

## “Effectiveness of Peak Flow Guided Self Management Plan on Asthma Health Outcomes among Patients with Bronchial Asthma at Chest OPD, SRI Ramachandra Hospital, Chennai-116”

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**Abstract:** *Objective:* To identify the effect of peak flow guided self-management plan among asthmatics. *Design:* Randomized controlled trial  
*Setting:* Department of Chest and TB, Outpatient department, SRH *Subjects:* Mild and moderately Persistent type of asthma. (GINA, 2009)  
*Interventions:* Self Management plan guided by peak flow measurements *Main outcome measures:* Admissions to hospital and outpatient attendance, days off work, lung function. *Results:* The mean number of visits to Outpatient department, days off work were lower. There were no admissions during the data collection period. *Conclusions:* Peak flow guided self management plan reduces the episode of asthma and improves quality of life. Hence the Nurses play an vital role in imparting the knowledge of peak flow monitoring at home as a part of self management plan . This can be facilitated by motivating the nurses to provide outpatient based education to progress towards their well-being.

**Keywords:** Peak flow Management Self Management Plan, Chronic Diseases, Bronchial Asthma

### INTRODUCTION

According to WHO 2009, it is documented that asthma accounts 16.7 million deaths in the age group of 15-59 years, 0.2% of all deaths and 0.5 % of national burden of diseases. 30 – 70 % of them reported to be the poor adherence to asthma medications. This may be due to the duration of usage of drugs, multiple drugs, and the period of symptom remission. The study can be done to assess the compliance with peak flow guided self management plan by use of clinical judgements, self report/ asthma diaries, and electronic medication monitors.

This is being used for the asthma management in ambulatory care. Patient requires guidelines on identifying the changes in their health status, how to adjust with the medications and when to seek medical attention. This provides lung function measures on asthma severity, thereby it helps in the management of their illness. Dunbar et al suggested that a physician's time in attending the patient may be the most powerful available reinforcer. Haynes et al concluded in his study that successful interventions includes combinations of counselling, education, self-monitoring, reinforcement, reminders and supervision which helps to promote adherence.

Weinstein AG et al (2005) identified that today's asthma management strives for improving the adherence and controlling asthma. Axelsson Met al (2009) reported that less than 50% of asthma patients are adhering to their treatment.

Levy et al (2012) reported that education given by asthma nurse improved adherence and clinical outcomes.

World health organization (2012), recognized lack of adherence as a major problem in management of chronic

disease. Hence, improving adherence will have more beneficial impact on health outcome.

Hence investigator planned to determine the effectiveness of peak flow based self management plan on asthma health outcomes among patients with bronchial asthma.

### OBJECTIVES

1. Assess the level of peak flow guided self management plan on asthma health outcomes among patients with bronchial asthma.
2. Determine the effect of peak flow guided self management plan on asthma health outcomes among patients with bronchial asthma.
3. Associate the level of peak flow based self management plan with the selected demographic variables.

### METHODOLOGY

The study was conducted for the period of three months, after obtaining the approval from the Ethics Committee. 60 patients with mild to moderate type of asthma, aged 20 to 60 years were included for the study according to the guidelines of Global Initiatives of Asthma. Consent was obtained from patients, a questionnaire was completed. Clinical variables which includes symptoms, use of medication, activities of living, work condition and lung function (PEFR) to determine the severity of asthma. Written instructions were given on how to monitor PEFR values.

Diary card was issued to monitor all these clinical variables and to record PEFR values. Patients were given with pocket size peak flow meter and the investigator provided instructions on how to record measurements in their diary card. Patients were asked to follow self-management plan,

which was prepared by the investigator based on the patient's current asthma severity and medications

The researcher's conclusion was based on the diary maintained by the patient. If the patient responded to appropriate management plan then value 1 was assigned and 0 for inappropriate response to the individualized management plan.

### ss3.1 Description of Tool:

**SECTION A :** Demographic variables of the patients with bronchial asthma consist of age, education, locality, occupation, income, marital status, type of family, number of children, family history of asthma etc.

**SECTION B :** Clinical variables such as Height, weight, BMI, Vital signs

**SECTION C:** Peak flow guided self management plan.

### Statistical analysis:

Descriptive and Inferential statistics were used to compare the recorded scores.

## RESULTS

The major findings of the study are depicted below in tables and graphs.

Table 1: Frequency and percentage distribution of the demographic variables among patients with bronchial asthma. (N=60)

Demographic Variables	N=60	
	No.	%
<b>Age (in yrs)</b>		
a.20-39	23	38
b.40-59	22	37
c.59-60	15	25
d.>60	-	-
<b>Gender</b>		
a.Male	36	60
b.Female	24	40
<b>Educational status</b>		
a. No formal education	12	20
b. Primary school	33	55
c. High school	15	25
d. Higher secondary	-	-
e. Degree	-	-
<b>Marital status</b>		
a. Married	10	17
b. Unmarried	23	38
c. Divorced	-	-
d. Widow	27	45
<b>Occupation</b>		
a. Coolie	10	25
b. unskilled	27	18
c. Skilled	12	30
d. Professional	11	27
<b>Income ( in Rs.) per month</b>		
a.≤ 5000	5	8
b.5001- 10,000	15	25
c.10,001-15,000	16	27
d. 15,001-20,000	12	20
e.> 20,001	12	20
<b>Residence</b>		
a.Rural	12	20
b. Semi-urban	28	47
c. Urban	20	33
<b>Type of family</b>		
a. Joint	23	38
b. Nuclear	22	37
c. Extended	15	25
<b>Smoking habit</b>		
a. Non smoker	35	58
b. Cigarette smoker	25	42
<b>Duration of asthma(yrs)</b>		
a. <6 months	23	38
b. ≤ 1	12	20
c. 1-5	25	42
<b>Family history of asthma</b>		
a. First degree relative	32	54
b. No First degree relative	28	46
<b>Presence of co-morbid medical illness</b>		
a. Diabetes mellitus	16	27
b. Hypertension	18	30
c. Cardiac disease	10	17
d. Bone disease	-	-
e. Gastro-intestinal disease	16	26
<b>Severity of asthma</b>		
a. Mild	26	43
b. Moderate	34	57

**Table .1** depicts the frequency and percentage distribution of the demographic variables of patients with bronchial asthma. Among which 23 (38 %) of them belongs to the age group of 20-30 years and 36 (60 %) of them are male patients, and majority of 33 (55 %) had primary education,

27 (18 %) are unskilled labors with the income of Rs.10,001 to 15,000 are 16 (27 %), 28 (47 %) are living in the semi-urban area, 35 (58 %) are non smokers, 32 (54 %) had family history of first degree relative with bronchial asthma, 18 (30 %) has comorbid illness of hypertension

Table 2. Mean and standard deviation of symptom and PEFR monitoring (n=60)

	Month 1 (n=60)	Month 3 (n=60)
Mean daily symptom scores		
Patient's own	2.22±1.93	2.92± 1.83
Corrected	2.34 ±1.87	2.98± 1.76
Mean daily PEFR (L/min)		
Morning (a.m.)	310± 112	298± 126
Evening (p.m.)	354 ±126	346± 116
Mean PEFR variability	0.06± 0.8	0.08± 0.6
Mean frequency of responses		
Appropriate	0.93± 0.5	0.98± 0.4
Inappropriate with respect to		
Medication use	0.23 ±0.07	0.14 ±0.04
Medical consultation	0.23± 0.07	0.17± 0.03

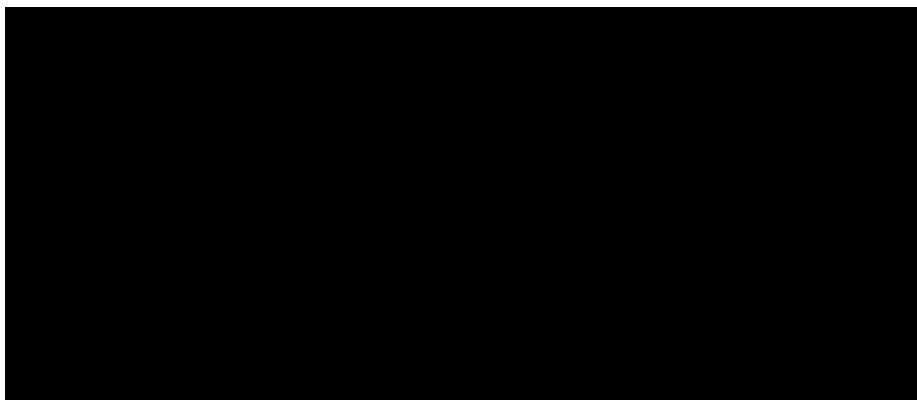


Figure 1. Bar diagram shows the frequency of effect of peak flow guided self management on asthma health outcomes among patients with asthma (N=60)

Figure 3 depicts that there is a decline in the asthma health outcome among the patients with asthma from the pre assessment to the post assessment at month 1 and 3.

## DISCUSSION

The objective of the study was to identify the effect of peak flow guided self management plan on asthma health outcome. The patients showed considerable compliance for the home peak flow monitoring. There was a significant difference between the mean PEFR values. There was a significant association between the peak flow guided self management plan among patients with bronchial asthma with that of the family history of asthma and the duration of asthma, asthma severity at  $P < 0.001$ .

## CONCLUSION

Prevention from the complications is an essential key in the asthma management. The use of peak flow meters plays an role in the diagnosis and assessment of asthma. Studies have highlighted the severity of their asthma despite appreciable deterioration in their lung function. A peak flow meter would seem to be the invaluable to such patients. Recent studies have shown considerable success when patients are given self management plans. Collaborative management is essential to explore the patient's concerns and prejudices. Nurses can implement the protocols / policies to motivate

patients to improve their adherence with poor disease control.

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