

A STUDY TO ASSESS ASSOCIATION BETWEEN THE POST-TEST LEVEL OF RESPIRATORY PARAMETERS WITH SELECTED DEMOGRAPHIC VARIABLES AMONG THE CHILDREN WITH LOWER RESPIRATORY TRACT INFECTION

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ABSTRACT

A study was conducted “to find out the association between the post-test level of respiratory parameters with selected demographic variables such as Personal statistic includes child’s age, sex, order of birth, type of family, religion residence, income, father’s occupation, diagnosis, previous hospitalization, duration of hospitalization, pet animal in home, types of allergy and previous habits of balloon blowing among the children with lower respiratory tract infection in control and experimental group. In this study a quasi-experimental research design was adopted. Non-probability Purposive sampling technique was used to selected the sample, each 30 sample in control and experimental group equally. The data of Demographic Variables gathered was analysed by Chi-square test statistical method and interpretations were made based on the objectives of the study. While all the other parameters viz. gender of the child, order of birth, type of family, religion, residence, income, occupation of father, diagnosis, previous hospitalization, duration of hospitalization, pet animals in home and type of allergen had no significant association with post test level of respiratory parameters ($p > 0.05$), showing that post test respiratory level is independent of these demographic variables in the experimental group. There was a significant association seen between post- test level of respiratory parameters and age of the children, previous habits of balloon blowing exercise ($p = 0.001$), showing that the post-test level of respiratory parameters is dependent on the age of the children and previous habits of balloon blowing exercise in the experimental group.

Key words: Demographic Variables, Respiratory Parameters, Children, Lower Respiratory Tract Infection, Post Test,

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INTRODUCTION

“Children are the brightest treasures we bring forth into this world”

Healthy children brought up in healthy surroundings are not only source of joy to everyone, but also India’s greatest resource tomorrow. Children are not little adults. They are in a dynamic process of growth and development, and are particularly vulnerable to acute and chronic effects of pollutants in their environment, which leads to diseases like respiratory tract infections, diarrhoea etc. Respiratory system is a frequent site of illness in children. Respiratory infection and allergies together are responsible for many disruptions in family life and which

force them miss their school work. Children respond differently to respiratory illness than adults. The respiratory changes that occur during childhood as new lung tissue continues to form and existing structure changes in shape and function. However, most respiratory conditions are more stressful for children than adult, more often leading to airway obstruction or respiratory failure. In respiratory tract, lower respiratory tract infection is one of the leading common diseases occur during childhood [1-3].

OBJECTIVES OF THE STUDY

To find out the association between the post-test level of respiratory parameters with selected demographic



variables (Personal statistic includes child's age, sex, order of birth, type of family, religion residence, income, father's occupation, diagnosis, previous hospitalization, duration of hospitalization, pet animal in home, types of allergy and previous habits of balloon blowing) among children with lower respiratory tract infection in control and experimental group.

RESEARCH METHODOLOGY

Methodology is a significant part of any study which enables the researcher to logically project the research undertaken. Research methodology is the systematic way to carry out an academic study and research in flawless manner. This chapter dealt with the research approach, research design, variables under the study, setting of the study, population of the study, sample size, sampling technique, criteria for selection of sample, description of tool, scoring interpretation, validity and reliability of the tool, pilot study, data collection procedure, statistical analysis and protection of human rights [4].

RESEARCH DESIGN

Quasi experimental design involves the manipulation of an independent variable that is an intervention. Quasi experimental design lacks of randomization, the signature of a true experiment [5].

KEYS:

E-Experimental group.

C- Control Group

O₂-Post-test on assess the respiratory parameters

VARIABLES IN THE STUDY

Dependent Variables

Respiratory parameters are concerned with measurable or quantifiable characteristic feature.

In this study assess the respiratory parameters includes the respiratory rate, heart rate, use of accessory muscles, nasal flaring, cough, breath sound, air entry, chest retraction, dyspnoea and oxygen saturation.

Demographic Variables

Personal statistic includes child's age, sex, order of birth, type of family, religion residence, income, father's occupation, diagnosis, previous hospitalization, duration of hospitalization, pet animal in home, types of allergy and previous habits of balloon blowing [6,7].

PROTECTION OF HUMAN RIGHTS

Prior to the data collection, the ethical clearance was obtained from the institutional Human ethical committee and written consent was obtained from the concerned authority. Permission was obtained from the Leonard multi specialty hospital Batalagundu and Shree Sathya Subha multispecialty Hospital at Dindigul District. Participant parents was informed about the study and

informed consent was obtained from the individual. The children's parents was informed their children are under obligation to participate in this study.

POPULATION

The target population of this study was comprised all the Children with lower respiratory tract infection, admitted in Leonard multi speciality Hospital, betalagundu (experimental group) and Shree Sathya Subha multi speciality Hospital, Dindigul (control group) at Dindigul District.

The accessible population of this study was comprised the children who meet the inclusion criteria.

SAMPLE

Children from Leonard multispecialty Hospital and Shree Sathya Subhamulti Speciality Hospital at Dindigul District, who fulfill the inclusion criteria, were selected to participate in this study.

SAMPLE SIZE

In this study the total sample size was 60, out of 60 sample, 30 sample for the experimental group, and 30 sample for the control group.

CONTROL GROUP

The above table 1 describes that, among 30 samples, with regards to Age 16 (53.3%) samples belong to 6-8 years, 11 (36.7%) belong to 9-11 years and 3 (10.0%) belong to 12 years. Regarding the Gender 16 (53.3%) were males and 14 (46.7%) females. Regarding the Order of Birth 17 (56.7%) were first child, 8 (26.7%) were second child and 5 (16.6%) were third child. In related to Type of family 17 (56.7%) belongs to nuclear family and 13 (43.3%) belongs to joint family. Distribution of respondents based on Religion 16 (53.4%) belongs to Hindu religion, 7 (23.3%) belongs to Muslim religion and 7 (23.3%) belongs to Christian religion. With regard to Residence 3 (10.0%) were from rural area, 11 (36.7%) were from semi urban area and 16 (53.3%) were from urban areas. Regarding the Income 16 (53.3%) had income between Rs. 5001-Rs. 10000 and 14 (46.7%) had income of more than Rs. 10000. Regarding Occupation of father, 16 (53.3%) were private employees, 6 (20.0%) were government employees and 8 (26.7%) were doing other work. Regarding the Diagnosis 7 (23.3%) having asthma, 11 (36.7%) having pneumonia and 12 (40.0%) having bronchitis. With regard Previous hospitalization 13 (43.3%) has previous hospitalization, while 17 (56.7%) has no previous hospitalization Regarding the Duration of hospitalization 11 (36.7%) had a duration of hospitalization of 1-3 days, 5 (16.7%) had a duration of hospitalization of 4-5 days and 14 (46.7%) participants had no history of hospitalization. Regarding the Pets at home 5 (16.7%) had pets at home, while 25 (83.3%) had no pets at home. Regarding the Allergen 16 (53.3%) has dust was the allergen, in 2 (6.7%) has house mite was the



allergen, in 3 (10.0%) has food was the allergen and in 9 (30.0%) has there was no allergen. Regarding the Previous habits of balloon blowing 2 (6.7%) had previous habits of balloon blowing exercise, while 28 (93.3%) had no such experience [8].

EXPERIMENTAL GROUP

The above table 1 shows that among 30 samples, with regards to Age 15 (50.0%) belongs to age group 6-8 years, 12 (40.0%) belongs to age group 9-11 years and 3 (10.0%) belongs to age group 12 years. Regarding the Gender there were 19 (63.3%) males and 11 (36.7%) female. Regarding the Order of Birth 14 (46.7%) were first child, 12 (40.0%) were second child and 4 (13.3%) were third child. In related to Type of Family 16 (53.3%) has nuclear family and 14 (46.7%) has joint family. Distribution of respondents based on Religion 15 (50.0%) belongs to Hindu religion, 5 (16.7%) belongs to Muslim religion and 10 (33.3%) belongs to Christian religion With regard to Residence 6 (20.0%) were from rural area, 11 (36.7%) were from semi urban area and 13 (43.3%) were from urban areas. With Regards to Income 14 (46.7%) had income between Rs. 5001-Rs. 10000 and 16 (53.3%) had income of more than Rs. 10000. Regarding the Occupation of father 13 (43.3%) were private employees, 9 (30.0%) were government employees and 8 (26.7%) were doing other work. Regarding the Diagnosis 7 (23.3%) were having asthma, 11 (36.7%) were having pneumonia and 12 (40.0%) having bronchitis. Regarding the Previous Hospitalization 16 (53.3%) had history of previous hospitalization, while 14 (46.7%) had no such previous hospitalization Regarding the Duration of Hospitalization 9 (30.0%) had a duration of hospitalization of 1-3 days, 7 (23.3%) had a duration of hospitalization of 4-5 days and 14 (46.7%) had no history of hospitalization. Regarding the Pet animals in home 3 (10.0%) has pets at home, while 27 (90.0%) has no pets at home. Regarding the Type of allergen 14 (46.7%) dust was the allergen, in 2 (6.7%) house mite was the allergen, in 7 (23.3%) food was the allergen and in 7 (23.3%) there was no allergen. Regarding the Previous habits of balloon blowing exercise 2 (6.7%) had previous habits of balloon blowing exercise, while 28 (93.3%) had no such experience [9].

Non-probability purposive Sampling technique was used to select the children from Leonard multi specialty Hospital (experimental group) and Shree Sathiya Subhamulti specialty Hospital (control group) at Dindigul District. The count of 30 samples was selected for the experimental group and 30 samples were selected for the control group. It is represented in Table 1 [10].

CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

The study includes children

1. Both male and female children.

2. Who were admitted with lower respiratory tract infection namely, asthma, pneumonia, bronchitis and bronchiolitis.
3. Whose parents were permitting the children to participate in the study.
4. Who responds to the command of the investigator.

Exclusion Criteria

The study excludes the children:

1. Who were critically ill.
2. With any oral surgery.
3. With co-morbid diseases like cardiac or renal diseases.
4. with any other complimentary treatment

DESCRIPTION OF THE INSTRUMENT

The data collection instrument consists of the following Demographic data.

Demographic data

It contains demographic profile of children such as age, sex, order of birth, type of family, religion, residence, monthly income, father's occupation, diagnosis, previous hospitalization, duration of hospitalization, pet animals in home, type of allergy, previous habits of balloon blowing [11].

VALIDITY and RELIABILITY

The tool was validated by 5 nursing expert, 1 medical expert and 1 statistic expert. The experts were requested to check the relevance, sequency and adequacy of the items in the research tool. Their valuable suggestions were incorporated and the tool was modified and finalized as per the correction and suggestions given by the experts [12].

Post-Test

Post-Test is performed based on the observational checklist to assess the respiratory parameters. It consists of 10 items which includes respiratory rate, heart rate, use of accessory muscles, nasal flaring, cough, breath sound, air entry, chest retraction, dyspnoea, oxygen saturation. All the parameters shown in Table 1. Based on the severity of respiratory parameters scoring was described as following Table 2.

On 5th day Post-test was done in control and experimental group. Respiratory parameters was assessed by observational check list. On the day of discharge, the researcher educated the parents about balloon blowing exercise to the control group children and encouraged to practice regularly to improve lung function. The data was collected and analysis was done using descriptive and inferential statistics [13].

STATISTICAL ANALYSIS

Chi-square test statistical analysis were studied to find the association between post- test level of respiratory



parameters among children with Lower respiratory tract infection with their selected demographic variables in control and experimental group.

The Association between the post test level of respiratory parameters with selected demographic variables in control group are shown in Table 4. Association between the post test score of respiratory parameters in experimental group are shown in Table 5.

RESULT

Selected demographic variables of children in control group and experimental group are listed in Table 3.

Table 1: Observational Check List for Assessing Respiratory Parameters

S.No	Features observed	Scoring			
		4	3	2	1
1	Respiratory rate (breath/minute) 6-11 years 12- years	18-25/min 12-20/min	26- 28/min 21-23/min	29-30/min 24-26/min	>30/min >26/min
2	Heart rare (beat/minute) 6-11years 12years	75-118/min 60-100/min	119-124/min 101-105/min	125-130/min 106-110/min	>130/min >110/min
3	Use of accessory muscles	Abdominal, shoulder & rib muscles involved	Shoulder, rib muscles &mild abdominal muscles	Rib muscles &shoulder muscles	Rib muscles only involved
4	Nasal flaring	Absent	Mild exertion	Moderate exertion	Sever exertion
5	Cough	Absent	Present with sputum	Present with moderate sputum	Present with sever sputum
6	Breath sound	Normal	Mild adventitious sounds	Moderate adventitious sounds	Sever adventitious sounds
7	Air entry	Bilateral air entry	Unilateral diminished air entry	Bilateral diminished air entry	Bilateral decreased air entry
8	Chest retraction	Absent	Just visible	Subcostal	Inter costal
9	Dyspnoea	Absent	Mild	Moderate	Sever
10	Oxygen saturation	98%-100%	96%-97%	91%-95%	< 91%

Table 2: Scoring based on the severity of respiratory parameters

Score	Interpretation
31-40	No distress.
21-30	Mild distress
11-20	Moderate distress
< =10	Severe distress

Table 3. Frequency and percentage distribution of children in control and experimental group according to their demographic data (N=30+30)

S. No.	Demographic Variable	Control Group (n=30)		Experimental Group(n=30)	
		f	%	F	%
1.	Age of the children:				
	a. 6-8 years	16	53.3	15	50.0
	b. 9-11 years	11	36.7	12	40.0
	c. 12 years	3	10.0	3	10.0
2.	Gender of the child:				
	a. Male	16	53.3	19	63.3
	b. Female	14	46.7	11	36.7



S. No.	Demographic Variable	Control Group (n=30)		Experimental Group(n=30)	
		f	%	F	%
3.	Order of Birth:				
	a. First child	17	56.7	14	46.7
	b. Second child	8	26.7	12	40.0
	c. Third child	5	16.6	4	13.3
4.	Type of family:				
	a. Nuclear	17	56.7	16	53.3
	b. Joint	13	43.3	14	46.7
5.	Religion:				
	a. Hindu	16	53.4	15	50.0
	b. Muslim	7	23.3	5	16.7
	c. Christian	7	23.3	10	33.3
	d. Others	0	0.0	0	0.0
6.	Residence:				
	a. Rural	3	10.0	6	20.0
	b. Semi Urban	11	36.7	11	36.7
	c. Urban	16	53.3	13	43.3
7.	Income:				
	a. Below Rs. 5000	0	0	0	0.0
	b. Rs. 5001-Rs.10000	16	53.3	14	46.7
	c. More than Rs. 10000	14	46.7	16	53.3
8.	Occupation of father:				
	a. Coolie	0	0.0	0	0.0
	b. Private employee	16	53.3	13	43.3
	c. Government employee	6	20.0	9	30.0
	d. Other	8	26.7	8	26.7
9.	Diagnosis:				
	a. Asthma	7	23.3	7	23.3
	b. Pneumonia	11	36.7	11	36.7
	c. Bronchitis	12	40.0	12	40.0
	d. Bronchiolitis	0	0.0	0	0.0
10.	Previous Hospitalization:				
	a. Yes	13	43.3	16	53.3
	b. No	17	56.7	14	46.7
11.	Duration of Hospitalization:				
	a. 1-3 days	11	36.7	9	30.0
	b. 4-5 days	5	16.7	7	23.3
	c. More than 5 days	0	0.0	0	0.0
	d. None	14	46.7	14	46.7
12.	Pet animals in home:				
	a. Yes	5	16.7	3	10.0
	b. No	25	83.3	27	90.0
13.	Type of allergen:				
	a. Dust	16	53.3	14	46.7
	b. House mite	2	6.7	2	6.7
	c. Food	3	10.0	7	23.3
	d. No allergy	9	30.0	7	23.3
14.	Previous habits of balloon blowing exercise:				
	a. Yes	2	6.7	2	6.7
	b. No	28	93.3	28	93.3
	Total	30	100.0	30	100.0



Table 4. Association between the post test level of respiratory parameters in control group (N=30)

S. No.	Demographic Variables	Posttest level of respiratory parameters				χ^2 value	P value
		No respiratory distress	Mild respiratory distress	Moderate respiratory distress	Severe respiratory distress		
1.	Age of the children: a. 6-8 years b. 9-11 years c. 12 years	0 0 0	8 5 1	8 6 2	0 0 0	0.292, df=2	0.864, NS
2.	Gender of the child: a. Male b. Female	0 0	7 7	9 7	0 0	0.117, df=1	0.732, NS
3.	Order of Birth: a. First child b. Second child c. Third child	0 0 0	6 5 3	11 3 2	0 0 0	2.046, df=2	0.359, NS
4.	Type of family: a. Nuclear b. Joint	0 0	9 5	8 8	0 0	0.621, df=1	0.431, NS
5.	Religion: a. Hindu b. Muslim c. Christian d. Others	0 0 0 0	6 3 5 0	10 4 2 0	0 0 0 0	2.305, df=2	0.316, NS
6.	Residence: a. Rural b. Semi Urban c. Urban	0 0 0	1 5 8	2 6 8	0 0 0	0.292, df=2	0.864, NS
7.	Income: a. Below Rs. 5000 b. Rs. 5001-Rs.10000 c. More than Rs. 10000	0 0 0	0 8 6	0 8 8	0 0 0	0.153, df=1	0.696, NS
8.	Occupation of father: a. Coolie b. Private employee c. Government employee d. Other	0 0 0 0	0 7 2 5	0 9 4 3	0 0 0 0	1.289, df=2	0.525, NS
9.	Diagnosis: a. Asthma b. Pneumonia c. Bronchitis d. Bronchiolitis	0 0 0 0	1 6 7 0	6 5 5 0	0 0 0 0	3.880, df=2	0.144, NS
10.	Previous Hospitalization: a. Yes b. No	0 0	4 10	9 7	0 0	2.330, df=1	0.127, NS
11.	Duration of Hospitalization: a. 1-3 days b. 4-5 days c. More than 5 days d. None	0 0 0 0	2 3 0 9	9 2 0 5	0 0 0 0	5.689, df=2	0.058, NS
12.	Pet animals in home:					1.714, df=1	0.190, NS



S. No.	Demographic Variables	Posttest level of respiratory parameters				χ^2 value	P value
		No respiratory distress	Mild respiratory distress	Moderate respiratory distress	Severe respiratory distress		
	a. Yes b. No	0 0	1 13	4 12	0 0		
13.	Type of allergen: a. Dust b. House mite c. Food d. No allergy	0 0 0 0	6 1 2 5	10 1 1 4	0 0 0 0	1.317, df=3	0.725, NS
14.	Previous habits of balloon blowing exercise: a. Yes b. No	0 0	0 14	2 14	0 0	1.875, df=1	0.171, NS
	Total	0	14	16	0		

Pearson chi-square test applied. P value of < 0.05 was taken as statistically significant

Table : 5 Association between the post test score of respiratory parameters in experimental group (N=30)

S. No	Demographic Variables	Posttest level of Respiratory Parameters				χ^2 value	P value
		No respiratory distress	Mild respiratory distress	Moderate respiratory distress	Severe respiratory distress		
1.	Age of the children: a. 6-8 years b. 9-11 years c. 12 years	15 12 2	0 0 1	0 0 0	0 0 0	9.310, daff=2	0.010*
2.	Gender of the child: a. Male b. Female	19 10	0 1	0 0	0 0	1.787, df=1	0.181, NS
3.	Order of Birth: a. First child b. Second child c. Third child	14 11 4	0 1 0	0 0 0	0 0 0	1.552, df=2	0.460, NS
4.	Type of family: a. Nuclear b. Joint	16 13	0 1	0 0	0 0	1.182, df=1	0.277, NS
5.	Religion: a. Hindu b. Muslim c. Christian d. Others	14 5 10 0	1 0 0 0	0 0 0 0	0 0 0 0	1.034, df=2	0.596, NS
6.	Residence: a. Rural b. Semi Urban c. Urban	6 11 12	0 0 1	0 0 0	0 0 0	1.353, df=2	0.508, NS
7.	Income: a. Below Rs. 5000 b. Rs. 5001-Rs.10000	0 14	0 0	0 0	0 0	0.905, df=1	0.341, NS



S. No	Demographic Variables	Posttest level of Respiratory Parameters				χ^2 value	P value
		No respiratory distress	Mild respiratory distress	Moderate respiratory distress	Severe respiratory distress		
	c. More than Rs. 10000	15	1	0	0		
8.	Occupation of father:						
	a. Coolie	0	0	0	0	2.414, df=2	0.299, NS
	b. Private employee	13	0	0	0		
	c. Government employee	9	1	0	0		
	d. Other	8	0	0	0		
9.	Diagnosis:						
	a. Asthma	6	1	0	0	3.399, df=2	0.183, NS
	b. Pneumonia	11	0	0	0		
	c. Bronchitis	12	0	0	0		
	d. Bronchiolitis	0	0	0	0		
10.	Previous Hospitalization:						
	a. Yes	15	1	0	0	0.905, df=1	0.341, NS
	b. No	14	0	0	0		
11.	Duration of Hospitalization:						
	a. 1-3 days	8	1	0	0	2.414, df=2	0.299, NS
	b. 4-5 days	7	0	0	0		
	c. More than 5 days	0	0	0	0		
	d. None	14	0	0	0		
12.	Pet animals in home:						
	a. Yes	3	0	0	0	0.115, df=1	0.735, NS
	b. No	26	1	0	0		
13.	Type of allergen:						
	a. Dust	13	1	0	0	1.182, df=3	0.757, NS
	b. House mite	2	0	0	0		
	c. Food	7	0	0	0		
	d. No allergy	7	0	0	0		
14.	Previous habits of balloon blowing exercise:						
	a. Yes	1	1	0	0	14.483, df=1	0.001*
	b. No	28	0	0	0		
	Total	29	1	0	0		

Pearson chi-square test applied. P value of < 0.05 was taken as statistically significant

DISCUSSION

The above **Table 4** shows that in control group, the obtained χ^2 values shows that there was no significant association between the level of respiratory parameters and demographic variables in the control group children. Such as age of the children, gender of the child, order of birth, type of family, religion, residence, income, occupation of father, diagnosis, previous hospitalization, duration of hospitalization, pet animals in home, type of allergen and previous habits of balloon blowing exercise, had no significant association with post test level of respiratory parameters ($p > 0.05$), showing that post test level of respiratory parameters is independent of these demographic variables in the control group.

The above **Table 5** shows that in experimental group the obtained χ^2 values computed that there was a significant association seen between posttest level of respiratory parameters and age of the children ($p = 0.010$), showing that the posttest level of respiratory parameter is dependent on the age of the children in the experimental group.

There was a significant association seen between posttest level of respiratory parameters and previous habits of balloon blowing exercise ($p = 0.001$), showing that the posttest level of respiratory parameters is dependent on the previous habits of balloon blowing exercise in the experimental group.

While all the other parameters viz. gender of the child, order of birth, type of family, religion, residence,



income, occupation of father, diagnosis, previous hospitalization, duration of hospitalization, pet animals in home and type of allergen had no significant association with post test level of respiratory parameters ($p>0.05$), showing that post test level of respiratory is independent of these demographic variables in the experimental group [14,15].

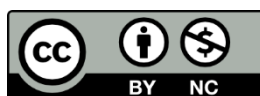
CONCLUSION

This study reveal that there is a significant association seen between post test level of respiratory

parameters and previous habits of balloon blowing exercise and showing that the post test level of respiratory parameter is dependent on the age of the children in the experimental group. While all the other parameters viz. gender of the child, order of birth, type of family, religion, residence, income, occupation of father, diagnosis, previous hospitalization, duration of hospitalization, pet animals in home and type of allergen had no significant association with post test level of respiratory parameters, showing that post test level of respiratory is independent of these demographic variables in the experimental group.

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