

EFFECTIVENESS OF BLOWING TARTY WHISTLE ON RESPIRATORY PARAMETERS AMONG CHILDREN WITH LOWER RESPIRATORY TRACT INFECTIONS ADMITTED IN A TERTIARY CARE HOSPITAL, PUDUCHERRY.

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ABSTRACT

Infections of lower respiratory tract still remain the leading cause of death among all infectious diseases, in children and they are responsible for 3.9 million deaths worldwide. Many breathing exercises helps to reduce the severity of respiratory signs and symptoms. A randomized controlled trial was conducted among 60 children with Lower respiratory tract infection. Samples were randomly assigned into experimental and control group with 30 subjects in each group. The respiratory parameters that included Respiratory rate, Breath sounds, oxygen saturation, use of accessory muscles and cough were assessed. The tarty whistle was blown regularly for a period of 5 days, 3 times in a day. The study group reveals that the experimental group showed significant results in the respiratory outcome in the significant level ($p < 0.001$) level when compared to the control group. Blowing tarty whistle is an effective method in improving the respiratory outcome.

Keywords: Children with Lower respiratory tract infection, Blowing tarty whistle, respiratory outcome, Breathing exercises.

INTRODUCTION:

Respiratory infection among children accounts for 4.5 million deaths every year globally, especially in the developing countries.¹ Respiratory infections tend to occur more frequent than other illnesses.² The overall incidence in children due to respiratory problems is 8.2%.¹ In Southeast Asia, it was estimated that respiratory illness caused 4 million child deaths annually which was nearly 2.6 million deaths among infants and 1.4 million deaths in children aged 1-4 years.¹ More than 90% of it occurred in developing countries.² In spite of the fact that most of the respiratory attacks are mild and self-limiting, respiratory illness is responsible for about 30-50% visits to health services and for about 20-40% admittances to hospital.³ The disability-adjusted life mislaid due to acute respiratory tract septicity in Southeast Asia is about 33 million.^{1, 3}

In India, acute respiratory septicity is too serious menace accounting for 14.3 per cent deaths in childhood period from infancy and 15.9 per cent deaths in the age group of children between 1-10 years.⁴ In Chennai, the prevalence has been increasing manifolds in the past few years.⁵ Nearly 30% of whole yearly deaths happen in children less than 5 years.⁴

The morbidity and mortality due towards respiratory sickness is mainly because of lower tract infections.¹ Recurrence of this infection can be regarded as >3 annual episodes of documented Bronchitis, Bronchiolitis and Pneumonia. These conditions are the main cause stay of hospital admissions and the most common cause of school absenteeism.⁵ There are 450 million belongings of pneumonia every year and that origins 3.9 million deaths.¹

child is a unique individual. The childhood period is vital because children are vulnerable to diseases, and prone to disability and death. Children with Lower respiratory tract ailments may feel uncomfortable.⁶ They are unable to carry out their normal activities, and this affects their quality of life. They require recurrent hospitalization, which upsets family life and school attendance.⁷ Hence, for children with Lower respiratory tract infection the breathing exercises can help to improve their respiratory status. They help to strengthen the lungs and control their inhalation pattern and also help to diminish the severity of respiratory symptoms and signs.⁸ Moreover they play a major role in clearing the airway and expands the parenchymal cells by successfully improving the efficacy of lung muscles. Simple breathing exercises when taught to the children as a play method helps gain their co-operation. Hence the researcher was interested to determine the effectiveness of Blowing tarty whistle on the respiratory parameters among children with lower respiratory tract infection.

STATEMENT OF THE PROBLEM

Effectiveness of Blowing Tarty Whistle on Respiratory parameters among children with Lower Respiratory Tract Infections admitted in a Tertiary Care Hospital, Puducherry.

OBJECTIVES

- To assess the Respiratory status of children with Lower Respiratory Tract Infection.
- To evaluate the effectiveness of Blowing Tarty Whistle on the respiratory outcome among children with lower respiratory tract infection.
- To associate the respiratory parameters with selected demographic variables.

HYPOTHESES

- **H₁**– There is a difference in respiratory outcome between children with LRI who blow the tarty whistle and those who do not.
- **H₂**– There is an association between the respiratory outcome of children with the selected Socio-demographic variables.

MATERIALS AND METHODS:

The research design adopted for the study was randomized controlled trial. The study was carried out in a tertiary care hospital, Puducherry. The study was conducted among 60 children with lower respiratory tract infections between the age group of 6-12 years. The children were randomly assigned into the control group and experimental group of 30 each by lottery method. The samples were selected based on the inclusion and exclusion criteria. The sample size was calculated based on power analysis at the power of 80%.

The Institutional Human ethical clearance was obtained. The informed consent from parents and assent from the children were obtained. A structured interview was used to collect the background variables and a respiratory status assessment scale consisting of 5 items to assess the respiratory parameters (Respiratory rate, Breath sounds, Use of accessory muscles, Oxygen saturation and Cough) was used. A score of 4 was allotted for each normal finding and 1, 2 and 3 for each abnormal finding. The ranging of score was between 5-20. Higher the score lower the respiratory distress and vice versa. The reliability of the tool was $r=0.881$. The data collection was done for a period of 6 weeks.

After self- introduction a pretest was done to assess the respiratory parameters in both the experimental and control group. The children in the experimental group were asked to take a deep breath i.e., inhale for 5 seconds and then exhale for 7-8 seconds by blowing the whistle, that was repeated 3 times in 5 minutes, 3 times a day at 8 am, 12 Noon, and 4 pm for 5 days. The control group received the routine treatment. On the 6th day the post test was carried out for both control and experimental group.

Descriptive statistics (Mean, Standard deviation) and inferential statistics (paired ‘t’ test, independent ‘t’ test, and chi-square) were used for analysis of data. Software SPSS 16 epidata version 2.2.2.186 was used.

RESULTS:

Socio-demographic variables:

Among 60 samples 54(90%) were in the age group 6-8 years, 6(10%) were in the age group 9-10 years. Majority 38(63.3%) were males and 22(36.7%) were females. 10(16.7%) had pet animals and 50(83.3%) did not have pet animals. 7(11.7%) developed allergy towards dust .With regard to the frequency of acquiring respiratory infection 3/4th of the subjects 45(75%) developed it once a year 10(16.7%) once in 6 months, 4(6.7%) once in a month.

Table 1: Distribution of children with lower respiratory tract infection according to their level of respiratory distress in the Experimental and Control Groups during Pre and Posttests

N=60

Respiratory status	Experimental group		control group		Experimental group		control group	
	n=30 Pre test		n=30 Pre test		n=30 Post test		n=30 Post test	
	n	%	n	%	N	%	N	%
No respiratory distress	1	3.3	2	6.7	30	100	3	10
Mild respiratory distress	29	96.7	28	93.3	0	0	27	90
Moderate respiratory distress	0	0	0	0	0	0	0	0
Severe respiratory distress	0	0	0	0	0	0	0	0

29(96%) in the experimental group and 28(93.3%) in the control group had mild respiratory distress in the pretests. After the intervention 30(100%) had no respiratory distress whereas in the control group 27(54%) continued to have the mild distress.

Table 2: Comparison of Respiratory status among children with lower respiratory tract infection between the Experimental and Control Group

N=60

Group	Mean	Standard Deviation	Mean Difference	t- value	p value
Experimental	19.13	0.90	5.4	-15.233	0.000
Control	13.63	1.00			

The table depicts that the mean respiratory outcome in experimental group was 19.13 ± 0.90 , and in the control group was 13.63 ± 1.00 which was highly significant at $p < 0.001$ level, which implies that blowing of the tarty whistle improved the respiratory outcome.

DISCUSSION

Present study finding reveals that 29(96%) in the experimental group 28(93.3%), in the control group had mild respiratory distress prior to the intervention, whereas, after the intervention the experimental group had no respiratory distress. 30(100%) in comparison with control group 27(54%) who continued to have the mild respiratory distress.

Finding is consistent with the similar study done by Santhi Rajendiran (2016) on effectiveness of blowing tarty whistle on post-operative respiratory outcomes among children who undergone abdominal surgery, where she tested out the efficacy of blowing tarty whistle and found reduction in the level of lung problem $p < 0.001$. The study findings implies that blowing whistle is an effective means of improving the child's breathing pattern.¹⁰

CONCLUSION

The study findings reveal that blowing whistles is an effective method that leads to an improvement in child's respiratory parameters. Moreover it is a very easy method and children enjoyed doing it. This can be made as their daily routine which shall help strengthen their lungs.

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