

### THE ROLE OF SELF INSTRUCTIONAL MODULE ON KNOWLEDGE REGARDING BREATHING EXERCISE AMONG BRONCHIAL ASTHMA PATIENTS AT TERTIARY CARE HOSPITAL

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#### ABSTRACT

**Background:** Asthma is one of the most common chronic diseases worldwide. Despite advancement in science and technology and pharmacological revolutions, worldwide asthma prevalence is uncontrolled, morbidity and mortality from asthma. The most common reasons are non-adherence to treatment, poor knowledge and skills in disease management. The objective of present study was to assess the impact of Asthma Education on self-care management among Bronchial asthma patients. **Materials and methods:** Study was done to assess the effectiveness of structured asthma education program on self-care management of Bronchial asthma. Sixty patients, meeting the inclusive criteria, were selected by simple random sampling, and were tested for their knowledge levels on identification of asthma triggers, and warning signs, adherence to specified drugs, diet and breathing exercises. Based on the patient needs, structured education program was developed, validated and administered. Two weeks after administering structured asthma education, post-test was conducted. The Pre-test and Post-test scores were compared to evaluate the effectiveness of the Asthma education. **Results:** knowledge on Asthma before and after SIM was 7.6 and it was statistically significant at 0.0001 level (i.e., P<0.0001, highly significant). Similarly knowledge on breathing exercise has got increased after SIM. The paired t-test was carried out and the results (t-value = 2.47, df=59 & P<0.0001) significant. The knowledge assessed through entire tool on an over-all was also statistically significant at 0.0001 levels. **Conclusion:** The findings reveal that educating patients remarkably increased their knowledge

**Keywords:** Impact, Asthma Education, Self-Care Management, Adult Asthmatics

#### INTRODUCTION

Asthma is a very common long-term condition that affects the airways and breathing. Asthma can be deadly, if it is not controlled and treated. Bronchial asthma is a disease that affects millions of people in all ages and races. Asthma symptoms can be substantially

reduced by avoiding known triggers and substances that irritate the airways. Bedding can be covered with "allergy proof" casings to reduce exposure to dust mites. Removing carpets from bedrooms and vacuuming regularly is also helpful.(1)

In the global prevalence, morbidity, mortality, and economic burden associated with asthma over the last 40 years. Approximately 300 million people worldwide currently have asthma, and prevalence in India was 52% men and 48% women were aged between 15-34 years and 10% individuals were aged 65 years or more. Prevalence was relatively higher among female respondents of urban area in Delhi, Chandigarh and Karnataka. The prevalence of asthma has increased significantly since 1970s. As of 2009, 300 million people were affected worldwide. In 2009 asthma caused 250,000 deaths globally. More than 90 million American are expected to have asthma an immune disorder that affects the muscles around the bronchial tube leading to the lungs.(2)

If persons are diagnosed with asthma, it is very important to reduce and prevent the symptoms preventive measures include; having a healthy diet and nutrition, exercise and managing the environment, to eliminate triggers .This would help the patient to maximize lung function. So home care management of bronchial asthma is health education and awareness of the disease and its management it includes life style modification ,diet management, breathing exercise, follow-up care, preventive measures like avoidance of allergens exposure and air- pollution,. These are the information, to improve the patient knowledge to control their asthma attacks and predict their signs and symptoms of bronchial asthma in home setting. In this study the pretest assess the existing knowledge of bronchial asthma patients regarding the exercise to prevent asthmatically attack. The output is the result of changes in knowledge found among the bronchial asthma patient after a post-test regarding breathing exercise to prevent asthmatically attack interpreted as inadequate knowledge, moderately adequate knowledge and adequate knowledge. In this study a feedback is necessary to those who belong to the group that falls under inadequate and moderately adequate knowledge group subsequently sessions and follow-up will increase their knowledge.

## METHODOLOGY

The research design selected for the present study was cross sectional design. The study was conduct in the SMS hospital Jaipur and target population of the study is selected bronchial asthma patient admitted in the

general ward or visit to OPD in the SMS hospitals as available at the time of conducted study during May – June 2010. In present study, 60 bronchial asthma patients between 20-60 years age group was included. Convenient sampling technique, which is a non-probability judgment sampling, was used to select the sample for the study. The bronchial asthma patients who are critically ill were excluded. Cases having other significant broncho-pulmonary diseases associated with asthma, for example, tuberculosis, bronchiectasis, viral infections, bronchiolitis, and patients not willing to participate in the study were excluded from the study.

Diagnosis of asthma in selected was based upon GINA Guidelines (3). Wheezing, high pitched whistling sound when breathing out with history of any of the following: Course worse particularly at night, recurrent wheeze, recurrent difficult breathing, recurrent chest tightness, family history of any allergy or bronchial asthma. The patients were evaluated for confirmation of diagnosis of bronchial asthma with the help of history, examination, and spirometry before and after bronchodilators inhalation.

The Questioning technique was selected for the study to assess the knowledge of bronchial asthma patients regarding bronchial asthma & breathing exercises. It is considered to the most appropriate tool to elicit response from the patients. The tool was developed by the investigator with his personal and professional experience and with related review of literature, like books. Journals, periodicals, and published research studies and mass education media and developed tool was refined and validated by the subject's experts. The instrument used for this study was knowledge questionnaire consists of demographic variables and Knowledge questionnaire regarding Asthma and breathing exercise. The components included in the Self-instructed module are: General information, Define Asthma, Causes of the asthma, Breathing, exercise and its types. Goal and importance of breathing exercise, Precautions of breathing exercise. Self-instructional module (SIM) regarding breathing exercise to prevent bronchial asthma is distributed to the sample population. Post-test was conducted minimum after 15 days with similar Questionnaire

after the implementation of SIM to evaluate the knowledge of bronchial asthma patients.

Information regarding demographic data was collected from selected patients on 6 variables based upon their answers a tick mark (✓) is put for the appropriate option of each items. The knowledge and breathing exercise related part were had total of 21 statements each correct responses carried score one and each wrong response scored zero. The cut off level of < 50% was Inadequate knowledge, 51-75% was Moderately adequate knowledge and > 75% was considered adequate knowledge about asthma & breathing exercise.

A pre-test was done to establish the reliability and to determine the language clarity and using split half method with accessed feasibility of the tool. Reliability of the tool for knowledge statement was found to 0.92 means  $r=0.92$ .

The proposed study was conducted after the approval of research committee of the college Permission was obtained from the concerned authority of the SMS hospital. The oral consent of each individual was obtained before data collection. Assurance was given to the study participants regarding the confidentiality of the data collected.

**Statistical Data Analysis:** Statistical analysis was performed using SPSS Software version 10. Descriptive statistics were calculated. Mean, median, mode, standard deviation and range were calculated for qualitative variables as mentioned above. Frequencies and percentages were calculated for qualitative variables as mentioned above. Comparison of variables was done using chi-square test. P value <0.05 was considered as significant.

## RESULTS

Table-1 shows that the selected Bronchial asthma patients were more (41.7%) in age group of 50-60 yrs. A majority, 61.7% was found to be male Bronchial asthma patients. The frequency and percent of study subjects according to their educational status, nearly one third (30%) of the subjects were illiterates and 70% were educated.

A majority, 55% was found to be Bronchial asthma patients are vegetarians and 38.3% were having

monthly income of below 4500 Rs. / month. Over all they were earning poor income per month, & distribution of subjects by their occupation.

With regard to the overall knowledge regarding identifying measures taken to avoid triggers 28 (48.33%) have below average level of knowledge, 37 (61.67%) have average level of knowledge and none of them have above average level of knowledge.

With regard to the knowledge regarding identifying the warning signs of asthma and measures taken to prevent acute attack of asthma 44 patients (77.33%) have below average level of knowledge, 14 (23.33%) have average level of knowledge, 2 (3.33%) have above average level of knowledge. With regard to knowledge regarding regular medications, 37 (61.67%) patients have below average level of knowledge, 21 (35.0%) have average level of knowledge, 1 (3.33%) have above average level of knowledge. With regard to overall knowledge regarding home management of asthma, 35 (58.33%) patients have below average level of knowledge, 23 (38.33%) have average level of knowledge and two of them have above average level of knowledge.

The results were shown in the table 2, the paired mean difference of knowledge on Asthma before and after SIM was 7.6 and it was statistically significant at 0.0001 level (i.e.,  $P<0.0001$ , highly significant).

Similarly knowledge on breathing exercise has got increased after SIM. The paired t-test was carried out and the results ( $t$ -value = 2.47,  $df=59$  &  $P<0.0001$ ) significant. The knowledge assessed through entire tool on an over-all was also statistically significant at 0.0001 level ( $t$ -value=.248,  $df=59$ ,  $P<0.0001$ ).

**Discussion:** Despite a great availability of specific drugs and improvement in technology, prevalence of asthma is still increasing. Using a positive family history of asthma could provide a basis for targeted prevention efforts, aimed at reducing exposure to environmental risk factors (4). Though it is a manageable condition, the suffering of asthma patients is not in control. The reasons may be many, but mainly due to inadequate health communication, patients' unawareness of the disease process, preventive measures to avoid acute attacks, and the measures to be adapted for effective maintenance at home (5-6).

In present study, knowledge of the Self-instructional module bronchial asthma patients on breathing exercise before the administration of the Self-instructional module was very low and significantly increased the knowledge of bronchial asthma patients regarding asthma breathing exercises. Such type of results also presented in Behara D, Kaur S (2006) conducted study and results showed a significant improvement in knowledge and symptoms in the study group as compared to controls after adjusting for various confounding variables( $p<0.001$ ). The results have shown that there was statistically significant decrease in the number of severe attacks, number of emergency visits in the experimental group as compared to the control group. It was concluded that the self-care manual was effective in self-management of bronchial asthma.(7)

Butz AM et al (2005) did a study on home based asthma self-management education and findings shows that home based asthma education intervention can be effective for improving symptom identification and appropriate use of medication in adult with asthma.(8)

Zhoax, Furbers, BaumanA (2002) in their study on asthma knowledge and medication compliance among caregivers of asthmatic patient in China and study has identified the need for accurate and upto date information on asthma for care givers as well as programs aimed at teaching their skills in managing their relatives.(9)

Mizuchi T, Kida K (1997) conducted a study on self-management of bronchial asthma and study revealed that fewer patients were admitted due to mild or moderate asthma attacks after a period of intensive personal education (10)

The present study assesses the effectiveness of educational intervention on the clients' knowledge regarding self-care management of bronchial asthma. The findings indicate that educational intervention was an effective method of influencing knowledge of the subjects, thus aids in behavior modification and enhancing self-control over the disease condition. Usually, asthma patients on their diagnosis and follow up visits were not provided with adequate information on disease process, symptom and trigger identification,

preventive measures and proper self-care monitoring of disease control and self-care management. If patients understand the risks of non-compliances and the benefits of compliance, and believe the treatments are safe, it will increase their motivation and confidence to improve their self-management practices. The study concludes that adequate patient education is the key to successful and effective asthma management.

## CONCLUSION

The Self-instructed module based education was found to be effective in the increasing knowledge of bronchial asthma patients regarding healthy breathing exercise to prevent and control bronchial asthma attack. It can therefore utilize by health professionals especially nurses for health education in various health settings.

## REFERENCES:

1. Joyce.M.Black, JaneHokanson. Hawks. Medical Surgical Nursing. 7thedition. st.Louis: Elsevier publications; 2007. p. 266-90.
2. Sidney.S.Braman,MD,FCCP,The global burden of asthma, July 2006 vol.130 no.1suppl 45-125.available on <http://chestnet.org>
3. <https://ginasthma.org/2018-gina-report-global-strategy-for-asthma-management-and-prevention/>
4. Burke, W., Fesinmeyer, M., Reed, K., et al. (2003) Family History as a Predictor of Asthma Risk. American Journal of Preventive Medicine, 24, 160-169. [http://dx.doi.org/10.1016/S0749-3797\(02\)00589-5](http://dx.doi.org/10.1016/S0749-3797(02)00589-5)
5. Elder, W., Ege, M.J. and von Mutius, E. (2006) The Asthma Epidemic. The New England Journal of Medicine, 355, 2226-2235. <http://dx.doi.org/10.1056/NEJMra054308>
6. Evans, G.W. and Kantrowitz, E. (2002) Socioeconomic Status and Health: The Potential Role of Environmental Risk Exposure. Annual Review of Public Health, 23, 303-331. <http://dx.doi.org/10.1146/annurev.publhealth.23.12001.112349>
7. Behara D.et al., Evaluation of self-care manual in bronchial asthma. Indian J Chest Dis Allied Sci. 2006 Jan-Mar; 48(1): 43
8. Butz AM,syron K,Johnson B,Spaulding J,Walker M,Bollinger ME.Home -based Asthma Self

management education for innercity children, Journal of public health nurse, 2005 May;22(3):189-199

9. Zhao X, Furber S, Bauman A, Asthma knowledge and medication compliance among parents of Asthmatic children in Naujing. Journal of Asthma, 2002 Dec;39(8): 743-76): 482
10. Mizuchi T, Kida K. Self management of bronchial asthma and emergency admissions due to acute asthma attacks in the elderly. Nippon Ronen Igakkai Zasshi. 1997 Jun; bronchial asthma patients. Prof Nurse 2002;17:504-507.[Medline].nahc.org/consumer/hcstats.html

**Table-1: Distribution of subjects by Demographic characteristics**

S.No.	Demographic characteristics	Frequency	%
<b>1</b>			
<b>1.1</b>	20 – 30	7	11.7
<b>1.2.</b>	31 – 40	10	16.6
<b>1.3.</b>	41 – 50	18	30
<b>1.4</b>	51 – 60	25	41.7
<b>2</b>			
<b>2.1</b>	Male	37	62
<b>2.2</b>	Female	23	38

<b>3</b>			<b>Education</b>	
<b>3.1</b>	Illiterate	18	30	
<b>3.2</b>	Primary school	9	15	
<b>3.3</b>	Middle school	13	21.7	
<b>3.4</b>	High school	9	15	
<b>3.5</b>	Degree & above	11	18.3	
<b>4</b>			<b>Diet</b>	
<b>4.1</b>	Vegetarian	33	55	
<b>4.2</b>	Non-vegetarian	27	45	
<b>5</b>	Monthly family income			
<b>5.1</b>	<4500	23	38.3	
<b>5.2</b>	4501-6500	16	26.6	
<b>5.3</b>	6501-8500	13	21.7	
<b>5.4</b>	8501-10500	4	6.7	
<b>5.5</b>	>10500	4	6.7	
<b>6</b>			<b>Occupation</b>	
<b>6.1</b>	Industry worker	17	28.3	
<b>6.2</b>	House-wife	13	21.7	
<b>6.3</b>	Agriculture	7	11.7	
<b>6.4</b>	Business	9	15	
<b>6.5</b>	Govt job	12	20	
<b>6.6</b>	Others	2	3.3	

**Table-2: Statistical inference of Post-test and Pre-test knowledge scores**

S. No.	Knowledge	Pre		Post		Paired mean difference	t-value	P-value
		Mean	SD	Mean	SD			
1	Asthma	7.6	2.42	16.9	1.9	9.3	2.47	0.0001
2	Breathing exercise	9.25	2.31	10	2.1	0.75	0.34	0.0001
3	Over all	8.22	2.4	13.5	2	5.28	0.248	0.0001