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A study to assess the effectiveness of pranayama on asthma among patients with asthma in Narayana medical college hospital, Nellore

[1] Latha A. [2] Padma K, [3] Dr. Indira S.

[1] Professor Department of Medical Surgical Nursing, Narayana College of Nursing, Chinthareddypalem, Nellore, Andhra Pradesh, India.

[2] Asst. Professor Department of Medical Surgical Nursing, Narayana College of Nursing, Chinthareddypalem, Nellore, Andhra Pradesh, India.

[3] Principal Department of Medical Surgical Nursing, Narayana College of Nursing, Chinthareddypalem, Nellore, Andhra Pradesh, India.

Abstract

Background: Breathing is defined as the process of respiration during which air is inhaled into the lungs through the mouth or nose due to muscle contraction and then exhaled due to muscle relaxation. Asthma is a reversible, obstructive airway disease in which trachea & bronchi respond in a hyperactive way to certain stimuli. It is an intermittent or reversible type of obstructive lung disease in which there is narrowing of bronchial lumen. It is characterized by recurrent breathing problems and symptoms such as breathless ness, wheezing, chest tightness, and coughing.

Objective: To assess the effectiveness of pranayama on asthma among patients with asthma in Narayana medical college hospital, Nellore.

Materials and Methods: Quasi experimental research design and purposive sampling technique was followed which included 30 samples were used. Data was collected using asthma assessment scale. Data analysis was done with SPSS.

Results: majority of asthma patients 15 (50%) have moderate symptoms of asthma in pre test but in post test majority of patients 12 (40%) have intermediate and 15 (50%) have moderate symptoms of asthma.

Conclusions: The study concluded that by doing pranayama is very effective in reducing symptoms in asthma patients.

Keywords: asthma, breathing, wheezing

1. Introduction

Breathing is defined as the process of respiration during which air is inhaled into the lungs through the mouth or nose due to muscle contraction and then exhaled due to muscle relaxation. Asthma is a reversible, obstructive airway disease in which trachea & bronchi respond in a hyperactive way to certain stimuli. It is an intermittent or reversible type of obstructive lung disease in which there is narrowing of bronchial lumen. It is characterized by recurrent breathing problems and symptoms such as breathless ness, wheezing, chest tightness, and coughing [1].

Pranayama is the science of breath control. Pranayama means breathing with a pause between the inhalation and exhalation after assuming a comfortable position or asana. By maintaining the proper breathing technique we can control many respiratory disease especially asthma [2].

The studies have shown that pranayama breathing technique can control the asthma. According to Maharshi patanjali, pranayama is formed by two words. Prana and ayama, meaning a pause in the movement of breath.

Pran literally means to Breath forth and Ayama means to stretch or expand the breath. Practice of pranayama achieves the balance in the activities of these pranas, which results in healthy body and mind.

Benefits of Pranayama

- It increases the lung capacity.
- It increases o2 supply to all parts of the body.
- It increases the concentration of cognitive brain function.
- It increases the relaxation and calmness by releasing tension.
- It helps in control of emotions.
- It helps in improvement of abdominal and diaphragmatic strength [3].

Pre -Requisites of Pranayama

- A person practicing pranayama should sit in an erect posture.
- The place appropriate for practicing pranayama should be a well-ventilated one.
- The absolute duration of Puraka, Rechaka and Kumbhaka should be decided as per one's capacity.
- It should be practiced only after a gap of minimum 2hrs of light meal after 4hours of full meals.
- Pranayama can be practiced in the early morning and evening.
- The practice of pranayama should be effortless, without undue force, no suffocation should be experienced [4].

Surya Anauloma Viloma

- Sit in sukhasana.
- Inhalation and exhalation are carried out through right nostril only.
- Keep the left nostril closed all the time.
- Do the breathing for 9 rounds [5].

Anuloma viloma

- Sit in sukhasana.

- Using right hand and middle finger into your palm, leaving your thumb, right finger.
- Bring your thumb to the right side of your nose and your finger to the left side.
- Inhale in the left nostril, exhale in the right nostril, in hale in the right and again exhale in the left.
- Breathe 27 rounds alternatively starting from left.
- Remain in this totally relaxed condition for 5 to 10 minutes. Then open your eyes slowly, stretching the body, get up.

Kapalbhati
- **Step 1:** sit in sukhasna.
- **Step 2:** breathe in fully through nostrils and allow abdominal muscles
- **Step 3:** exhale with burst as far as possible by sucking the abdominal muscles inward and air rushing out of the nostril
- **Step 4:** allow the inhalation, automatically abdominal muscles expand.
- **Step 5:** do the active exhalation for 1 minute. (15 strokes/round)
- **Step 6:** the time taken for exhalation will decrease as you continue [6].

According to Global Asthma report 2014, asthma may affect as many as 334 million people today and prevalence is rising.
According to WHO, India has estimated 15-20 million asthmatics.
In Brazil and Peru the prevalence of asthma symptoms in children varies from 20-30%.
In Kenya it is 20%.
There are about 3 million asthmatics in Japan of whom 7% have severe and 30% have moderate asthma [7].
In Australia, one child in 6 under the age of 16 is affected.
Due to rapid industrialization and urbanization, the prevalence of asthma is predicted to increase rapidly in the coming years. The increase is likely to be particularly dramatic in India, which is projected to become the world's most populated nation by 2050

2. Objectives of the Study
- To assess the severity of asthma among patients with asthma.
- To assess the effectiveness of pranayama on patients with asthma
- To find out the association between the severity of asthma among patients with asthma with their selected socio - demographical variables.

3. Materials and Methods
- **Research Approach**: Quantitative research approach.
- **Research Design**: Quasi- experimental one group pre test-post test design will be adopted.
- **Setting:** The setting will be selected in Narayana Medical College Hospital, Nellore.
- **Population**: All patients with asthma.
- **Sample:** The samples consist of patient with asthma diagnosed by physician in Narayana Medical College Hospital.
- **Sample Size:** The sample size is 30 patients with asthma in Narayana Medical College Hospital, Nellore
- **Sample Technique:** Non-probability purposive sampling technique.

Criteria for Sample Selection

i) Inclusion criteria
- Patients who are aged above 30yrs
- Both gender.
- willing to participate
- Patients who are able to write and read English and Telugu.

ii) Exclusion criteria
- Patient who.
- Practice yoga.
- Have severe respiratory distress.

Description of Tool

i) Part-A: Socio demographic Variables

Age, gender, education, occupation, marital status, duration of illness, average no of attacks per annum, family history of asthma, if yes, specify------Any allergic history, if yes, type of allergy, information regarding pranayana on asthma

ii) Part-B: Asthma Assessment Scale

It includes 10 parameters. Respiration, pulse rate, chest expansion, Breath holding time. Lung function, night symptoms such as frequency of attack, general symptoms such as presence of wheezing, duration of cough, presence of breathlessness and medications.

4. Data analysis
Data was analysed by using descriptive and inferential statistics.
This chapter deals with analysis and interpretation of data. The data analysis based on the objectives of the study. The data was collected from pranayama on asthma among patients with asthma in Narayana Medical College Hospital Nellore.
- **Section--1** Frequency and percentage distribution of socio demographic variables of patients with asthma.
- **Section –II** Effectiveness of pranayama on asthma among patients with asthma
- **Section –III** Association between the post test Severity of asthma with selected socio demographic variables of pts with asthma.

5. Results
The results shows that frequency and percentage distribution with regard to age 6 (20%) asthma patients are between 30-40 years, 8 (26.7%) are between 41-50 years, 10 (33.3%) are between 51-60 years and 6 (20%) are above 60 years, regard to gender, 22 (73.33%) of asthma patients are males and 8 (26.67%) are females, regard to educational qualification, 6 (20%) studied primary education, 12 (40%) studied secondary education, 11 (36.7%) studied intermediate and 1 (3.3%) studied graduation, regard to occupation, 6 (20%) are house wives, 11 (36.7%) are coolies, 11 (36.6%) are farmers and 2 (6.7%) are private employees, regard to monthly family income 4 (13.3%) are below Rs.5000, 13 (43.3%) are between Rs.5001-7000 and 13 (43.4%) are between Rs.7001-9000, with regard to area of living 7 (23%) are in rural, 12 (40%) in urban, 10 (3.3%) in semi urban and 1 (3.4%) in slum areas. Regarding to history of allergy 14 (46.7%) says yes and 16

(53.3%) says no, with regard to duration of diagnosis 14 (46.7%) having 1 year experience and 16 (53.3%) having 1-3 years, regard to family history of asthma, 15 says yes and 15 says no.

Effectiveness of pranayama on asthma among patients with asthma

Category	Mean	Standard Deviation	paired
Pre test	17.46	4.58	C=14.95, T=2.05
Post test	9.66	4.79	Df=29, P=0.05 S

Severity of asthma symptoms

Severity	Pre Test		Post Test	
	F	%	F	%
intermediate	0	0	12	40
mild	9	30	15	50
moderate	15	50	2	6.7
severe	6	20	1	3.3
total	30	100	30	100

There is significant association between the socio demographic variables of area of living and history of allergy.
There is no significant association between the socio demographic variables of age in years, gender, education, occupation, and family income, no of family members, duration of diagnosis with asthma and family history of asthma

6. Discussion

The discussion of the present study was based on the findings obtained from the descriptive and inferential statistical analysis of collected data.

7. Major Findings of the Study

- With regard to age, 8 (26.6%) were between 41-50 years
- With regard to gender, 22 (73.4%) were males
- With regard to education, 12 (40%) had secondary education
- With regard to occupation, 11 (36.6%) were coolie
- With regard to family income per month,13 (43.3%) earn5001-7000Rsper month
- With regard to number of family members, 17 (56.7%) have 5 members
- With regard to area of living 12 (40%) live in urban
- With regard to history of allergy 16 (53.4%) had the history of allergy
- With regard to duration of diagnosis with asthma, 16 (53.4%)were have 1-3 years
- With regard to family history of asthma, 15 (50%) have family history of asthma

There is a significant association between the socio demographic variables of area of living and history of allergy.
There is no significant association between the socio demographic variables of age in years, gender, education, occupation, Family income, no of family members, duration of diagnosis with asthma and family history of asthma

8. Conclusion

The study concluded that majority of asthma patients have moderate symptoms of asthma in pre test but in post test majority of patients have intermediate and moderate symptoms of asthma so by doing pranayama on asthma patients is very effective in reducing symptoms on asthma.

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