showed high adherence Table6 and figure 6. Most of the patients has low adherence to their medication either due to their educational status and other barriers affecting medication adherence like Felt better and stopped and Fear of side effects.

Medication adherence is one of the most important factor that determines therapeutic outcome. Certain barriers may affect the medication adherence and leads to less therapeutic outcome. The major barrier associated with medication adherence include the patient felt better and stopped the medications 32(37.6%) , since OLD requires a symptomatic treatment whenever the symptoms subsides the patients stops the drug. Other barriers associated with medication adherence include Fear of side effects 29 (34.1%) and Inadequate knowledge regarding the therapy 25(29.4%).

Figure no.2 depicts percentage distribution of barriers affecting medication adherence which include 59.4% of patient related factors followed by 28.7% therapy related factors and 11.7% of socio economic factors.
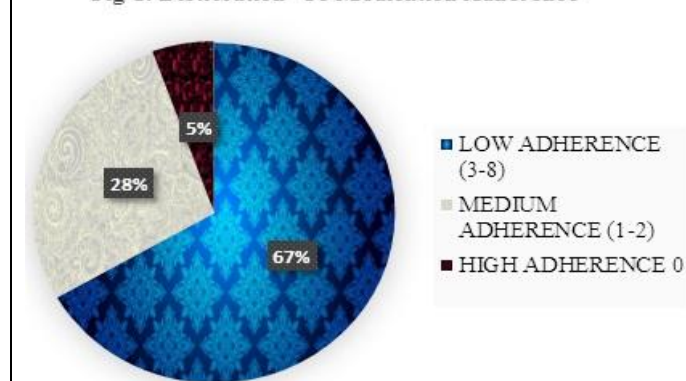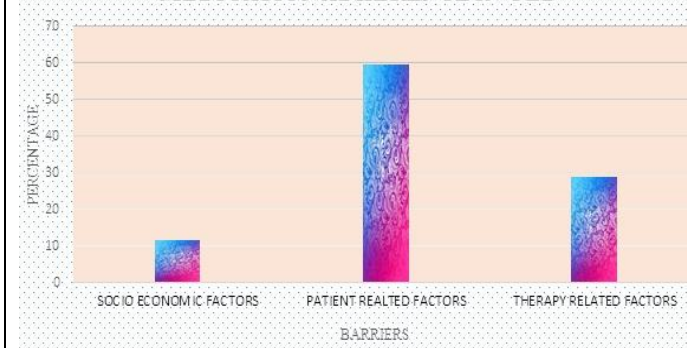


Fig 1. Distribution Of Medication Adherence

- LOW ADHERENCE (3-8)
- MEDIUM ADHERENCE (1-2)
- HIGH ADHERENCE 0



FIG 2. DISTRIBUTION OF BARRIERS TO MEDICATION ADHERENCE IN OLD

**RESULTS**
**Table 1. Gender wise Distribution among OLD Patients**

| 1 | Male | 61 | 67.7 |
|---|------|-----|------|
| 2 | Female | 29 | 32.2 |

Among the total obstructive lung disease study population, 67.7% (n=61) of patients were male and 32.2% (n=29) of patients were female. The main risk factor for obstructive lung diseases are smoking hence cases of male patients were more in the study.

**Table 2. Age wise Distribution among OLD patients**

| No: of Patients | 2 (2.2%) | 4 (4.4%) | 14 (15.5%) | 23 (25.5%) | 30 (33.3%) | 17 (18.8%) |
|---|---|---|---|---|---|---|

Most of them were from age group 61-70 years which included thirty patients. Least were from 18-30 years age group. Similar study, Lakshmi R et al., (2015) [6] concluded in her study that males were predominant when compared to females and more number of patient were included in the age group of 60-69 years which was kindred in our study.

**Table 3. Educational Status among OLD patients**

| Educational Status | Number of patients (n = 90) |
|---|---|
| Primary education | 48 (53.3) |
| Secondary education | 36 (40) |
| Higher education | 9 (10) |

Educational status of the patients may affect the level of medication adherence. In our study shows that, most of them have a primary education 48 (53.3%), followed by secondary education 36 (40%). Since most of the patients have primary education, knowledge about the disease and benefits of completing the therapy are unknown.

**Table 4. Disease Distribution (Prevalence Rate)**

| Assessment | No: of patients (n=90) | Percentage (%) |
|---|---|---|
| **Asthma** | **15** | **16.6%** |
| **COPD** | **65** | **72.2%** |
| **Bronchietasis** | **10** | **11.1%** |

In our study shows that, the total number of 90 cases collected and the majority around 72.2% (n=65) of the patients had COPD, followed by 16.6% of patients had Asthma (n=15) and 11.1% of patient having Bronchiectasis.

**Table 5. Co –Morbidity Status along with OLD**

| Diseases | No: of Patients n=90 | Percentage |
|---|---|---|
| Infectious Disease | 6 | 6.6% |
| Hypertension | **30** | **33.3%** |
| Diabetes Mellitus | 17 | 18.8% |
| Thyroid Diseases | 4 | 4.4% |
| Kidney Diseases | 3 | 3.3% |
| Heart Diseases | 6 | 6.6% |
| GI diseases | 1 | 1.1% |
| Others | 3 | 3.3% |

Treatment of co-morbid diseases is really a challenge factor in therapeutic management of OLD among the study population. The data for Co morbid disease characteristics are represented in Table 5. Co morbidities along with OLD were Hypertension 33.3% followed by 18.8% Diabetes mellitus. Co-morbidity status also affects the medication adherence of the patients.

**Table 6. Barriers to Medication Adherence among Old patients**

| 1. | SOCIAL AND ECONOMIC FACTORS | |
|---|---|---|
| | Cost of medication too expensive | 15(17.6) |
| | Lack of financial resources | 10(11.7) |
| 2 | PATIENT RELATED FACTORS | |
| | Felt better and stopped | 32(37.6) |
| | Forgetfulness | 15(17.6) |
| | Lack of knowledge about the disease | 21(24.7) |
| | Inadequate knowledge regarding the therapy | 25(29.4) |

|   |                                | |
|---|--------------------------------|----------|
|   | Lack of family support         | 15(17.6) |
|   | Occupation related problems    | 18(21.1) |
| 3 | **THERAPY RELATED FACTORS**    |          |
|   | Fear of side effects           | 29(34.1) |
|   | Long duration of treatment period | 17(20) |
|   | Non beneficial                 | 15(17.6) |

## DISCUSSION

In our prospective study of medication adherence pattern of OLD patients, 90 prescriptions were analysed. Male was more predominant in the study and age group of 61-70 years. This result was consistent with several other studies which have linked non-adherence to poly pharmacy and co morbid diseases. Several studies shows that patients of advanced age were more likely to adhere to prescribed medication but associated complex drug regimen and co-morbid conditions make those patients non-adherent to the prescribed treatment.

A Study conducted by Shrestha R [7] on Medication adherence pattern and Factors affecting adherence in COPD ,out of 100 patients ,unintentional medication adherence to medication attributed for 65% of patients and major reason for non-adherence was Forgetfulness(52.3%) and due to experienced side effects (63.3%).A Study conducted by Ajay R Fugate [8] on medication adherence pattern in COPD shows that the patients has low adherence and the major reason for non-adherence were stop/miss the medication when the symptoms subsides. In addition, our study has shown that non-adherence to the prescribed treatment was seen in later age of the patients. The major barrier involved in medication adherence are Patient related factors like Felt better and stopped(37.6%) and therapy related factors like Fear of side effects (34.1%). The same reasons were reported in other studies. Hence, the level of non-adherence and barriers in medication adherence can be minimized by proper pharmacist intervention. The Socioeconomic factors contributing to medication non-adherence (11.7%), in the current Indian scenario proper health care insurance or policies by Government or individuals can reduce economic burden of the patients.

## CONCLUSION

Medication adherence is the degree to which the patient adheres to the prescribed medications. It is an important factor in obtaining proper therapeutic outcome. Medication adherence is very low among the OLD patients and the main barriers involved are patient related and therapy related factors like Felt better and stopped and Fear of side effects. Pharmacists have roles in resolving these adherence related problems. In particular, pharmacists can be involved in educational activities such as provision of drug adherence counseling and also providing safe effective and affordable drugs.

## CONFLICT OF INTEREST
No interest

## REFERNCES

1. Kim N, Duncan G, Hanes J, Suk J. Barriers to inhaled gene therapy of obstructive lung diseases: A review. *Journal of Controlled Release*, 240, 2016, 465-488.
2. National Asthma Education and Prevention Program. Clinical Practice Guidelines. Expert Panel Report 2. Guidelines for the Diagnosis and Management of Asthma. Bethesda, Md: National Heart, Lung, and Blood Institute, National Institutes of Health, US Dept of Health and Human Services, 1997.
3. Bergin S and Rackley C. Managing Respiratory Failure in Obstructive Lung Disease. *Clinics in Chest Medicine*, 37(4), 2016, 659-667.
4. http://www.who.int/mediacentre/factsheets/fs315/en/
5. Jimmy B and Jose J. Patient Medication Adherence: Measures in Daily Practice. *Oman Medical Journal*, 26(3), 2011, 155-159.
6. Lakshmi R. A Study on Antibiotic Prescribing Pattern in Obstructive Lung Disease Inpatients. *Asian Journal of Pharmaceutical and Clinical Research*, 9(1), 2016, 67.
7. Rajeev S. A Cross sectional study on medication adherence pattern and factors affecting the adherence in chronic obstructive pulmonary disease. *Kathmandu University Medical Journal,* 13(49), 2015, 64-70.
8. Fugate A. Prospective study of medication adherence pattern in chronic obstructive pulmonary disease and asthma patients in tertiary care teaching hospital. *Indian Journal of Pharmacy Practice*, 8(2), 2015, 54.