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Effectiveness of Swedish Massage Technique on Respiratory Function Among Preschoolers with Lower Respiratory Tract Infection in a Selected Hospital At Erode

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ABSTRACT:

Background: A lower respiratory tract infection occurs when there is an infection in the lower airways. The main symptoms of the lower respiratory tract Infections are a persistent cough, fever and breathing difficulties.

Objectives: To assess the effect of Swedish massage technique on lower respiratory tract infection among preschoolers in baby hospital at erode.

Design: Quasi experimental design.

Setting: Baby hospital, erode.

Selection Criteria: lower respiratory tract infection of age between 3 to 6 years, of both gender and are 1st day of admission.

Methods: A study was conducted on 30 preschoolers. 15 of them are under control group and 15 of them are under experimental group.

Results: The result showed that, In experimental group and control group with respect to level of respiratory function shows that in II post test in control group majority 7 (47%) of them had mild respiratory function and 2 (13%) of preschoolers had severe respiratory function whereas in experimental group 10 (67%) of them had moderate respiratory function and 3 (20%) of them had severe respiratory function. It seems that Swedish massage technique was effective in improving the respiratory function among preschoolers with lower respiratory function. Paired "t" test was calculated to analyze the difference in pre and post test Scores on respiratory function (oxygen saturation, retraction, Inspiratory muscle contraction, Inspiration and wheezing). In preschoolers with lower respiratory tract infection the paired "t"value in control group was 10.42 and experimental group was 27, when compared



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to table values (2.05) it was high. So it can be concluded that, there is significance in respiratory function among preschoolers with lower respiratory tract infection. Chi square, it can be interpreted that only age is significant and the other there is no significant association between posttest scores of with their respiratory function among preschoolers with lower respiratory tract infection... **Conclusion:** The study findings revealed that administration of Swedish massage technique was highly significant in improving the respiratory functions among preschoolers.

Keywords: Swedish massage technique, Respiratory Function, preschoolers with lower respiratory tract infection.

INTRODUCTION

The Swedish massage is one of the most common types of massages. It is performed to energize the body and improve overall health. This type of massage involves actions like percussion, kneading, vibration, tapping and rolling. Massage oil lotion is used to protect the skin from friction. (Gabriela Pichardo, MD2023).

The Swedish massage technique helps relieve sinusitis, bronchitis, the common cold, and other respiratory congestion. It makes the mucus less viscous, allowing it to be expelled and facilitating easier breathing for the patient. It can be administered as an inhalation of pure water or with herbs added.(Ira Shah. 2012).

The important risk factors associated with respiratory diseases include malnutrition, low birth weight, climatic variations especially in winter and rainy season. Viruses are the most common cause of lower respiratory Tract disease in infants and young children and area major public health problem in this age group. The novel variant of corona virus that is associated with the worldwide outbreak of severe acute respiratory syndrome and human meta pneumo virus, a recently identified new respiratory pathogen, have stressed the continuing importance of viral respiratory infections over the whole age spectrum. Each year approximately3% of all children less than 1 year of age need to be admitted to hospital with moderate or severe viral lower respiratory tract infection, (**B M Van Woensel, 2014**).

Common symptoms include coughing, irritation, scratchy throat, runny nose, and nasal congestion. Viruses cause inflammation and mucus production when they infiltrate respiratory tract cells. For up to 14 days, this condition causes coughing, runny nose, itchy throat, and nasal congestion. Fever is prevalent, with highs of 101 to 102° F (approximately 38.3 to 38.9° C). It's possible for the child's temperature to reach 104° F (40° C). Other common symptoms in youngsters include a general sensation of unwell (malaise), tiredness, and decreased appetite. In particular, influenza causes the development of headaches and body aches. Infants and young children typically merely look grumpy and uneasy and are unable to express their exact ailments. (Mossed B Sheriff (2012)

STATEMENT OF THE PROBLEM:

"A Study to Assess the Effectiveness of Swedish Massage Technique on Respiratory Function Among Preschoolers with Lower Respiratory Tract Infection in A Selected Hospital at Erode". **OBJECTIVES:**

1. To assess the level of respiratory function among preschoolers with lower respiratory tract infection in experimental group and control group before and after Swedish massage technique.



- 2. To determine the effectiveness of Swedish massage technique on respiratory function among preschoolers with lower respiratory tract infection in experimental group and control group.
- 3. To find out association between the post test scores of respiratory function among preschoolers with lower respiratory tract infection with their selected demographic variables in experimental group and control group.

MATERIALS AND METHODS:

The deign used for this study was Quasi experimental design, 30 samples (15 experimental, 15 control) were selected by purposive sampling technique at Baby hospital at Erode. After selection of sample the Swedish massage technique applied to experimental group, after that with help of preschool Respiratory Assessment measure the respiratory function was assessed.

Tools used for the study:

There are two types of tools were used. They are,

Section A: It consists of demographic characteristics of preschooler with lower respiratory tract infection, they were,

- Age
- Gender
- History of previous hospitalization with respiratory tract infection
- Frequency of hospitalization and
- Frequency of respiratory tract infection.

Section B: It consist of observation schedule on preschool Respiratory Assessment Measure (PRAM)to assess the respiratory functions of pre-schooler. It consists of five parameters like oxygen saturation, retraction, inspiratory muscle contraction, inspiration, and wheezing. The items were scored as mild, moderate, or severe. In the PRAM, 0-3points indicate mild, 4-7 points indicate moderate, and 8-12 points indicate severe respiratory distress.

Scoring procedure:

Based on the observational schedule the scores were categorized into three levels. They were "mild", "moderate" and "severe"

Level of respiratory function	Actual scores	Percentage of scores
Mild	0-3	Below 20
Moderate	4-8	21-53
Severe	Above 9	Above 54

Ethical Consideration

- 1. Written permission was obtained from Director and Principal of Dhanvantri College of Nursing at Namakkal District.
- 2. Written permission was obtained from medical superintendent at Baby Hospital, Erode.
- 3. Prior informed consent was obtained from mothers.

VALIDITY AND RELIABILITY

The content validity of the preschool Respiratory Assessment Measure (PRAM), was validated in consultation with guide and field of experts. The experts were Child health nursing personnel's,



pediatrician and statisticians. The tool was modified according to the suggestion and recommendation of the experts. (Annexure VII)

RELIABILITY

The reliability of Preschool Respiratory Assessment Measure (PRAM) was tested by implementing the tool on preschooler at Baby Hospital, Erode, which is other than the sample area. Split half method (spearman Brown Formula) was used to test the reliability of the tool and tool was found to be reliable (r'=0.985).

Period of data collection

The investigator collected the data from pre schooler with lower respiratory tract infection for the period of 1 month from 14.05.2024 to 15.06.2024.

Pretest

Pre test conducted on pre schooler with lower respiratory tract infection in the Medical Units by using Preschool Respiratory Assessment Measure (PRAM) to assess the Respiratory Function. In a day average of 5 patients were assessed. The time for assessment varied from 20 minutes.

Implementation of Swedish massage technique

Immediately after pre-test the Swedish massage technique was implemented to the patients with the duration of 15 minutes in 2 times a day for 5 days.

Post test

Preschool Respiratory Assessment Measure (PRAM) scale was used to evaluate the respiratory function at the 3rd and 5th day.

DATA ANALYSIS:

- Assess the level of respiratory function among preschoolers with lower respiratory tract infection in experimental group and control group before and after Swedish massage technique was analyzed by using frequency and percentage distribution.
- Determine the effectiveness of Swedish massage technique on respiratory function among preschoolers with lower respiratory tract infection in experimental group and control group analyzed by using paired "t" and Unpaired "t" test, mean, standard deviation and mean percentage.
- Find out association between the post test scores of respiratory function among preschoolers with lower respiratory tract infection with their selected demographic variablesinexperimental group and control group was analyzed by using chi-square test.

RESULTS

SECTION-A DESCRIPTION OF PATIENTS ACCORDING TO THEIR DEMOGRAPHIC CHARACTERISTICS

Table: 1 Frequency and percentage distribution of samples according to their demographic

variables (n1= 15) (n2= 15)

S.	Demographic Variables	Frequency	Percentage	Frequency	Percentage
No		(n)	(%)	(n)	(%)
	Age in year				
1	a)3–4 years	4	27	5	33
	b) 4 –5 years	8	53	10	67



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		-			
	c) 5 –6 years	3	20	0	0
	Condon				
	Genuer				
2	a) Male	10	67	9	60
	b) Female	5	33	6	40
	H/o previous Hospitalization				
	with respiratory Tract infection				
3	a) Yes				
	b) No	8	53	11	73
		7	47	4	27
	Frequency of hospitalization				
4	a) Below6month	2	13	3	20
	b) 1 –2 years	5	34	4	27
	c)More than 2years	8	53	8	53
	Frequency of lower respiratory				
5	tract infection				
	a) Once in 3months	9	60	12	80
	b) Once in 6months	1	6	0	0
	c) Once in 12 months	5	34	3	20

Table.2 Frequency and percentage distribution of the pretest and post test score of level of respiratory function among preschoolers with lower respiratory tract infection in experimental group (n1=15)

group.(III-13)									
Level of	Pre	test	I Post test 3	rd day	II Post test 5 th day				
respiratory	Frequency	Doroontogo(0/)	Fraguaray(N)	Percentage	Frequency	Percentage (%)			
Function	(N)	r er centage(70)	r requency(1)	(%)	(N)				
Mild	0	0	0	0	7	47			
Moderate	7	47	9	60	6	40			
Severe	8	53	6	40	2	13			

Table 3. Frequency and percentage distribution of the pre test and post test score of level of respiratory function among preschoolers with lower respiratory tract infection in control group.

(N2=15)

Level of	Pretest		IPosttest3 rd	day	IIPosttest5 th day	
respiratory	Frequency	Percentage	Fraguaray(N)	Percentage	Frequency	Percentage
function	(N)	(%)	r requency(N)	(%)	(N)	(%)
Mild	0	0	0	0	2	13
Moderate	6	40	7	47	10	67
Severe	9	60	8	53	3	20

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Table 4. Frequency and percentage distribution of the posttest score of level of respiratory function among preschoolers with lower respiratory tract infection in experimental group and

control group.(n1=15) (n2=15)

Level of II Post test 5 th day								
respiratory	Control	l group	Experimental group					
Function	Frequency (N)	Frequency(N)	Frequency	Frequency(N)				
			(N)					
Mild	7	47	2	13				
Moderate	6	40	10	67				
Severe	2	13	3	20				

Table 5 Paired 't' test value of pretest and posttest scores of respiratory function among preschoolers with lower respiratory tract infection in an experimental group and control group.

Respiratory function	't' value	Level of	
	Control group	Experimental	significance
		group	
Oxygen saturation	9.71	20.2	p<0.05significant
Retraction	8.77	17.86	p<0.05significant
Inspiratory muscle contraction	10.12	18.22	p<0.05significant
Inspiration	8.23	2.15	p<0.05significant
Wheezing	12.10	11.65	p<0.05significant
Total	10.42	27	p< 0.05significant

Paired" t test was calculated to analyze the difference in pre and post test Scores on respiratory function (oxygen saturation, retraction, Inspiratory muscle contraction, Inspiration and wheezing). In preschoolers with lower respiratory tract infection the paired 't' value in control group was 10.42and experimental group was 27, when compared table values (2.05) it was high. So it can be concluded that, there is significance in respiratory function among preschoolers with lower respiratory tract infection.

Table 6 Unpaired't test value of post test scores of respiratory function among Preschoolers withlower respiratory tract infection in an experimental group and control group.

Respiratory function	't' value	Level of significance
Oxygen saturation	7.42	p<0.05significant
Retraction	7.12	p<0.05significant
Inspiratory muscle contraction	7.01	p<0.05significant
Inspiration	6.74	p<0.05significant
Wheezing	8.24	p<0.05significant
Total	9.57	p< 0.05significant



Table 7 Area wise comparison of mean, standard deviation and mean percentage of pretest and post test scores of respiratory function among preschoolers with lower respiratory tract infection in experimental group

Level of	Pretest				st test 5 th	day	Difference in
Respiratory function	Mean	SD	Mean	Mean	SD	Mean	mean percentage
			%			%	
Oxygen saturation	1.01	0.12	34	2.82	0.08	94	60
Retraction	0.92	0.23	46	1.72	0.01	86	40
Inspiratory muscle	0.82	0.12	41	1.24	0.55	62	21
contraction							
Inspiration	1.23	0.88	31	3.41	0.84	85	54
Wheezing	1.52	0.21	38	3.51	0.52	88	50
Total	4.54	1.08	30	13.21	1.85	88	58

Comparison of Mean, SD, and mean percentage of experimental group pre and post test scores depicts that, In pre test the highest mean score was (1.52 ± 0.21) which is 38% whereas in post test the mean score was (3.51 ± 0.52) which is 88% in the area of wheezing. It reveals the difference of 50%.

The Lowest mean score in pre test was (0.82 ± 0.12) which is 41%, where as in post test the mean score was (1.24 ± 0.55) which is 62% in the area of inspiratory muscle contraction. It reveals the difference of 21%.

Similarly the overall in pre test the mean score was (4.54 ± 1.08) which is 30%, whereas in post test the mean score was (13.21 ± 1.85) which is 88%. It reveals the difference of 58%. It seems that Swedish massage technique was effective in improving the respiratory function among preschoolers with lower respiratory tract infection.

Table 8 Area wise comparison of mean, standard deviation and mean percentage of pretest and
posttest scores of respiratory function among preschoolers with lower respiratory tract infection
in control group

Level of	Pretest			II Post test 5 th day			Difference in
Respiratory function	Mean	SD	Mean	Mean	SD	Mean	mean percentage
			%			%	
Oxygen saturation	1.04	0.11	35	1.82	0.18	61	26
Retraction	0.74	0.24	37	1.00	0.11	50	13
Inspiratory muscle	0.81	0.21	41	1.00	0.52	50	9
contraction							
Inspiration	1.34	0.42	34	2.33	0.62	58	24
Wheezing	1.48	0.84	37	2.01	0.41	50	13
Total	4.21	1.81	28	8.52	1.32	57	29



 Table .9 Area wise comparison of mean, standard deviation and mean percentage of posttest scores of respiratory function among preschoolers with lower respiratory tract infection in experimental group and control group

Level of Respiratory	II Posttest5 th day					Difference in mean	
function	Cor	ntrol		Experimental			percentage
	gro	up		group)		
	Mea n	SD	Mean	Mean	SD	Mean	
			%			%	
Oxygen saturation	1.82	0.18	61	2.82	0.08	94	33
Retraction	1.00	0.11	50	1.72	0.01	86	36
Inspiratory muscle	1.00	0.52	50	1.24	0.55	62	12
contraction							
Inspiration	2.33	0.62	58	3.41	0.84	85	27
Wheezing	2.01	0.41	50	3.51	0.52	88	38
Total	8.52	1.32	57	13.21	1.85	88	31

SECTION D Find out the association between the post test scores on respiratory function among preschoolers with lower respiratory tract infection with their demographic variables in an experimental group and control group.

Areas	DF	Chi square value		Table	Level of
		Control	Experimental	value	significance
		group	group		
Age	1	6.69	4.21	3.84	significant
Gender	1	0.11	0.84	3.84	Not significant
H/o previous hospitalization	1	2.27	1.88	3.84	Not significant
with respiratory tract					
infection					
Frequency of hospitalization	1	2.82	2.01	3.84	Not significant

DISCUSSION

There are two types of tools were used. They are,

Section A: It consists of demographic characteristics of preschooler with lower respiratory tract infection.

Section B: It consist of observation schedule on preschool Respiratory Assessment Measure (PRAM) Distribution of samples according to their age group depicts that, most (53 % and 63%) of the preschoolers were in the age group of 4 - 5 years in both the groups. However only in experimental group 20% of the preschoolers were in the age group of 5 - 6 years.

Gender wise distribution of sample shows that, most (67% and 60%) of the preschoolers were males and only (33% and 40%) of preschoolers were female. It concludes that males are most affected with respiratory function disturbances.

Distribution of samples according to their H/o previous hospitalization with respiratory tract infection shows that highest percentage (53% and 73%) of preschoolers had hospitalization. However lowest percentage (47% and 27%) of preschoolers no hospitalization.



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Distribution of samples according to their frequency of hospitalization shows that highest similar percentage (53%) of preschoolers was more than 2 years of hospitalization. However only 13 % and 20% of the preschoolers had below 6 months of hospitalization.

Distribution of samples according to their frequency of lowers respiratory tract infection reveals that most (60% and80%)ofthemhadoncein3monthof lower respiratory tract infection. However only 6% of them had once in 6 months had lowers respiratory tract infection in experimental group Paired 't' test was calculated to analyze the difference in pre and post test Scores on respiratory function (oxygen saturation, retraction, Inspiratory muscle contraction, Inspiration and wheezing).In preschoolers with lower respiratory tract infection the paired't'value in control group was 10.42 and experimental group was 27, when compared to table values (2.05) it was high. So it can be concluded that, there is significance in respiratory function among preschoolers with lower respiratory tract infection.

Chi square was calculated to find out the association between the post test scores of respiratory function among preschoolers with lower respiratory tract infection with their demographic variables (Age, Gender, education, H/o previous hospitalization with respiratory tract infection, Frequency of hospitalization and Frequency of respiratory tract infection). Hence it can be interpreted that only age is significant and the other there is no significant association between post test scores of with their respiratory function among preschoolers with lower respiratory tract infection demographic variables were only by chance not the true difference.

CONCLUSION

Based on this findings of the study the following conclusion were drawn .The study findings revealed that administration of Swedish massage technique was highly significant in improving the respiratory functions among preschoolers. Swedishmassage technique on respiratory function could be implemented for improving respiratory parameters among preschoolers in selected hospital.

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