

Research Article

A STUDY TO ASSESS THE EFFECTIVENESS OF BALLOON THERAPY ON RESPIRATORY STATUS OF PATIENTS WITH LOWER RESPIRATORY TRACT DISORDERS IN MEDICAL WARDS OF MGMC&RI, PUDUCHERRY

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ABSTRACT

Breathing is the bridge between mind and body, the connection between consciousness and unconsciousness. It is one of the important functions of our body. A person can only live from 5 to 10 seconds without taking another breath. Respiratory disease is a significant chronic health problem in our society. Chronic respiratory disease is found to be one of the most distressful conditions, badly affecting human life. The world Health Organization (2011) shows that by mid century, morbidity and mortality from respiratory diseases will reach record at high levels. The report of “ world health statistics 2011” says that, 235 million people currently suffer from asthma, 90% of COPD deaths occur in low and middle income countries and >3 million people died of COPD in 2005. The lower respiratory tract infection pneumonia remains that most common infection seen in the community and among hospitalized patient. National disease statistics (2011) worldwide shows a high prevalence of respiratory morbidity among patients with respiratory disorders. It says that COPD is the third leading cause of death in America. 12.7 million U.S adults (aged 18 and above) were estimated to have COPD, 10.1 million American reported chronic bronchitis and 4.7 million with emphysema. Most of the disease burden in India is due to the respiratory disorders namely asthma, bronchitis, and tuberculosis (TB) and pneumonia. It is the process of blowing a commercially available balloon obtained from the same pack for a diameter of 7 inches for a frequency of 8 to 10 times a day for 6 consecutive days. The balloon will be given with a measuring wire of 7 inches. A recording sheet is provided to the patients to document the frequency of the therapy. Quantitative research approach with pre experimental one group pre -test and post-test research design was selected for this study. The study sample comprises of patient with lower respiratory tract disorders admitted in medical wards of MGMC &RI. The respiratory status of the patient was assessed by using respiratory rate, lung volume assessed by spirometry, and dyspnoea scale with a grading score. After pre-test, balloon therapy given, duration of 6 days 8 times in a day. On the seventh days the post test was assessed by the same tool. Therefore the finding of the study revealed the importance of balloon therapy showed improvement in the respiratory status among lower respiratory tract disorders patients. The study participant gets benefited by participating in this study.

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INTRODUCTION

Breath is the key to health and wellness, a function can learn to regulate and develop in order to improve our physical, mental and spiritual wellbeing. A person can only live from 5 to 10 seconds without taking another breath. Chronic respiratory disease is found. It is the process of blowing a commercially available balloon obtained from the same pack for a diameter of 7 inches for a frequency of 8 to 10 times a day for 6 consecutive days. The balloon will be given with a measuring wire of 7 inches. A recording sheet is provided to the patients to document the frequency of the therapy.

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Need for the study

According to the report on centre for disease control (2008), respiratory disease is the third leading cause of the death in the United States (US). Over 35 million people in the United States are living with lung disease and one in seven people die from it each year. Respiratory disease accounts for the 14% of total expenditure for health care in the United States (health people, 2010). National disease statistics (2011) worldwide shows a high prevalence of respiratory morbidity among patients with respiratory disorders. It says that COPD is the third leading cause of death in America. 12.7 million U.S adults (aged 18 and above) were estimated to have COPD, 10.1 million American reported chronic bronchitis and 4.7 million with emphysema. According to American lung association almost

400,000 people die from respiratory disease in each year. In the United States, approximately 14.2 million people have been diagnosed with COPD, 12.5 million people have chronic bronchitis, and 1.7 million people have emphysema.

Table 1. Frequency and percentage wise distribution of the respiratory status among patients with lower respiratory tract disorders with selected demographic variables

S.No	Demographic variables	Frequency	Percentage
1.	Age		
	a) 20-40	4	20
	b) 41-60	13	65
	c) 61& above	3	15
2.	Gender		
	a) Male	13	65
	b) female	7	35
3.	Educational status		
	a) illiterate	5	25
	b) primary	12	60
	c) secondary	2	10
	d) graduate	1	5
4.	Occupational status		
	a) Unemployed	5	25
	b) Self employed	15	65
	c) Employment in public sector	2	10
	d) Employment in private sector	0	0
5.	Area of work		
	a) Cotton industry	0	0
	b) Chemical industry	0	0
	c) Mining industry	0	0
	d) Others	20	100
6.	Duration of illness		
	a) < 2 Years	10	50
	b) 2-3 years	8	40
	c) >2 years	2	10
7.	Types of workers		
	a) Sedentary workers	5	25
	b) Moderate workers	12	60
	c) Heavy workers	3	15
8.	Presence of co-morbid illness		
	a) Anaemia	5	25
	b) Ischemic heart disease	4	20
	c) Thyroid disorders	1	5
	d) None	10	50
9.	Habit of smoking		
	a) Yes	8	40
	b) No	12	60
10.	Habit of tobacco chewing		
	a) Yes	16	80
	b) No	4	20
11.	Alternative therapy practices		
	a) Ayurvedha	0	0
	b) Homeopathy	0	0
	c) Naturopathy	0	0
	d) Siddha	1	5
	e) Unani	0	0
	f) None	19	25
12.	Medication intake		
	a) Bronchodilators	14	70
	b) Antibiotics	5	15
	c) NSAIDS	1	5
13.	Life style practices		
	a) Breathing	1	5
	b) Aerobic	0	0
	c) Yoga	4	20
	d) Meditation	0	0
	e) Others	15	75

Objectives

- To assess the respiratory status of patients with lower respiratory tract disorders during pretest.
- To evaluate the effectiveness of balloon therapy on respiratory status of patients with lower respiratory tract disorders during post-test.

- To find out the association between respiratory status of the patient with lower respiratory tract disorders and selected demographic variables.

Hypothesis

H01: There is no significant difference in the pre test and post test score in the respiratory status of the patients with lower respiratory tract disorder with balloon therapy.

H02: there is no significant association between the respiratory status of patients with lower respiratory tract disorders and selected demographic variables.

Assumptions

- Proper utilization of balloon therapy will improve the respiratory status.
- Awareness regarding the effects of balloon therapy will enable the general population to maintain normal respiratory status.
- Nurses play an important role in creating awareness about balloon therapy among patients with respiratory disorders in preventing complications.

MATERIALS AND METHODS

Quantitative research approaches with pre experimental one group pre -test and post-test research design was selected for this study. The study sample comprises of patient with lower respiratory tract disorders admitted in medical wards of MGMC&RI. The respiratory status of the patient was assessed by using respiratory rate, lung volume assessed by spirometry, and dyspnoea scale with a grading score. After pre-test, balloon therapy given, duration of 6 days 8 times in a day. On the seventh days the post test was assessed by the same tool.

Inclusion criteria

- Patient with age of 20- 60 years.
- Both the sexes.

Exclusion criteria

- Patient who were not willing to participate.
- Patient with oral lesions.
- Patient who cannot follow the instruction. E.g deaf and dumb, psychiatric patients and blind patients.
- Patient who had chronic diseases like cancer, congestive cardiac failure etc...

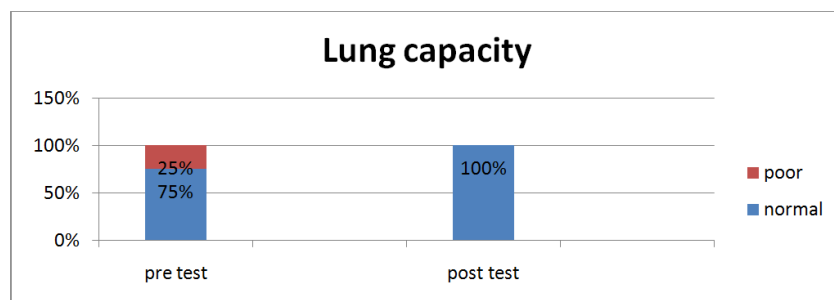
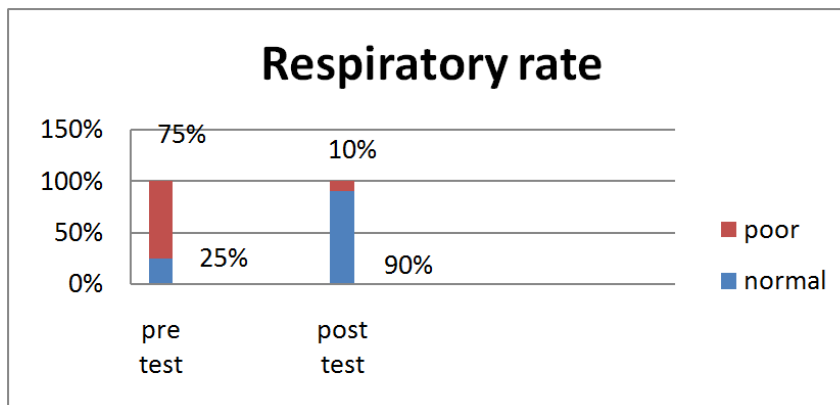
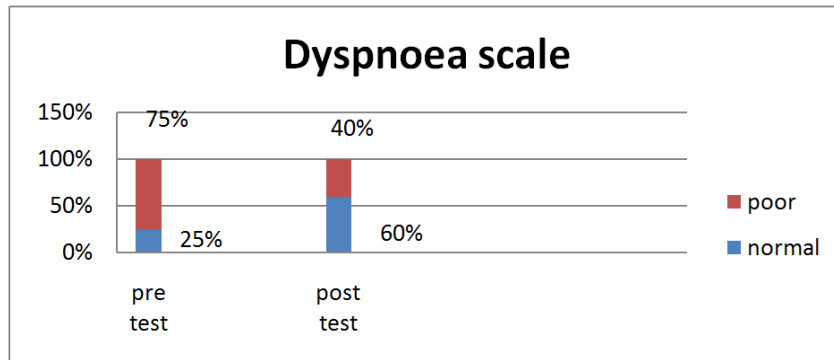
Description of the tool

Part-I: It consist of demographic variables such as age, sex, education status, occupational status, area of work, duration of illness, smoking, habit of tobacco chewing, alternative therapies, medication and exercises.

Part-II: It consist of structured criteria which includes the respiratory rate, lung volume assessed by spirometry, and dyspnoes scale with a grading score was provided with the structured criteria. A checklist was given to patients to document the performance of balloon therapy every hour at 8am – 5pm for 8 times a day.

Table 2. Frequency and percentage wise distribution of pre-test and post test scores of respiratory rate, dyspnoea scale and lung capacity among patients with lower respiratory tract disorders.

S.No	Respiratory status	Pre test		Post test		Pre-test vs post test
		Frequency	Percentage	Frequency	Percentage	P value
1.	Respiratory rate					
	a) Normal	5	25	18	90	0.000
b) poor	15	75	2	10		
2.	Dyspnoea scale					
	a) normal	5	25	12	60	0.008
b) poor	15	75	8	40		
3.	Lung capacity					
	a) normal	15	75	20	100	0.025
b) poor	5	25	0	0		



RESULTS

- In the pretest the respiratory status of the patient with lower respiratory tract disorder was assessed by respiratory rate, MMRC (Modified medical research council dyspnoea scale and incentive, shows that out of 20 samples 5(25%) of them had normal respiratory rate, 15(75%) of them had poor respiratory rate. With regard to dyspnoea scale 5(25%) were dyspnoeic and 15(75%) were non-dyspnoeic. With regard to lung capacity 15(75%) shows normal lung capacity and 5(25%) shows poor lung capacity.
- On conducting post test to the selected 20 samples 18(90%) was found to have normal respiratory rate, 2(10%) was found to have poor respiratory rate. With regard to dyspnoea scale 12(60%) was found to be non dyspnoeic, 8(40%) were dyspnoeic. With regard to lung capacity 20(100%) was found to have adequate lung capacity. This shows improvement in respiratory status of patients with lower respiratory tract disorders after balloon therapy.
- There are 13 demographic variables such as age, gender, education status, occupation status, area of work, duration of illness, type of workers, co-morbid illness,

Table 3a. Association of respiratory rate with selected demographic variables

S.No	Demographic variables	Respiratory rate of patients with lower respiratory tract disorder				X2 value
		poor		adequate		
		F	%	F	%	
1.	Age					X2 = 3.419 df=2 p= 0.181 NS**
	a. 20-40	3	11	1	5	
	b. 41-60	11	55	2	10	
2.	c. 61& above	1	25	2	10	X2= 3.590 df= 1 p= 0.058 S*
	Gender					
	a) Male	8	40	5	25	
3.	b) female	7	35	0	0	X2= 4.711 df= 3 p= 0.194 NS**
	Educational status					
	a) illiterate	3	15	2	10	
4.	b) primary	10	50	2	10	X2 = 0.759 df= 2 p= 0.684 NS**
	c) secondary	2	10	0	0	
	d) graduate	0	0	1	5	
	Occupational status					
5.	a) Unemployed	4	20	1	5	X2= 0 df= 0 p= 0 NS**
	b) Self employed	10	50	3	15	
	c) Employment in public sector	1	5	1	5	
	d) Employment in private sector	15	75	5	25	
6.	AREA OF WORK					X2= 0.800 df= 2 p= 0.67 NS**
	a) Cotton industry	0	0	0	0	
	b) Chemical industry	0	0	0	0	
	c) Mining industry	0	0	0	0	
7.	d) Others	15	75	5	25	X2= 1.156 df=2 p= 0.561 NS**
	Duration of illness					
	a) < 2 Years	7	35	3	15	
8.	b) 2-3 years	6	30	2	10	X2= 2.400 df= 3 p= 0.494 NS**
	c) >2 years	2	10	0	0	
	Types of workers					
9.	a) Sedentary workers	3	15	2	10	X2= 1.111 df= 1 p= 0.292 NS**
	b) Moderate workers	10	50	2	10	
	c) Heavy workers	2	10	1	5	
	Presence of co-morbid illness					
10.	a) Anaemia	3	15	2	10	X2= 3.541 df= 3 p=0.141 NS**
	b) Ischemic heart disease	4	20	0	0	
	c) Thyroid disorders	1	5	0	0	
	d) None	7	35	3	15	
11.	Habit of smoking					X2= 3.541 df= 3 p=0.141 NS**
	a) Yes	7	35	1	5	
12.	b) No	8	40	4	20	X2= 0.351 df=1 p= 0.554 NS**
	Alternative therapy practices					
	a) Ayurvedha	0	0	0	0	
	b) Homeopathy	0	0	0	0	
	c) Naturopathy	0	0	0	0	
	d) Siddha	1	5	0	0	
13.	e) Unani	0	0	0	0	X2= 0.495 df= 2 p= 0.781 NS**
	f) None	14	70	5	25	
	Medication intake					
14.	a) Bronchodilators	10	50	4	20	X2=2.222 df=2 p=0.329 NS**
	b) Antibiotics	4	20	1	5	
	c) NSAIDS	1	5	0	0	
	Life style practices					
	a) Breathing	1	5	0	0	
15.	b) Aerobic	0	0	0	0	X2= 2.222 df= 2 p= 0.329 NS**
	c) Yoga	4	20	0	0	
	d) Meditation	0	0	0	0	
	e) Others	10	50	5	25	

Table 3b. Association of dyspnoea scale with selected demographic variables

S.no	Demographic variables	Dyspnoea scale of patients with lower respiratory tract disorder				X2 value
		poor		adequate		
		F	%	F	%	
1.	Age					X2 = 6.188 df=2 p= 0.045 S*
	a) 20-40	2	10	2	10	
	b) 41-60	12	60	1	5	
	c) 61& above	1	5	2	10	
2.	Gender					X2= 3.590 df= 1 p= 0.058 S*
	a) Male	8	40	5	25	
	b) female	7	35	0	0	
3.	Educational status					X2= 4.711 df= 1 p= 0.194 NS**
	a) illiterate	3	15	2	10	
	b) primary	10	50	2	10	
	c) secondary	2	10	0	0	
	d) graduate	0	0	1	5	
4.	Occupational status					X2 = 1.908 df= 2 p= 0.385 NS**
	a) Unemployed	3	15	2	10	
	b) Self employed	11	55	2	10	
	c) Employment in public sector	1	5	1	5	
	d) Employment in private sector	0	0	0	0	
5.	Area of work					X2= 0 df= 0 p= 0 NS**
	a) Cotton industry	0	0	0	0	
	b) Chemical industry	0	0	0	0	
	c) Mining industry	0	0	0	0	
	d) Others	15	75	5	25	
6.	Duration of illness					X2 = 1.467 df= 2 p= 0.48 NS**
	a) < 2 Years	8	40	25	10	
	b) 2-3 years	5	25	2	10	
	c) >2 years	2	10	0	0	
7.	Types of workers					X2= 1.600 df=2 p= 0.449 NS**
	a) Sedentary workers	3	15	2	10	
	b) Moderate workers	9	45	3	15	
	c) Heavy workers	3	15	0	0	
8.	Presence of co-morbid illness					X2= 2.400 df= 3 p= 0.494 NS**
	a) Anaemia	3	15	2	10	
	b) Ischemic heart disease	4	20	0	0	
	c) Thyroid disorders	1	5	0	0	
	d) None	7	35	3	15	
9.	Habit of smoking					X2= 4.444 df= 1 p= 0.035 S*
	a) Yes	8	40	0	0	
	b) No	7	35	5	25	
10.	Habit of tobacco chewing					X2=0.000 df= 1 p=1 NS**
	a) Yes	12	60	4	20	
	b) No	3	15	1	5	
11.	Alternative therapy practices					X2= 0.351 df=1 p= 0.554 NS**
	a) Ayurvedha	0	0	0	0	
	b) Homeopathy	0	0	0	0	
	c) Naturopathy	0	0	0	0	
	d) Siddha	1	5	0	0	
	e) Unani	0	0	0	0	
	f) None	14	70	5	25	
12.	Medication intake					X2= 0.495 df= 2 p= 0.781 NS**
	a) Bronchodilators	10	50	4	20	
	b) Antibiotics	4	20	1	5	
	c) NSAIDS	1	5	0	0	
13.	Life style practices					X2=2.222 df=2 p=0.329 NS**
	a) Breathing	1	5	0	0	
	b) Aerobic	0	0	0	0	
	c) Yoga	4	20	0	0	
	d) Meditation	0	0	0	0	
	e) Others	10	50	5	25	

Table 3c. Association of lung capacity of patient with lower respiratory tract disorder with selected demographic variables

S.NO	DEMOGRAPHIC VARIABLES	Lung capacity of patients with lower respiratory tract disorder				X2 value
		poor		adequate		
		F	%	F	%	
1.	AGE					X2 = 1.675 df=2 p= 0.433 NS**
	a) 20-40	0	0	4	20	
	b) 41-60	4	20	9	45	
	c) 61& above	1	5	2	10	
2.	GENDER					X2= 0.073 df= 1 p= 0.787 NS**
	a) Male	3	15	10	50	
	b) Female	2	10	5	25	
3.	EDUCATIONAL STATUS					X2= 1.600 df= 3 p= 0.659 NS**
	a) illiterate	2	10	3	15	
	b) primary	3	15	9	45	
	c) secondary	0	0	2	10	
	d) graduate	0	0	1	5	
4.	OCCUPATIONAL STATUS					X2 = 1.292 df= 2 p= 0.524 NS**
	a) Unemployed	2	10	3	15	
	b) Self employed	3	15	10	50	
	c) Employment in public sector	0	0	2	10	
	d) Employment in private sector	0	0	0	0	
5.	AREA OF WORK					X2= 0 df= 0 p= 0 NS**
	a) Cotton industry	0	0	0	0	
	b) Chemical industry	0	0	0	0	
	c) Mining industry	0	0	0	0	
	d) Others	5	25	15	75	
6.	DURATION OF ILLNESS					X2 = 7.200 df= 2 p= 0.027 S*
	a) < 2 Years	1	5	3	15	
	b) 2-3 years	2	10	6	30	
	c) >2 years	2	10	0	0	
7.	TYPES OF WORKERS					X2= 1.600 df=2 p= 0.449 NS**
	a) Sedentary workers	2	10	3	15	
	b) Moderate workers	3	15	9	45	
	c) Heavy workers	0	0	3	15	
8.	PRESENCE OF CO-MORBID ILLNESS					X2= 0.533 df= 3 p= 0.912 NS**
	a) Anaemia	1	5	4	20	
	b) Ischemic heart disease	1	5	3	15	
	c) Thyroid disorders	0	0	1	5	
	d) None	3	15	7	35	
9.	HABIT OF SMOKING					X2= 0 df= 1 p= 1 NS**
	a) Yes	2	10	6	30	
	b) No	3	15	9	45	
10.	HABIT OF TOBACCO CHEWING					X2=1.667 df= 1 p=0.197 NS**
	a) Yes	3	15	13	65	
	b) No	2	10	2	10	
11.	ALTERNATIVE THERAPY PRACTICES					X2= 3.158 df=1 p= 0.76 NS**
	a) Ayurvedha	0	0	0	0	
	b) Homeopathy	0	0	0	0	
	c) Naturopathy	0	0	0	0	
	d) Siddha	1	5	0	0	
	e) Unani	0	0	0	0	
	f) None	4	20	3	15	
12.	MEDICATION INTAKE					X2= 4.457 df= 2 p= 0.108 NS**
	a) Bronchodilators	2	10	12	60	
	b) Antibiotics	2	10	3	15	
	c) NSAIDS	1	5	0	0	
13.	LIFE STYLE PRACTICES					X2=3.200 df=2 p=0.202 NS**
	a) Breathing	1	5	0	0	
	b) Aerobic	0	0	0	0	
	c) Yoga	1	5	3	15	
	d) Meditation	0	0	0	0	
	e) Others	3	15	12	60	

smoking habit, habit of tobacco chewing, alternative therapies, medication intake, and life style practices. Among these demographic variables there was a significant association found between the respiratory status and the selected demographic variables exist with age, gender, smoking habit and duration of illness at the p value of 0.05

Conclusion

The study concluded that out of 20 samples, each patient had an improvement in their respiratory status after the implementation of balloon therapy when compared to their pre test score. This shows that the regular practice of balloon therapy can improve the respiratory status to a great extent.

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