

A study to assess the effectiveness of yoga on selected physiological variables among patients with bronchial asthma in Guru Shri Gorakshnath Hospital, Gorakhpur

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Abstract:

Background: Asthma is a Greek word which means breathless or to breath with open mouth. Global strategy for asthma management and prevention guidelines defines asthma as a chronic inflammatory disorder of the airway associated with increased airway hyper responsiveness, recurrent episodes of wheezing, breathlessness and chest tightness.¹ Asthma affects an estimated 300 million individuals worldwide, disability adjusted life years and 250000 asthma deaths are reported worldwide. Approximately 5,00,000 annual hospitalizations (34.6% in individuals aged 18 years or younger) are due to asthma. The cost of illness related to asthma is around 6.2 billion dollars. Each year on estimated 1.81 million people (47.8% in individuals aged 18 years or younger) require treatment in the emergency department.² Yoga is in a state of growth as a form of exercise, yet the current research on the health benefits of yoga is limited in its presentation. The purpose of the current study is to explore the various health benefits of yoga while also considering other exercise forms. The aim is to uncover yoga's holistic approach to exercise and its potential as a complementary alternative option within healthcare.³

Materials and Methods: The Quantitative research study was conducted using quasi experimental, non-equivalent control group pre-test and post-test design. The study was conducted in from Guru Shri Gorakshnath Hospital at Gorakhpur. Sample size is 60. The researcher conveniently selected the study participants those who fulfilled the inclusion criteria.

Results: The analysis of pre-test in the study group 21(70%) had mild respiratory distress, 9(30%) had moderate respiratory distress and none of them had no and severe distress. During the post-test, in study group, 29(96.6%) had no respiratory distress, 1(3.3%) had mild respiratory distress and none of them had moderate distress and severe distress. The result of the study showed that there was a significant difference in pre-test and post test level of respiratory parameters among sample.

Conclusion: The conclusion of the study was the yoga was effective on physiological variables and clinical variables among patients with bronchial asthma.

Key Word: Asthma; Respiratory distress; Yoga; Healthcare.

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I. Introduction

Yoga is in a state of growth as a form of exercise, yet the current research on the health benefits of yoga is limited in its presentation. The purpose of the current study is to explore the various health benefits of yoga while also considering other exercise forms. The aim is to uncover yoga's holistic approach to exercise and its potential as a complementary alternative option within healthcare. Asthma is one of the world's most common long-term diseases. The asthma is estimated to affect 300 million people worldwide, a number that could increase by further 100 million by 2025 over 50 million people in central and southern Asia have asthma (global burden of asthma report).¹The prevalence of asthma is predicted to increase rapidly the coming year. The increase is likely to be particularly dramatic in India, which is projected to become the world's most population's nation by 2050.²The prevalence of Asthma has increased markedly in recent years, with up to three folds increases seen among people in southern Asia over last two decades about 10 out of every 100 people in India have asthma (world asthma day report 2008). The practice of yoga that has been widely embraced in the West is comprised of four essential components: asana or physical postures, pranayama or breathing technique, dhyana or meditation, and savasana or relaxation.³ The branch of yoga with which Americans are most familiar is known as Hatha yoga. Hatha yogic style consists of the integration of these four practice features. India has an estimated 15 - 20 million asthmatics. In the western pacific region of WHO the incidence varies from over 50% among children in Caroline island to virtually zero in Papua New Guinea.⁴The nurses are in a position to

identify the people knowledge, attitude and management of asthma. This will enable the nurse to plan with specialized service to help the people to understand about asthma and its management. That will make a significant difference in the prevalence of this disease affecting the health of the people.⁵

II. Material and Methods

The study was conducted on patients with asthma in Guru Shri Gorakshnath Hospital. Study was conducted on 60 patients who were divided into experimental and control group. Data was collected for a period of 5 weeks.

Study Design: Non-equivalent control group pre-test and post-test design.

Study Location: The study was conducted in Guru Shri Gorakshnath Hospital.

Sample size: 60 patients (Patients were equally divided into experimental and control group).

Subjects & selection method: Convenient sampling was used in selection of patients.

Inclusion Criteria

- Patients aged between 21-40 years with bronchial asthma and admitted in the hospital for 5 days.
- Patients who can understand and speak Hindi or English.
- Patients who are able to do yoga.
- Patients who are willing to participate.

Exclusion Criteria

- Patients who are critically ill.
- Patients with any congenital defects of mouth and nose like cleft lip and cleft palate and saddle nose.

Procedure methodology

The patient was encouraged to do yoga 2-3 times a day for 5 consecutive days and each time it takes 40 minutes for asana. In study group, the intervention of yoga was taught to the patient and made them to do the exercises daily for 40 minutes for five consecutive days. The researcher asked the patient to inhale deeply from the lungs and blow out, initially for 20 seconds and gradually increase. The patient was observed by the researcher in every session. In control group, the existing hospital routine was practiced. On the 6th day the researcher did post-test to assess the selected physiological variables among patient measured by observational checklist in both study and control group. On the day of discharge, the researcher educated about yoga to control group patient and encouraged to practice regularly to improve lung function. The data were collected and analyzed by using descriptive and inferential statistics. Tools were divided into three parts which are as follows:

Part-I

Socio-demographic variables: Age, gender, education, type of family, order of birth, religion, residence, income and occupation.

Part -II

Clinical variables: Frequency of asthmatic attack and previous habits of doing yoga.

Part-III

Observational checklist to assess selected respiratory parameters. It consists of 10 items including respiratory rate, heart rate, temperature, oxygen saturation, chest retractions, breath sounds, and use of accessory muscles, cough, nasal flaring and dyspnea. Based on the severity of respiratory parameters the scoring was described as follows. (Maximum score was 4 and Minimum score was 1)

- No respiratory distress.
- Mild respiratory distress.
- Moderate respiratory distress.
- Severe respiratory distress.

Statistical analysis

Analysis is the systematic organization and synthesis of research data and the testing of research hypothesis using that data⁷. It was decided to analyse the data using both descriptive and inferential statistics on the basis of objectives and hypothesis of the study. To complete the data a master score sheet was prepared by the investigator.

III. Result

The results of the study were as follows:-

Table no. 1:- Frequency and percentage distribution of sample based on Demographic variables and clinical variables in study group and control group

S.no.	Demographic variables	Study group (n = 30)		Control group (n = 30)		
		F	%	f	%	
1	Age					
	a) 21-30years b) 31-40years	19 11	63.3 36.6	17 13	56.6 43.3	
2	Gender					
	a) Male b) Female	15 15	50 50	10 20	33.3 66.6	
3	Education					
	a) Elementary b) Primary	19 11	63.3 36.6	17 13	56.6 43.3	
4	Type of family					
	a) Nuclear	13	43.3	13	43.3	
	b) Joint	17	56.6	17	56.6	
	c) Extended d) Separated	0 0	0 0	0 0	0 0	
5	Order of birth					
	a) First b) Second c) Third	12 16 2	40 53.3 6.6	14 15 1	46.6 50 3.3	
	6	Religion				
6	a) Hindu b) Christian c) Muslim d) Others	15 11 4 0	50 36.6 13.3 0	11 16 3 0	36.6 53.3 10 0	
	7	Residence				
		a) Rural b) Semi-urban	14 16	46.6 53.3	11 19	36.6 63.3
	8	Income				
a) <Rs.5000 b) Rs.5001-10000 c) >Rs.10000		0 13 17	0 43.3 56.6	0 22 8	0 73.3 26.6	
9		Occupation of father				
	a) Unemployed b) Coolie c) Private employee d) Government employee	1 13 14 2	3.3 43.3 46.6 6.6	0 10 20 0	0 33.3 66.6 0	
	10	Occupation of mother				
		a) Unemployed b) Coolie c) Private employee d) Government employee	24 0 6 0	80 0 20 0	24 0 4 2	80 0 13.3 6.6

11	Frequency of respiratory tract infection	6	20	11	36.6
	a) No	18	60	12	40
	b) 1-2times	6	20	7	23.3
	c) 3-4 times	0	0	0	0
	d) >4times				
12	Previous habit of balloon blowing	3	10	2	6.6
	a) Yes	27	90	28	93.3
	b) No				

Table no.2:- Comparison of pre-test and post-test in control and study group after the intervention: - represents the mean score on level of respiratory parameters among sample in study group (31.5), in control group (26.9) respectively. The estimated unpaired 't' test value was (7.65*), which is significant at $p < 0.05$. It shows the significant difference in the post-test level of respiratory parameters among sample in study group and control group.

n= 60

S.no	Group	Mean	Standard Deviation	Unpaired 't' value Table value	Table value
1	Study group (n=30)	31.5	5.438	7.65*	2.0
2	Control group (n=30)	26.9			

Table value $t = 2.0$, *significant at $p < 0.005$ level

IV. Discussion

The study was supported by number of research which showed that asthma is one of the most frequent respiratory disorders, as well as a major disease burden that costs billions of dollars worldwide. As a result, it's a good idea to look for an adjunct therapy to help with these issues. As a result, the primary goal of this research is to see how yoga affects patterns of clinical characteristics, peak expiratory flow rates, and medicine use in asthmatic patients. In both the case and control groups, the male to female ratio was 1:1, with 8 (66.7%) Christians and 9 (75.0%) farmers. The usage of salbutamol puffs was reduced by 66.7 percent, while the use of salbutamol tablets was reduced by 58.3 percent in the yoga group. In the yoga group, the PEFr increased by 10%, while it increased by only 2% in the control group. In the yoga group, there was a statistically significant reduction in day and night asthma attacks.⁶ Another study was conducted which showed that when the self-energizing force embraces the body with extension, expansion, and control, it is called 'prana'. The purpose of this study is to examine lung functions and diffusion capacity in bronchial asthma patients before and after a two-month yoga intervention. All patients' lung functions were measured at the start and again after two months. After yoga practice, the Transfer factor of the lung for carbon monoxide (TLCO), forced vital capacity (FVC), forced expiratory volume in 1st sec (FEV1), peak expiratory flow rate (PEFR), maximum voluntary ventilation (MVV), and slow vital capacity (SVC) of Group 1 subjects improved statistically significantly ($P < 0.001$). It was discovered that pranayama & yoga breathing and stretching postures help to improve respiratory endurance and calm the chest muscles.⁷

V. Conclusion

The findings revealed the following data which showed that from the result of the study, it was concluded that yoga was effective on physiological variables among patients of bronchial asthma. Patients of bronchial asthma develop attack of respiratory illness which causes 30-40% of hospitalization. So that the researcher concluded that yoga helps to reduce the length of hospital stay among patients of bronchial asthma. Yoga was not only cost effective, but also patients of bronchial asthma enjoy it as a recreational game and the patients were easily attracted towards it. In order to create health awareness, the researcher felt that more importance should be given for deep breathing exercise among patients of bronchial asthma further yoga enhances lung expansion and reduce the reoccurrence of respiratory illness.

References

- [1]. Chakravarthy S (2009) Prevalence of asthma in urban and rural people in Tamil Nadu National Medical Journal of India 15(5): 260-263.
- [2]. Joyce D P (2010) Effect of bedcovering system in children with asthma European Respiratory Journal 10(2): 361 - 366.
- [3]. Kamps A.W (2010) Bronchial asthma recent advances Indian Journal 67(4): 293 - 298.
- [4]. Dusser (2007) Mild Asthma an expert review on epidemiology Journal of Allergy 62 (8): 591.
- [5]. Arnold B et al. (1992). Toocheys "Medicine for nurses ". 14th edition Longman group limited, Churchill Livingstone publications.
- [6]. Sodhi C, Singh S, Dandona PK. Sodhi C, et al. Indian J Physiol Pharmacol. A study of the effect of yoga training on pulmonary functions in patients with bronchial asthma. 2009 Apr-Jun;53(2):169-74.
- [7]. Anandanand Swami, Varandani N. Therapeutic effects of Yoga in bronchial asthma, proc, seminar on yoga, science and man help at New Delhi. 1975.

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