EVALUATE THE EFFECTIVENESS OF STRELNIKOVA BREATHING EXERCISE ON RESPIRATORY OUTCOME AMONG CHILDREN WITH BRONCHIAL ASTHMA AT SELECTED HOSPITALS, ERODE

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ABSTRACT

Background: Bronchial asthma is a common respiratory illness. The word asthma has a long history derived from sanskrit "vayu" meaning "wind". It is characterized by chronic inflammation, bronchoconstriction and bronchial hyper responsiveness. It is manifested by paroxysmal smooth muscle spasm in the non- conducting small airways. It is one of the most common chronic disorders. It affects 11.8% of children between 3 and 17 years of age. It is caused by multiple factors. It can be triggered by variety of stimuli such as cold air, smoke fumes, viral infections, stress, exercise, odors, medications or allergens. Allergic asthma may occur due to specific allergens like pollen, house dust, smoke, powder, perfumes, etc. asthma is a major noncommunicable disease (NCD), affecting both children and adults, and is the most common chronic disease among children. Inflammation and narrowing of the small airways in the lungs cause asthma symptoms, which can be any combination of cough, wheeze, shortness of breath and chest tightness. asthma affected an estimated 262 million people in 2019 (1) and caused 455 000 deaths.Breathing exercises that will reduce one's body-oxygen levels and worsen health and symptoms due to hyperventilation and alveolar hypocapnia (low levels of CO_2). This study aims to investigate and compare the effects of conventional breathing exercises and an inspiratory muscle training intervention on clinical symptoms in asthma patients. Breathing exercises will help to clear the airway. Regular practicing of exercises will helps to strengthen the child's lungs and control the secretions and improve their breathing pattern. Various breathing exercises are there which helps to reduce the severity and exacerbation. One of the effective Breathing exercise method is strelnikova breathing exercise. Hence doingstrelnikova breathing exercise can reduce the frequency of attacks and symptoms

among children with bronchial asthma and help them to cope with the respiratory problem and enhance their activities of daily living.

Objectives

1. To assess the pre-test and post test level of respiratory outcome among children with bronchial asthma in the experimental group and control group.

2. To evaluate the effectiveness of strelnikova breathing exercise on respiratory outcome among children with bronchial asthma in experimental group and control group.

3. To compare the effectiveness of strelnikova breathing exercise on respiratory outcome among children with bronchial asthma in experimental and control group.

4. To find out the association between the post test level of respiratory outcome among children with bronchial asthma with the selected demographic variables in experimental group and control group

Methodology:

Quasi experimental, non randomized control group design was used for this study. Best Children's Hospital and Sudha Mother and Child Care Hospital, Erode. Total sample size was 60.The samples were selected by using purposive sampling technique.

Results

The demographic variables are age of the child (in years), sex, Educational status of mother, Socio economic class, Pet animals in home, Type of allergy, Type of treatment taken for asthma, Frequency of asthmatic episodes in last year, Breathlessness while climbing stairs and Duration of illness of the child had shown statistically significant association between the post-test level of severity and exacerbation (respiratory outcome) among children with bronchial asthma with the selected demographic variables in experimental group.The demographic variables are type of allergy, Frequency of asthmatic episodes in last year and Duration of illness of the child had shown statistically significant association between the post-test level of oxygen saturation among children with bronchial asthma with the selected demographic variables in experimental group.

Conclusion

The present study assessed the effectiveness of strelinikova breathing exercises on selected respiratory outcomes among children with Bronchial asthma at selected hospital Erode. Based on statistical findings, it is evident that strelinikova breathing exercises given among children with bronchial asthma significantly reduced the level of respiratory signs. Therefore the investigator felt that, Strelnikova breathing exercises for children with Bronchial asthma will reduce the respiratory sign and improve the respiratory parameters.

INTRODUCTION

Asthma (a Greek word meaning "panting") is a chronic inflammatory disease, characterized by airway obstruction (which is reversible either spontaneously or with medication),airway inflammation, and an increased responsiveness of trachea and bronchi to various stimuli. It manifests by bouts of dyspnea resulting from temporary narrowing of bronchi due to bronchospasm, mucosal edema, and thick secretions. (Rimple Sharma, 2022)

Bronchial asthma is a common respiratory illness. The word asthma has a long history derived from sanskrit "vayu" meaning "wind". It is characterized by chronic inflammation, bronchoconstriction and bronchial hyper responsiveness. It is manifested by paroxysmal smooth muscle spasm in the non- conducting small airways. It is one of the most common chronic disorders. It affects 11.8% of children between 3 and 17 years of age. It is caused by multiple factors. It can be triggered by variety of stimuli such as cold air, smoke fumes, viral infections, stress, exercise, odors, medications

or allergens. Allergic asthma may occur due to specific allergens like pollen, house dust, smoke, powder, perfumes, etc. (Dr.Pushpendra Magon, 2022)

STATEMENT OF THE PROBLEM

Evaluate the effectiveness of strelnikova breathing exercise on respiratory outcome among children with bronchial asthma at selected hospitals, Erode.

Objectives

1. To assess the pre-test and post test level of respiratory outcome among children with bronchial asthma in the experimental group and control group.

2. To evaluate the effectiveness of strelnikova breathing exercise on respiratory outcome among children with bronchial asthma in experimental group and control group.

3. To compare the effectiveness of strelnikova breathing exercise on respiratory outcome among children with bronchial asthma in experimental and control group.

4. To find out the association between the post test level of respiratory outcome among children with bronchial asthma with the selected demographic variables in experimental group and control group

MATERIALS AND METHODS:

A quantitative evaluative approach was adopted by the researcher to evaluate the effectiveness of strelnikova breathing exercise on respiratory outcome among children with bronchial asthma.Quasi experimental, non randomized control group design was used for this study. The study was conducted in Best Children's hospital and Sudha mother and child care hospital Erode.The reason for selecting this hospital was the availability of samples, feasibility for the study and expectation of cooperation from the clients for collection of data.The population selected for this study was the children with bronchial asthma between the age group of 6- 12 years.The sample for this study is children with bronchial asthma within the age group of (6-12years) who were admitted as in-patient at selected hospitals in Erode.The sample for this study consists of 60 children with bronchial asthma. In that 30 samples were assigned to experimental group and 30 samples were control group.Non probability purposive sampling technique was adopted for this study.The samples were selected by using purposive sampling technique.

DESCRIPTION OF THE TOOL

Section - A: Demographic Variables

Section - B: Assessment of Respiratory Outcome Part - I: (Level Of Severity And Exacerbation)

•   It consists of assessment of respiratory outcome by using Beckers scale

•   To assess the level of severity and exacerbation. (Respiratory Rate, wheezing, I/E ratio, accessory muscle use).

        Part - II:

•   It consists of oxygen saturation ratings to measure the oxygen level by using pulse oxymeter.

ASSESSMENT OF PRE-TEST AND POST-TEST OF THE LEVEL OF RESPIRATORY OUTCOME AMONG CHILDREN WITH BRONCHIAL ASTHMA IN EXPERIMENTAL AND CONTROL GROUP.

Table – 1

Frequency and percentage distribution of pre-test and post-test of the level ofseverity and exacerbation (respiratory outcome) among children with bronchial asthma in experimental group.

(N=30)

Respiratory outcome (level of severity and exacerbation)	Pre Test		Post Test	
	N	%	N	%
Mild	4	13.3	22	73.3
Moderate	26	86.7	8	26.7
Severe	0	0	0	0
Total	**30**	**100**	**30**	**100**
Mean+Standard deviation	5.60+1.037		2.80+2.124	

Table 1 shows that frequency and percentage distribution of pre-test and post-test of the level of severity and exacerbation(respiratory outcome)among children with bronchial asthma in experimental group.

In pretest, Majority of children 26(86.7%) had moderate and 4(13.3%) had mild level of severity and exacerbation(respiratory outcome) and the mean and standard deviation the level of respiratory outcome among children with bronchial asthma is (5.60+1.037) respectively.

In post- test, Majority of children 22(73.3%) had mild and 8(26.7%) had moderate level of severity and exacerbation(respiratory outcome)and the mean and standard deviation the level of respiratory outcome among children with bronchial asthma is (2.80+2.124) respectively

Table 2
Frequency and percentage distribution of pre-test and post-test of the level ofseverity and exacerbation (respiratory outcome) among children with bronchial asthma in control group.

(N=30)

Respiratory outcome (level	Pre Test	Post Test

of severity and exacerbation)	N	%	N	%
Mild	7	23.3	9	30
Moderate	23	76.7	21	70
Severe	0	0	0	0
Total	**30**	**100**	**30**	**100**
Mean±Standard deviation	5.07±1.721		5±1.702	

Table - 3

Frequency and percentage distribution of pre-test and post-test of the level of oxygen saturation among children with bronchial asthma in experimental group.

(N=30)

Level of oxygen saturation	Pre Test		Post test	
	N	%	N	%
Normal	24	80	29	96.7
Abnormal	6	20	1	3.3
Total	**30**	**100**	**30**	**100**
Mean±Standard deviation	96.40±2.486		99.30±1.119	

Table 3 shows that frequency and percentage distribution of pre-test and post-test of the level of oxygen saturation among children with bronchial asthma in experimental group.

In pretest, Majority of children 24(80%) had Normal and 6(20%) had Abnormal level of oxygen saturation and the mean and standard deviation the level of oxygen saturation among children with bronchial asthma is (96.40±2.486) respectively.

In post test, Majority of children 29(96.7%) had Normal and 1(3.3%) had Abnormal level of oxygen saturation and the mean and standard deviation the level of oxygen saturation among children with bronchial asthma is (99.30±1.119) respectively.

Table - 4
Frequency and percentage distribution of pre-test and post-test of the level of oxygen saturation among children with bronchial asthma in control group.

(N=30)

Level of oxygen saturation	PRETEST		POST TEST	

	N	%	N	%
Normal	27	90	28	93.3
Abnormal	3	10	2	6.7
Total	**30**	**100**	**30**	**100**
Mean±Standard deviation	95.57±1.591		95.80±1.448	

Table 4 shows that frequency and percentage distribution of pre-test and post-test of the level of oxygen saturation among children with bronchial asthma in control group.

In pretest, Majority of children 27(90%) had Normal and 3(10%) had Abnormal level of oxygen saturation and the mean and standard deviation the level of oxygen saturation among children with bronchial asthma is (95.57±1.591) respectively.

In post- test, Majority of children 28(93.3%) had Normal and 2(6.7%) had Abnormal level of oxygen saturation and the mean and standard deviation the level of oxygen saturation among children with bronchial asthma is (95.80±1.448) respectively.

EVALUATE THE EFFECTIVENESS OF STRELNIKOVA BREATHING EXERCISE ON RESPIRATORY OUTCOME AMONG CHILDREN WITH BRONCHIAL ASTHMA IN EXPERIMENTAL GROUP AND CONTROL GROUP
Table – 5

Evaluate the effectiveness of strelnikova breathing exercise on respiratoryoutcome level of severity and exacerbation and oxygen saturation among children with bronchial asthma in experimental and control group
(N=60)

Effectiveness of strelnikova breathingexercise		Test	Mean	Standard deviaton	Mean difference	't' value Paired -t test	df	'p' value
Experimen tal Group	Respirator y outcome (level of severity and exacerbati on)	**Pre Test**	5.60	1.037	2.80	5.344	29	**000**HS**
		Post Test	2.80	2.124				
	Oxygen saturation	**Pre Test**	96.4	2.486	2.90	6.399	29	**000**HS**
		Post Test	99.3	1.119				
ControlGroup	Respirator y outcome (level of severity and exacerbati on)	**Pre Test**	5.07	1.721	0.067	0.254	29	0.161 NS
		Post Test	5	1.702				
	Oxygen saturation	**Pre Test**	95.57	1.591	0.233	1.104	29	0.257 NS
		Post Test	95.80	1.448				

**** p < 0.001 highly significant, NS-Non Significant.**
Table 5 shows that, evaluate the effectiveness of strelnikova breathing exercise on

respiratory outcome level of severity and exacerbation and oxygen saturation among children with bronchial asthma in experimental and control group

Experimental group:

The mean score of evaluate the effectiveness of strelnikova breathing exercise on respiratory outcome (level of severity and exacerbation) among children with bronchial asthma in experimental group in the pre-test was 5.60 ± 1.037 and th mean score in the post- test was 2.80 ± 2.124. The calculated **paired 't' test** value of t

= 5.344 shows **statistically highly significant** difference of evaluate the effectiveness of strelnikova breathing exercise on respiratory outcome among children with bronchial asthma in experimental group.
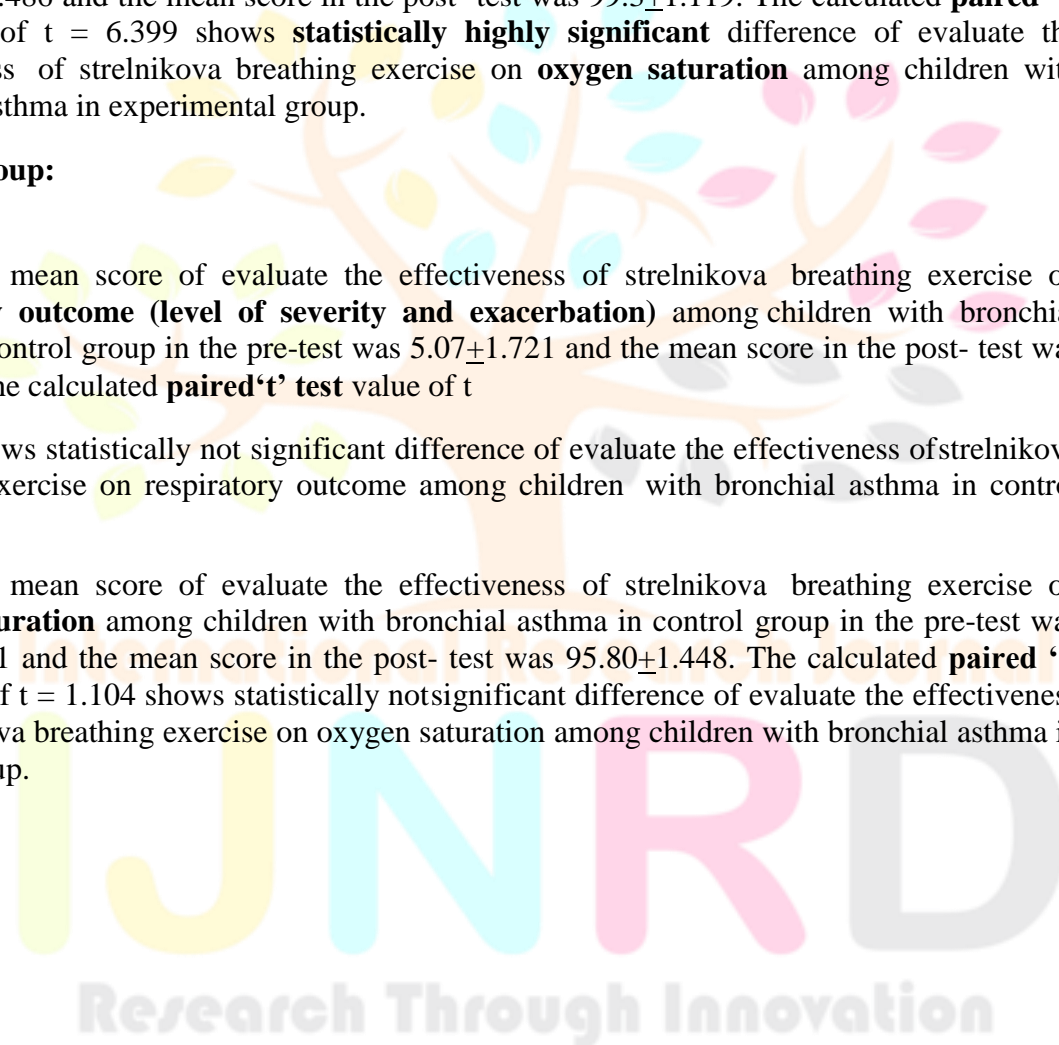
The mean score of evaluate the effectiveness of strelnikova breathing exercise on **oxygen saturation** among children with bronchial asthma in experimental group in the pre-test was 96.4 ± 2.486 and the mean score in the post- test was 99.3 ± 1.119. The calculated **paired 't' test** value of t = 6.399 shows **statistically highly significant** difference of evaluate the effectiveness of strelnikova breathing exercise on **oxygen saturation** among children with bronchial asthma in experimental group.

Control group:

The mean score of evaluate the effectiveness of strelnikova breathing exercise on **respiratory outcome (level of severity and exacerbation)** among children with bronchial asthma in control group in the pre-test was 5.07 ± 1.721 and the mean score in the post- test was 5 ± 1.702. The calculated **paired 't' test** value of t

= 0.254 shows statistically not significant difference of evaluate the effectiveness of strelnikova breathing exercise on respiratory outcome among children with bronchial asthma in control group.

The mean score of evaluate the effectiveness of strelnikova breathing exercise on **oxygen saturation** among children with bronchial asthma in control group in the pre-test was 95.57 ± 1.591 and the mean score in the post- test was 95.80 ± 1.448. The calculated **paired 't' test** value of t = 1.104 shows statistically not significant difference of evaluate the effectiveness of strelnikova breathing exercise on oxygen saturation among children with bronchial asthma in control group.

COMPARISON OF THE EFFECTIVENESS OF STRELNIKOVA BREATHING EXERCISE ON RESPIRATORY OUTCOME AMONG CHILDREN WITH BRONCHIAL ASTHMA IN EXPERIMENTAL GROUP AND CONTROL GROUP

Table - 6
Comparison of the effectiveness of strelnikova breathing exercise on respiratory level of severity and exacerbation and oxygen saturation amongchildren with bronchial asthma in experimental and control group.

(N=60)

Comparison of the effectiveness of strelnikova breathing exercise			Mean	Standard deviaton	Mean difference	't' value independent -t test	df	'p' value
Respiratory outcome level of severity and exacerbation	Pre Test	Experimental Group	5.60	1.037	0.533	1.454	58	0.151 NS
		Control group	5.07	1.721				
	Post Test	Experimental Group	2.80	2.124	2.200	4.428	58	)00**HS
		Control group	5	1.702				
Oxygen saturation	Pre Test	Experimental Group	96.40	2.486	0.833	1.547	58	0.127 NS
		Control group	95.57	1.591				
	Post Test	Experimental Group	99.30	1.119	3.500	10.477	**58**	)00**HS
		Control group	95.80	1.448				

Table 6 shows that, Comparison of the effectiveness of strelnikova breathing exercise on respiratory outcome (level of severity and exacerbation) and oxygen saturation among children with bronchial asthma in experimental and control group.

Strelnikova breathing exercise on respiratory outcome (level of severity and exacerbation) :

The mean score of Comparison of the effectiveness of strelnikova breathing exercise on respiratory outcome (level of severity and exacerbation) among children with bronchial asthma in **pretest** of experimental group was 5.60±1.037 and the mean score in the control group was 5.07±1.721. The calculated **independent 't'test** value of t = 1.454 shows statistically non-significant difference between effectiveness of strelnikova breathing exercise on respiratory outcome (level of severity and exacerbation) among children with bronchial asthma in experimental and control group of pretest.

ASSOCIATION BETWEEN THE POST-TEST LEVEL OF RESPIRATORY OUTCOME AMONG CHILDREN WITH BRONCHIAL ASTHMA WITH THE SELECTED DEMOGRAPHIC VARIABLES IN EXPERIMENTAL GROUP AND CONTROL GROUP

* p < 0.05 significant, * * p < 0.001 Highly significant, NS-Non significant Table 4.8 depicts that the demographic variables **Age of the child (in**

years), sex, Educational status of mother, Socio economic class, Pet animals in home, Type of allergy, Type of treatment taken for asthma, Frequency of asthmatic episodes in last year, Breathlessness while climbing stairs and Duration of illness of the child had shown statistically significant association between the post-test level of severity and exacerbation (respiratory outcome) among children with bronchial asthma with the selected demographic variables in experimental group.

The other demographic variables had not shown statistically significant association between the post-test level of severity and exacerbation (respiratory outcome) among children with bronchial asthma with the selected demographic variables in experimental group.

p < 0.05 significant, * * p < 0.001 Highly significant, NS-Non significant

It depicts that the demographic variables **Age of the child (in years), sex, Type of treatment taken for asthma, Frequency of asthmatic episodes in last year, Breathlessness while climbing stairs and Duration of illness of the child** had shown statistically significant association between the post- test level of severity and exacerbation (respiratory outcome) among children with bronchial asthma with the selected demographic variables in control group.

The other demographic variables had not shown statistically significant association between the post-test level of severity and exacerbation (respiratory outcome) among children with bronchial asthma with the selected demographic variables in control group

* p < 0.05 significant, * * p < 0.001 Highly significant, NS-Non significant

It depicts that the demographic variables **Type of allergy, Frequency of asthmatic episodes in last year and Duration of illness of the child** had shown statistically significant association between the post-test level of oxygen saturation among children with bronchial asthma with the selected demographic variables in experimental group.

The other demographic variables had not shown statistically significant association between the post-test level of oxygen saturation among children with bronchial asthma with the selected demographic variables in experimental group.

Association between the post-test level of oxygen saturation among children with bronchial asthma with the selected demographic variables in

control group.

* p < 0.05 significant, * * p < 0.001 Highly significant, NS-Non significant

It depicts that the demographic variables had not shown statistically significant association between the post-test level of oxygen saturation among children with bronchial asthma with the selected demographic variables in control group.

CONCLUSION

The present study assessed the effectiveness of strelinikova breathing exercises on selected respiratory outcomes among children with Bronchial asthma at selected hospital Erode. Based on statistical findings, it is evident that strelinikova breathing exercises given among children with bronchial asthma significantly reduced the level of respiratory signs. Therefore the investigator felt that, Strelnikova breathing exercises for children with Bronchial asthma will reduce the respiratory sign and improve the respiratory parameters.

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