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## Study for The Assessment of Compliance and Medication Knowledge of Patients with Asthma.

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### ABSTRACT

Asthma is a part of growing epidemic of non-communicable disease, expected to present one of the 21<sup>st</sup> century's big challenge. Poor awareness and practices among asthmatic patients are some of the important variable influencing the progression of asthma and its symptoms. To conduct a study on asthmatic patients for the assessment of compliance and their knowledge about the medication. It was a non experimental (observational) prospective and cross sectional study done in outpatient department of pulmonology, Amrita Institute of Medical science. Morisky medication adherence scale was used for labeling patients as adherent or non adherent. Medication knowledge assessment form was used to assess their knowledge about their medication. Out of 90 patient's there were 54 females and 36 males. Majority of them were non adherent (53.33%), adherence was found to be (23.33%). The major reason for non adherence was polypharmacy and forgetfulness (26.06%).Majority of the patients have poor medication knowledge (72.22%).From this study we identified that the medication knowledge and adherence among the bronchial asthma patients are relatively low. The influence of clinical pharmacist will produce a significant improvement in quality of life, medication knowledge and compliance behavior.

**Keywords:** asthma, adherence, non adherence, medication knowledge.

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## INTRODUCTION

Asthma means 'laboured breathing' in Greek and was first described 3000 years ago. It is one of the common chronic disease in children in the developed countries, and is also seen in adults. The national UK guidelines (BTS/SIGN,2009) define Asthma as a 'chronic inflammatory disorder of the airways which occurs in susceptible individuals; inflammatory symptoms are usually associated with widespread but variable airflow obstruction and an increase in airway response to a variety of stimuli. Obstruction is often reversibly either spontaneously or with treatment'.<sup>[1]</sup> International guidelines have been established for the management of asthma; however, in clinical practice, appropriate prescriptions do not result in asthma control in all patients.<sup>[2]</sup> The assumption is that, in addition to correct management, compliance with the therapeutic regimen is necessary to improve health.<sup>[3]</sup> Compliance is used within the medical setting to define whether a patient follows a prescribed management plan in order to treat effectively an underlying illness or condition.<sup>[4]</sup> Adherence is often used interchangeably with compliance.<sup>[5]</sup> Poor compliance with the prescribed therapy leads to increased mortality and morbidity.<sup>[6]</sup> Various determinants of compliance have been described.<sup>[7]</sup> Poor communication between the doctor and patient and inability to use inhaler devices correctly are major sources of non-compliance in patients with asthma.<sup>[6,8]</sup> A variety of different complex factors which include psychological, social, and medical issues can influence compliance with asthma therapy.<sup>[6]</sup>

In general pharmacotherapy used but " Drugs don't work in patients that don't take them".<sup>[9]</sup> Helping patients to achieve their best possible level of asthmatic control will require the utilization of appropriate therapy, monitoring and comprehensive instruction in asthmatic management.

Predisposing factors which includes demographic factors, patient knowledge, attitude, beliefs and perceptions about illness and its severity, cause, prevention and treatment. Enabling factors are the skills and resources needed for adherence. Skills refers to the patient's ability to adopt behaviors which will assist adherence and resources include the availability and accessibility of health care facilities such as doctors, pharmacies, clinics or hospitals. Reinforcing factors include which determine whether adherence is supported by family members, health care providers, the local community and society in general. Some scales are also used to observe the compliance level in interviewing and self reporting method. For example Morisky adherence scale. It is used to observe adherence level in various disease conditions.<sup>[10]</sup>

Direct approaches are one of the most accurate methods of measuring compliance but are expensive. Moreover variation in metabolism and "white coat adherence" can give a false impression of adherence.<sup>[11]</sup> Pill-counting is one of the most advantageous method. It is cheap, requires no instrumentation and is easily carried out by a trained personnel.<sup>[12]</sup> Pharmacy computerized prescription records provide perhaps the most practical and least intrusive method for assessing adherence.<sup>[13]</sup>

## MATERIALS AND METHODS

### Design of study:

Non experimental, prospective and cross sectional study.

### Settings:

The study was done in the department of pulmonology, Amrita institute of medical sciences (a tertiary referral and teaching hospital in Kochi, Kerala located in the urban area that captures patients from all settings rural through urban). The hospital established in 1998, is approved by the MCI for conducting Graduate and PG course in medicine. The pulmonology department is full-fledged pulmonary centre in the entire state of Kerala and provides advanced care for asthma as well as for complex chronic disease.

### Study population:

Patients visiting the outpatient department of pulmonary and who satisfy the inclusion criteria.



**Sample size:**

n =90

**Inclusion criteria:**

- Patients under all age groups
- Patients under the department of pulmonary.
- Patients diagnosed to have asthma.
- Patients willing to participate in the study.
- People who are able to speak English and Malayalam. Patients visiting outpatient department of pulmonary.
- Follow up patients.

**Exclusion criteria:**

- Patients visiting IP pulmonary department.
- Consider to be unwilling to co-operative.
- Patients who visit first time in the hospital.
- Patients who are pregnant, psychiatric etc.

**Method of selection:**

Patients was selected on the basis of inclusion and exclusion criteria.

**Data collection:**

- Interviewing method (telephone / personal interviewing )
- Examination of patient medical record using AHIS.

**Tools of collection:**

- Standardized data collection form.
- Morisky adherence form.
- Reason for non- adherence.
- Medicine knowledge assessment form.

**Duration of the study:**

Data was collected for a period of 6 months (July 1<sup>st</sup> 2014 to 21<sup>st</sup>December)

**MATERIALS AND METHODS**

Non-experimental, prospective and cross sectional study was done in the outpatient department of pulmonology, Amrita institute of medical sciences (AIMS). Patients who satisfy the inclusion and exclusion criteria had been included in the study. Morisky medication adherence scale was used for labeling patients as adherent or non-adherent. Medication knowledge assessment form was used to assess their knowledge about their medication.

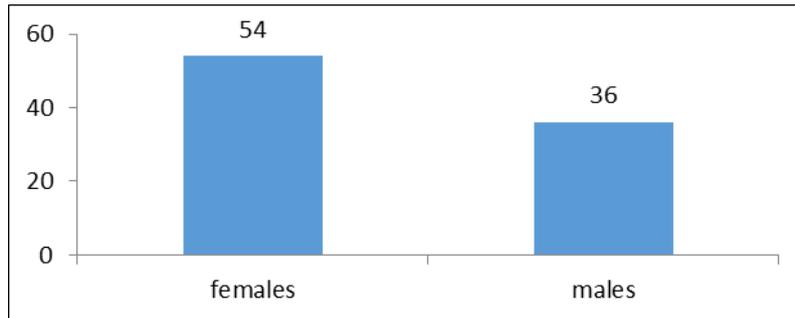
A standardized data collection form was prepared and necessary data was obtained from patients. The data collection form provides the information regarding demography of the patients . It mainly includes age, sex, area of residence, family history, etc . Morisky adherence form, medication knowledge assessment form were also incorporated to the data collection form.

Questions 1 through 7 (except question 5), each question answered YES carry 1 point and NO carry 0 point. In the case of 5th question the point distribution is vice versa. In the 8 th question never or rarely carry 0

point and others carry 1 point. If the patient's total score is > 2 have low adherence , score 1, 2 have medium adherence and 0 have high adherence.<sup>[14]</sup>

The medicine knowledge assessment form was designed to assess the knowledge on various aspects of drug therapy like identification of medication, strength, dosing regimen, and durations. Each questions carry score from 0-3. 0 for not answering the questions correctly, 1 for answering when prompted, 2 for answering the questions partially, 3 for not answering the questions correctly. Patients with 80 % knowledge have a score of  $\geq 17$ , 70% knowledge have a score of 15- 16, 60% knowledge have a score of 13-14 and poor knowledge patients have a score of  $\leq 12$ .<sup>[15]</sup>

**RESULTS AND DISCUSSION**



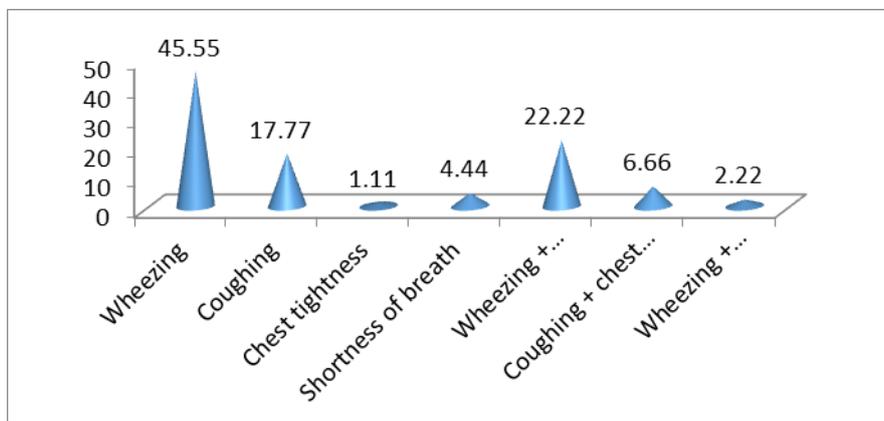
**Fig 1 : Gender distribution of patients with asthma (n=90).**

In the present study, there were 36 males and 54 females, thus the male to female ratio was 3:2. The majority of patients (26.66 %) belonged to the age group 51-60 years, followed by the age group 41-50 years (14.44 %) only (5.55%) of the patients were in the age group 21-30 years and (4.44%) above 80 years. As the age increases non - adherence can also increases. Many factors like forgetfulness, polypharmacy can also lead to non- compliance in geriatric patients.

**TABLE 1: Area of residence of asthmatic patients (n=90).**

Area of residence	Number of patients	Percentage of patients
Rural	34	37.77
Urban	56	62.22
Total	90	100

In the study people in the urban area (62.22%) were more affected when compared to rural area. Pollution will be more in urban areas which can also be a factor to cause asthma.



**Fig 2: Symptoms associated with asthma (n=90).**

Wheezing was the most commonly seen symptom in majority of the patients followed by cough. If the medications are not properly taken it will worsen the symptoms and can lead to further complications.

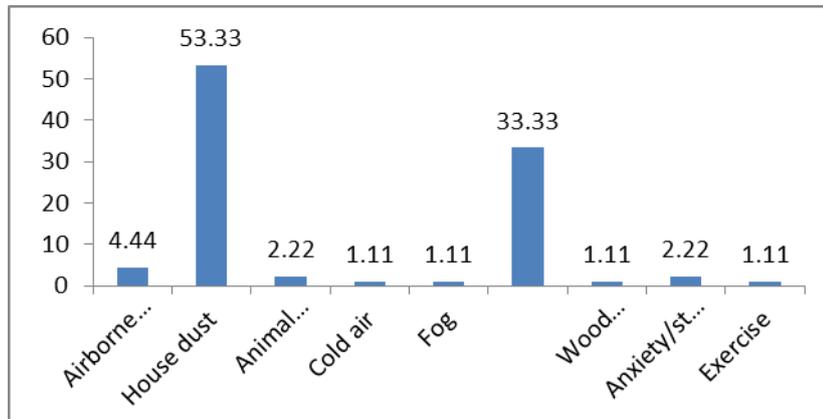


Fig 3: Triggering factors of asthma in the sample population (n=90).

House dust and allergens can worsen asthma if medications are not taken properly.

TABLE 2: Educational status of patients in the sample population (n=90).

Educational status	Number of patients	Percentage of patients
School level	57	63.33
Graduate	24	26.66
Post graduate	9	10.00
Total	90	100

Education is one of the important factor and can influence the adherence level. In our study majority of patients had only school level education. This may be a reason for poor compliance among patients.

TABLE 3: Interpretation of morisky adherence questionnaire in the sample population (n=90).

Score distribution	Number of patients	Percentage of patients
> 2 (low adherence)	48	53.33
1, 2 (medium adherence)	21	23.33
0 (high adherence)	21	23.33
Total	90	100

TABLE 4 : Reason for non adherence in the sample population (n=90).

Cause of non adherence	Number of patients	Percentage of patients
Forgetfulness	16	23.18
Self decision	13	18.84
Lack of pharmacy	3	4.37
Cost	2	2.89
Forgetfulness + busy life	12	17.39
Busy life + self decision	5	7.24
Poly pharmacy + forgetfulness	18	26.08
Total	69	100

With the morisky form our study showed that patients was poorly adhered towards their medications and treatment plans. The major reasons for this can be their age, literacy, attitude towards the disease, polypharmacy and forgetfulness etc.

**TABLE 5 : Medication knowledge assessment of patients in the sample population (n=90).**

Score distribution	Number of patients	Percentage of patients
≥17 (80%)	6	6.66
15 -16 (70%)	7	7.77
13 - 14 (60%)	12	13.33
≤ 12 (poor)	65	72.22
Total	90	100

In our study majority of the patients showed poor medication knowledge. Patients with poor medication knowledge will always show poor compliance towards their medication and treatment.

### CONCLUSION

The following conclusion can be drawn after observing the results of the present study. Out of 90 patient's majority of them were non adherent (53.33%). The major reason for the non adherence was polypharmacy, forgetfulness (26.08%) also majority of the patients were not aware of the factors and were age, illiteracy. Majority of the patients showed poor medication knowledge(72.22%).The study revealed that adherence and medication knowledge among the bronchial asthma patients are relatively low this necessitates the need of a clinical pharmacist. Clinical pharmacy service is a new profession which is introduced to the traditional health care system. The primary goal of clinical pharmacist is to educate the patients, improve their knowledge and there by improve compliance and quality of life of the patients.

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### REFERENCES

- [1] Walker R, Whittlesea C. Clinical pharmacy and therapeutics. 5th edition. London, UK: Churchill Livingstone; 2012.
- [2] Soussan D, Liard R, Zureik M, Touron D, Rogeaux Y, Neukirch F. Treatment compliance, passive smoking, and asthma control: a three year cohort study. Arch Dis Child 2003; 88(3):229-33.
- [3] Sawyer SM, Aroni RA. Sticky issue of adherence. J Paediatr Child Health 2003; 39(1):2-5.
- [4] Fitzgerald D. Non-compliance in adolescents with chronic lung disease: causative factors and practical approach. Paediatr Respir Rev 2001; 2(3):260-7.
- [5] Schere YK, Bruce S. Knowledge, attitude, and selfefficacy and compliance with medical regimen, number of emergency department visits, and hospitalization in adults with asthma. Heart Lung 2001; 30(4):250-7.
- [6] Clark N, Jones P, Keller S, Vermeire P. Patient factors and compliance with asthma therapy. Respir Med 1999; 93(12):856-62.
- [7] Saskia ME, Kaptein AA, Bezemer PD, Nagelkerke AF, Colland VT, Bouter LM. Predicting adherence to prophylactic medication in adolescents with asthma: an application of the ASE-model. Patient Educ Couns 2002; 47(2):165-71.



- [8] Chapman KR, Walker L, Cluley S, Fabbri L. Improving patient compliance with asthma therapy. *Respir Med* 2000; 94(1):2-9.
- [9] Osterberg L, Blaschke T. Adherence to medication. *N. Engl J Med* 2005; 35(3): 487-97.
- [10] Ravikumar KG, Miglani BD . A textbook of pharmacy practice. Maharashtra: Career Publication; 2009.
- [11] Jimmy B, Jimmy J. Patient medication adherence: Measures in daily practice. *Oman Med J* 2011; 26(3): 155–59.
- [12] Aziz AMA , Ibrahim MIM, Khalil JMH. Medication noncompliance - A thriving problem. *Med J Malaysia* 1999; 54(2): 192-99.
- [13] Nichols G, Poirier S. Optimizing adherence to pharmaceutical care plans. *J Am Pharm Association* 2000 ; 40(4): 475-85.
- [14] Ambaw ADE, Alemie GA. Adherence to antihypertensive treatment and associated factors among patients on follow up at university of Gondar Hospital, Northwest Ethiopia .*BMC Public Health* 2012;12:2-6.
- [15] Ponnusankar S, Surulivelrajan M, Anandamoorthy N. Assessment of impact of medication counseling on patient's medication knowledge and compliance in an outpatient clinic in South India. *Patient Educ and Couns* 2004; 54(1): 55-60.