



Figure 5: Effectiveness of Balloon therapy on Lung capacity of patients with lower respiratory tract disorders

3.3 Association between respiratory status of patient with lower respiratory tract disorder and selected demographic variables

There was no significant association between respiratory rate and selected variables like age, education status, occupation status, area of work, duration of illness, type of workers, co-morbid illness, tobacco chewing habit, alternative therapies, and life style practices except Gender ($P < 0.05$). The Chi square test revealed that balloon therapy was more effective to improve the respiratory status of males than females.

Table 2: Association between dyspnea scale with selected demographic variables

S. N O	Demographic variables	Respiratory rate of patient with lower respiratory tract disorder				X ² value
		Poor		Adequate		
		F	%	F	%	
1	Age					X ² =6.188
	20-40	2	10	2	10	df=2
	41-60	12	60	1	5	P=0.045
	61 and above	1	5	2	10	S**
2	Gender					X ² =3.590
	Male	8	40	5	25	df=1
	Female	7	35	0	0	P=0.058
						S**
3	Educational status					X ² =4.711
	Non literate	3	15	2	10	df=1
	primary	10	50	2	10	P=0.194
	secondary	2	10	0	0	NS**
	graduate	0	0	1	5	
4	Occupational status					X ² =1.908
	Un-employed	3	15	2	10	df=2
	Self-employed	11	55	2	10	P=0.385
	Employment in public sector	1	5	1	5	NS**
	Employment in private sector	0	0	0	0	
5	Area of work					X ² =0
	Cotton industry	0	0	0	0	df=0
	Chemical factory	0	0	0	0	P=0
	Mining industry	0	0	0	0	NS**

	Others	15	75	5	25	
6	Duration of illness					X ² =1.467
	<2years	8	40	25	10	df=2
	2-3 years	5	25	2	10	P=0.48
	>2years	2	10	0	0	NS**
7	Types of workers					X ² =1.600
	Sedentary workers	3	15	2	10	df=2
	Moderate workers	9	45	3	15	P=0.449
	Heavy workers	3	15	0	0	NS**
8	Co-morbid illness					X ² =2.400
	Anemia	3	15	2	10	df=3
	IHD	4	20	0	0	P=0.494
	Thyroid disorder	1	5	0	0	NS**
	None	7	35	3	15	
9	Smoking Habit					X ² =4.444
	Yes	8	40	0	0	df=1
	No	7	35	5	25	P=0.035
						S**
10	Tobacco chewing habit					X ² =0.000
	Yes	12	60	4	20	df=1
	No	3	15	1	5	P=1
						NS**
11	Alternative therapies if any					X ² =0.351
	Ayurveda	0	0	0	0	df=1
	Homeopathy	0	0	0	0	P=0.554
	Naturopathy	0	0	0	0	NS**
	Siddha	1	5	0	0	
	Unani	0	0	0	0	
	None	14	70	5	25	
	Bronchodilators	10	50	4	20	
	Antibiotics	4	20	1	5	
NSAIDS						
12	Life style practices					X ²
	Breathing	1	5	0	0	=2.222
	Aerobic	0	0	0	0	df=2
	Yoga	4	20	0	0	P=0.32
	Meditation	0	0	0	0	9
	Others	10	50	5	25	NS**

s* significant, NS**-non significant

Table:2 describe the association between Dyspnea scale of patients with lower respiratory tract disorders and selected demographic variables. There was no association of respiratory rate with selected variables like education status, occupation status, area of work, duration of illness, type of workers, co-morbid illness, tobacco chewing habit, alternative therapies, and life style practices where as there was a significant association between age, gender and smoking habit at $p < 0.05$. It was clearly evident that there was a significant improvement seen in the dysnea score of non smokers than smokers after ballon therapy.

3.5 Association between lung capacity of patients with lower respiratory tract disorders and selected demographic variables

There was no significant association between lung capacity and selected demographic variables like age, gender, education status, occupation status, area of work, smoking habit, type of workers, co-morbid illness, tobacco chewing habit, alternative therapies, and life style practices. However there was a significant association found between duration of illness at $P < 0.05$ and lung capacity. It was clearly evident from the findings that patients who had

illness for less than 3 years showed more improvement in lung capacity after balloon therapy than those who were ill more than 3 years. Hence it showed that lung capacity decreases based on the duration of illness among patients with lower respiratory tract disorder.

4. Discussion

The main objective of the study was to evaluate the effectiveness of balloon therapy on respiratory status of patient with lower respiratory tract disorders during posttest. 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 dyspnea 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 patient with lower respiratory tract disorders after balloon therapy.

The findings of this study was supported by the study conducted by **Lai Dee et, al (1998)** on significance of regularly blowing up ordinary rubber balloons in people suffering from chronic lung disease. Randomly 22 participants with chronic bronchitis and emphysema were selected. In that, 11 women, 9 men with average age 65 were randomly assigned to the balloon blowing group and asked to inflate one new ordinary balloon to a diameter of 7 inches 40 times a day for 8 weeks. The rest 11 men whose mean age was taken as control group, without treatment. The study reported a significant reduction in breathlessness after regular balloon inflation.

5. Conclusion

The study findings clearly reveal that regular practice of balloon therapy improves the respiratory status of patients as there was a significant improvement in the respiratory status measured in terms of respiratory rate, dyspnea scale and lung capacity in patients with lower respiratory tract disorders who underwent balloon therapy. This simple cost effective intervention can also be considered as an alternative measure to improve the lung function among patients with respiratory disorders.

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