

“Evaluate the effectiveness of strelnikova breathing exercise on dyspnea among school age children with lower respiratory tract infection admitted in selected hospital at Udaipur city Rajasthan”

Ms. Kumari Swati¹, Prof. (Dr.) Yogeshwarpuri Goswami²

¹(Pediatric Department, Geetanjali college of Nursing/Geetanjali University, India)

²(Principal, Geetanjali college of nursing/Geetanjali university, India)

Abstract:

Background: Children are the “nation’s supremely important asset” to their family and society. Children are the gift, which has much probable with one, which can be best resources for the nation if developed well. Lower respiratory tract infection is a generic term for an acute infection of the trachea, airways, and lungs that structure the lower respiratory system. It includes bronchitis, bronchiolitis, wheezing associated with lower respiratory tract infections, asthma, and pneumonia. Dyspnea is a condition of difficult or laboured breathing. Dyspnea is common in childhood but occurs more persistently in infancy and early childhood. In young children, dyspnea is recognized due to respiratory tract colonization by organisms and aspiration of the contaminated excretions.

Materials and Methods: It included the Quasi-experimental; non-equivalent control group design variables under study were strelnikova breathing exercise as independent variable, dyspnea level of school age children admitted in selected hospital as dependent variable. Research used conceptual framework based On Modified pender’s health peomotion model (Revised 2002). Selected Hospital of Udaipur city as research setting, total 85 samples, and purposive sampling techniques was used. Strelnikova breathing exercise was used for this study and tool used for data collection were socio-demographic data and Dyspnea-12 scale. The data obtained were analyzed and interpreted in the light of objectives and hypothesis using both descriptive and inferential statistical in terms of frequency, percentage and chi-square.

Results: The Data were collected through Dyspnea- 12 scale. Finding shows that in Experimental group pre-test verses post-test pre-test mean= 24.44, SD= 4.007 and post-test mean= 21.76, SD= 5.19, Z= 2.67, p= 0.05, Significant, post-test verses follow-up Post-test mean= 21.76, SD= 5.19 and follow-up mean= 14.79, SD= 6.67, Z= 5.41, p= 0.05, Significant and pre-test verses follow-up pre-test mean= 24.44, SD= 4.007 and follow-up mean = 14.79, SD= 6.67, Z= 8.13, p= 0.05, Significant where as in Positive Control group pre-test verses post-test, pre-test mean= 25.67, SD= 4.10 and post-test mean= 24.64, SD= 4.27, Z= 2.67 Non-Significant, post-test verses follow-up Post-test mean= 24.64, SD= 4.27 and follow-up mean= 22.04, SD= 5.69, Z= 2.36, p= 0.05, Significant and pre-test verses follow-up pre-test mean= 25.67, SD= 4.10 and follow-up mean = 22.04, SD= 5.69, Z= 3.34, p= 0.05, Significant. This study highlights that strelnikova breathing exercise is very effective in experimental group.

Conclusion: Study concluded that rendering Strelnikova Breathing Exercise to the school age children admitted in hospital was effective in reducing Dyspnea.

Key Words: Strelnikova breathing exercise; school age children; Dyspnea; LRTI.

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I. Introduction

Children are the “nation’s supremely important asset” to their family and society. Children are the gift, which has much probable with one, which can be best resources for the nation if developed well¹. Respiratory system is a persistent site of illness in children. Respiratory infection and allergies were together responsible for any disruption in the family life and impaired activities of daily living². Lower respiratory tract infection is a generic term for an acute infection of the trachea, airways, and lungs that structure the lower respiratory system. It includes bronchitis, bronchiolitis, wheezing associated with lower respiratory tract infections, asthma, and pneumonia³. According to WHO (2017), globally 2.56 million people died from pneumonia. Almost a third of all victims were children elder than 5 years. More than 90% of cases occurred in developing countries⁴. Worldwide, the incidence of clinical pneumonia in children aged less than 10 years in developing countries is

close to 0.9 episodes per child/year. This equates to 151.8 million new cases every year, 13.1 million or 8.7% were severe enough to require hospitalization⁵.

II. Material And Methods

This experimental study was carried out on school age children of pediatric ward at Geetanjali hospital, RNT, Bhandari, Pecific umada, Pecific bedla, GBH, Udaipur, Rajasthan from March 2021 to April 2021. A total 85 school age children (both male and female) of age group 6 – 12 years were for in this study.

Study Design: Quasi- experimental; non- equivalent control group

Study Location: This study was conducted in the hospital at Pediatric ward at GMCH, RNT, Bhandari, Pecific umada, Pecific bedla, GBH hospitals Udaipur, Rajasthan.

Study Duration: March 2021 to April 2021.

Sample size: 85 school age children.

Population: The target Accessible population comprised of all School age children with dyspnea admitted in pediatric ward. In this present study the sample consisted of 85 school age children, 43 in the experimental group and 42 in the positive control group, admitted in pediatric ward.

Sampling Technique: Purposive sampling technique.

Inclusion Criteria:

1. Children aged 6-12years with lower respiratory tract infection who were admitted in the hospital.
2. Children who were able to understand and speak Hindi and English.
3. Children who were able to do activity.
4. Children who were willing to participate in research study.

Exclusion Criteria:

1. Children who were admitted to ICU.
2. Children who were suffering with any mental disorder.
3. Children who were suffering with severe major medical illness like major surgery, cardio-vascular disease and fracture.

Procedure Methodology: The researcher adopted a quantitative experimental research approach with quasi experimental, non-equivalent control group research design. 85 school age children were selected by using Purposive sampling technique. Pre-test was done with Dyspnea-12 scale. The average time taken by each participants was 20 minutes & scoring time was 3 minutes. Based on pre-test score the nursing intervention was administered by the researcher to the participants. The post-test was conducted after 15 days of Pre-test. Follow-up was conducted after 15 days of Post-test. The collected data were analyzed based on the above mentioned objective using the descriptive and inferential statistics.

Statistical analysis: The obtained data were analyzed in terms of objectives of the study using descriptive and inferential statistics. The plan for data analysis was as follows Organization of data in master sheet. Obtained data were analyzed in terms of frequencies and percentages. Description Statistics: Description of demographic characteristics mean, median, SD and mean percentage is used to describe the area wise pre-test, post-test & follow-up in experimental and control group of the participant regarding dyspnea. Inferential Statistics: ‘Z’ test is used to find out the effectiveness of Strelnikova breathing exercise on dyspnea among school age children with LRTI admitted in selected hospital. Chi-square is used to find the Association between pre test Dyspnea score of experimental group & positive control group participant with socio-demographic variables.

III. Result

Section I: Description of Socio- Demographic Variables

Section II: Dyspnea level among Experimental and Positive Control Group

Section III: Effectiveness of strelnikova breathing exercise on Dyspnea.

Section I: Description of Socio- Demographic Variables: Projected that in experimental group most of participants i.e. 44.18% and in Positive control group 59.52% belonged to age group of 6 to 7 years. In experimental group 51.16% participants and in Positive control group 54.76% participants were male. In experimental group 58.14% participants and in Positive control group 64.29% participants were Hindu. In experimental group 41.86% participants and in Positive control group 38.10% participants were from urban area. In experimental group 48.84% participant were from joint family where as in Positive control group 52.38% participant were from nuclear family. In experimental group most of participant i.e., 46.51% had more than two children and in Positive control group 42.86% participant had one child. In experimental group most of participants i.e., 34.88% were studying in 3rd standard where as in Positive control group 38.10% participants

were studying in 1st standard. In experimental group most of participant mother i.e. 37.21% had no formal education where as in Positive control group 28.57% participant mother had high secondary education. In experimental group 30.23% participants father had secondary education where as in Positive control group 52.38% participants father had graduation and above. In experimental group most of participants i.e. 60.46% where as in Positive control group majority of participants mother i.e. 69.05% were house wife. In experimental group 34.88% participant father were Private employee and in Positive control group 33.33% participant father were self- employed. In experimental group 30.23% participants where as in Positive control group 42.86% participants family monthly income was above Rs. 20,001/-. In experimental group most of participant i.e., 53.49% where as in Positive control group 52.38% participant answered as no. In experimental group 37.21% and in Positive control group 40.47% participant had dust allergy. In experimental group and in Positive control group most of participants i.e., 41.86% and 47.62% had pneumonia.

Section II: Dyspnea level among Experimental and Positive Control Group

Table-1: Level of Dyspnea among experimental group

N= 43

Level of Dyspnea	Dyspnea Score	Pre- test	%	Post - test	%	Follow-up	%
Mild	0-12	0	0%	5	11.62%	28	65.11%
Moderate	13-24	18	41.86%	23	53.48%	10	23.25%
Severe	25-36	25	58.13%	15	34.88%	5	11.62%

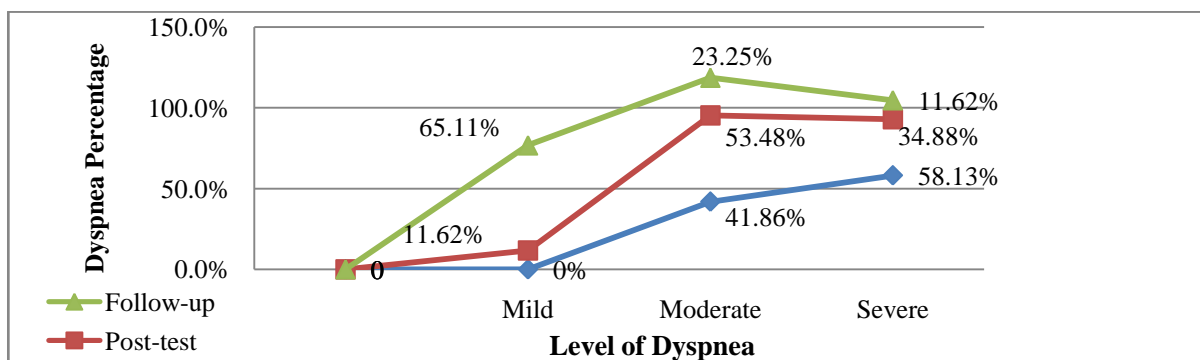


Figure-1: Level of Dyspnea among Experimental Group

Table-1 and Figure-1: Revealed that level of Dyspnea in experimental group in this pre-test Dyspnea score is 58.13% participant had severe dyspnea where as in post-test 53.48% participant had moderate dyspnea and 65.11% participant had mild dyspnea in follow-up. So there is a significant relationship between dyspnea level and school age children with lower respiratory tract infection. Hence, research hypothesis H₁ is accepted.

Table-2: Level of Dyspnea-12 among Positive Control Group

N = 42

Level of Dyspnea	Dyspnea Score	Pre- test	%	Post - test	%	Follow-up	%
Mild	0-12	0	0%	0	0%	05	11.90%
Moderate	13-24	15	35.71%	18	42.85%	17	40.47%
Severe	25-36	27	64.28%	24	57.14%	20	47.61%

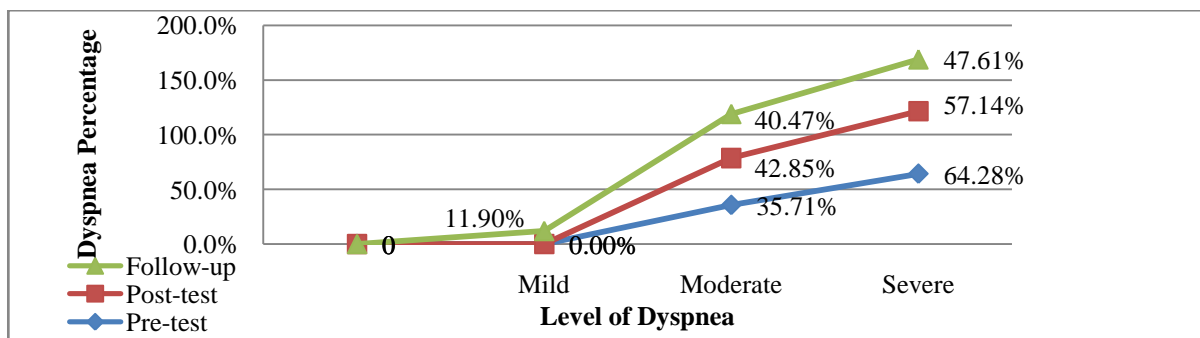


Figure-2: Level of Dyspnea among Positive Control Group

Table-2 and Figure-2: Showed that level of Dyspnea in Positive control group in this pre-test Dyspnea score is 64.28% participant where as in post-test 57.14% participant and only in follow-up 47.61% participant had severe dyspnea. So there is a significant relationship between dyspnea level and school age children with lower respiratory tract infection. Hence, research hypothesis H_1 is accepted.

Section III: Effectiveness of strelnikova breathing exercise on Dyspnea

Table- 3: Effectiveness of Sterlnikova Breathing Exercise on Dyspnea level among Experimental Group
N= 43

Test	Mean	Mean percentage	SD	Mean difference	Z value	P value
Pre-test	24.44	56.83%	4.007	2.46	2.67	0.05 S*
Post-test	21.76	50.60%	5.19			
Post-test	21.76	50.60%	5.19	6.97	5.41	0.05 S*
Follow-up	14.79	34.39%	6.67			
Pre-test	24.44	56.83%	4.007	9.65	8.13	0.05 S*
Follow-up	14.79	34.39%	6.67			

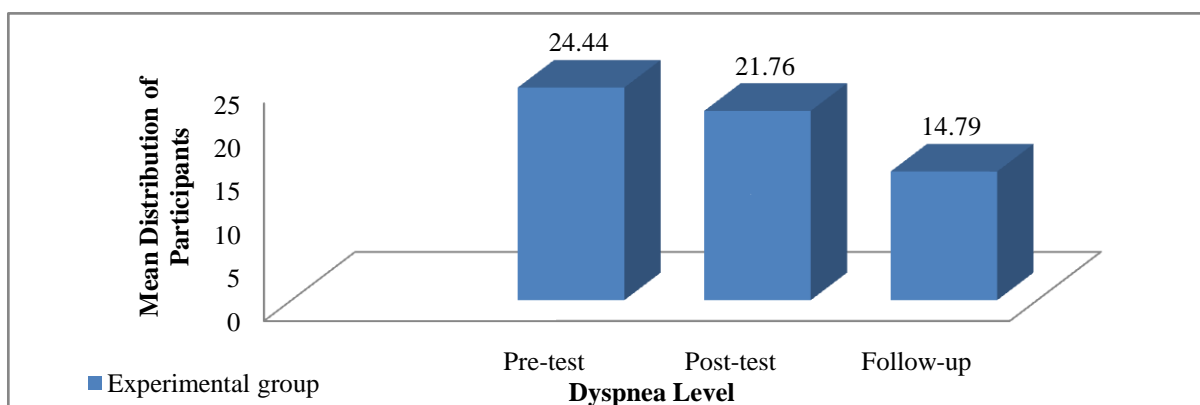


Figure- 3: Dyspnea Score among Experimental Group

Table-3 and Figure- 3 : Calculated effect of Strelnikova breathing exercise on Dyspnea level among Experimental group pre-test versus post-test pre-test mean= 24.44, SD= 4.007 and post-test mean= 21.76, SD= 5.19, Z= 2.67, p= 0.05, Significant, post-test versus follow-up Post-test mean= 21.76, SD= 5.19 and follow-up mean= 14.79, SD= 6.67, Z= 5.41, p= 0.05, Significant and pre-test versus follow-up pre-test mean= 24.44, SD= 4.007 and follow-up mean = 14.79, SD= 6.67, Z= 8.13, p= 0.05, Significant. So Strelnikova breathing exercise found very effective on dyspnea among school age children with lower respiratory tract infection. Hence, research hypothesis H_2 is accepted.

Table- 4: Effectiveness of Breathing Exercise on Dyspnea level among Positive Control Group
N= 42

Test	Mean	Mean percentage	SD	Mean difference	Z value	P value
Pre-test	25.67	61.11%	4.10	1.03	1.12	NS
Post-test	24.64	58.66%	4.27			
Post-test	24.64	58.66%	4.27	2.6	2.36	0.05 S*
Follow-up	22.04	52.47%	5.69			
Pre-test	25.67	61.11%	4.10	3.63	3.34	0.05 S*
Follow-up	22.04	52.47%	5.69			

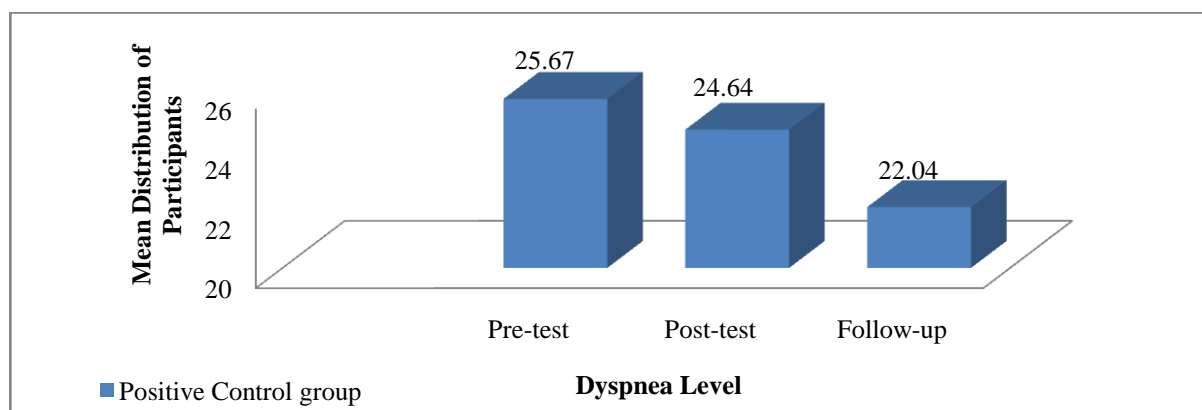


Figure-4: Dyspnea Score among Positive Control Group

Table-4 and Figure- 4: Calculated effect of Breathing exercise on Dyspnea level among Positive Control group pre-test versus post-test, pre-test mean= 25.67, SD= 4.10 and post-test mean= 24.64, SD= 4.27, Z= 2.67 Non-Significant, post-test versus follow-up Post-test mean= 24.64, SD= 4.27 and follow-up mean= 22.04, SD= 5.69, Z= 2.36, p= 0.05, Significant and pre-test versus follow-up pre-test mean= 25.67,SD= 4.10 and follow-up mean = 22.04, SD= 5.69, Z= 3.34, p= 0.05, Significant. So breathing exercise found moderately effective on dyspnea among school age children with lower respiratory tract infection. Hence, research hypothesis H₃ is accepted.

IV. Discussion

In the present study, the effect of Strelnikova breathing exercise on Dyspnea level among Experimental group pre-test versus post-test pre-test mean= 24.44, SD= 4.007 and post-test mean= 21.76, SD= 5.19, Z= 2.67, p= 0.05, Significant, post-test versus follow-up Post-test mean= 21.76, SD= 5.19 and follow-up mean= 14.79, SD= 6.67, Z= 5.41, p= 0.05, Significant and pre-test versus follow-up pre-test mean= 24.44, SD= 4.007 and follow-up mean = 14.79, SD= 6.67, Z= 8.13, p= 0.05, Significant where as in Positive Control group pre-test versus post-test, pre-test mean= 25.67, SD= 4.10 and post-test mean= 24.64, SD= 4.27, Z= 2.67 Non-Significant, post-test versus follow-up Post-test mean= 24.64, SD= 4.27 and follow-up mean= 22.04,SD= 5.69, Z= 2.36, p= 0.05, Significant and pre-test versus follow-up pre-test mean= 25.67,SD= 4.10 and follow-up mean = 22.04, SD= 5.69, Z= 3.34, p= 0.05, Significant.

A similar study was conducted Ranjita jena (2020) conducted a quasi experimental non-equivalent control group design in study to assess the respiratory parameters among lower respiratory tract infection at IMS and SUM hospital, Bhubaneswar. Researcher selected 60 school age children with age group 5-12 year through non-probability purposive sampling technique. Researcher use structured observational checklist on lower respiratory tract infection. Result showed that in experimental group respiration rate mean= 0.46, SD= 3.32, t= 0.76, p= 0.05, significant, breath sound mean= 0.26, SD= 0.50, t= 2.91, p=0.05, significant & oxygen saturation mean= 5.4, SD= 3.24, t= 9.11, p= 0.05, significant where as in control group respiration rate mean= 0.6, SD= 2.69, t= 1.21, p= 0.05, not- significant, breath sound mean= 0.03, SD= 0.50, t= 0.36, p=0.05, not-significant and oxygen saturation mean= 1.53, SD= 2.74, t= 3.06, p= 0.05, not-significant. The study concluded that strelnikova exercise is effective among experimental group as compare to control group⁶.

Another similar study was D Padmaja and S Gomathi (2019) conducted a Quasi-experimental non-equivalent control group design in study to assess the respiratory parameters among lower respiratory tract infection at Guntur government hospital, Andhra Pradesh. Researcher selected 60 school age children with mean age group of 9.4 years through convenient sampling technique. Researcher use structured questionnaire and observational checklist on lower respiratory tract infection. Result showed that in experimental group the mean =5.97, SD = 1.56 where as in control group mean = 6.27 and SD= 1.55, t=5.98, p= 0.05, Significant. The study concluded that strelnikova exercise is effective among experimental group as compare to control group⁷.

This study proved that in experimental group there was statistically significant association between the pre-test dyspnea scores with selected socio-demographic variables such as No. of children in the family $\chi^2 = 7.34$, p = 0.05, Significant and Gender $\chi^2 = 23.08$, Occupation of mother $\chi^2 = 21.62$, p = 0.001, highly Significant, where as in positive control group researcher found significant relationship with Education qualification of mother $\chi^2 = 11.86$, p = 0.05, Significant, Occupation of father $\chi^2 = 18.58$, p = 0.01, significant and Education qualification of father $\chi^2 = 18.53$, type of lower respiratory tract infection $\chi^2 = 19.19$, p= 0.001, Highly Significant.

V. Conclusion

The study determined that the effect of Strelnikova breathing exercise on dyspnea among school-age children with lower respiratory tract infection has a good impact on dyspnea. Based on findings it was evident that Strelnikova Breathing Exercise significantly reduced the level of Dyspnea.

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