A Quasi Experimental Study to Assess the Effectiveness of Ballon Therapy on Respiratory Parameters Among Children Aged Between 6-12 Years at Selected Hospital of Bilaspur, Chhattisgarh

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Abstract: The current study aimed to assess the effectiveness of balloon therapy on respiratory parameters among children aged between 6-12 years with lower respiratory tract infection in selected hospitals at Bilaspur Chhattisgarh. quasi experimental research design is utilized to achieve the stated. Objectives: 1. To assess level of lower respiratory tract infection among children aged between 6-12 years in control group. 2. To assess the level of lower respiratory tract infection among children aged between 6-12 years in experimental group. 3. To evaluate the effectiveness of Ballon therapy on respiratory parameters among Children aged between 6-12 years with lower respiratory tract infection in experimental Group. 4. To find out the association between the level of respiratory parameters among children aged between 6-12 years with lower respiratory tract infection in experimental group and control group with their socio demographic and clinical variables. Hypothesis: To examine the following hypothesis at 0.05 level of significance: H1: There is significant difference between pre test and post test level of respiratory Parameters among children aged between 6-12 years with lower respiratory tract infection in Control and experimental group. H2: There is significant association between the pretest level of respiratory parameters among children aged between 6-12 years with lower respiratory tract infection in experimental group and control group with their socio demographic and clinical variables. Projected Outcome/Hypothesis: For the present study Quasi experimental research design is utilized to achieve the stated objective. The study was based on the conceptual framework of Weinbach's clinical practice general system model is to assess the effectiveness of balloon therapy on respiratory parameters among children aged between 6-12 years with lower respiratory tract infection. A quantitative research approach is used pilot study was conducted to confirm the feasibility of the study and determine the reliability of the tool. For main study consecutive sampling was done on 40 sample of children aged between 6-12 years with lower respiratory tract infection. The tool used for data collection consists of Socio demographic variables, Clinical variables and Modified Carroll's Pulmonary index score. The data was analysed using the descriptive and inferential statistics where the result shows. The findings related to respiratory parameters in pre test and post test in experimental group. The post test (19), SD (2.92) is higher than the pre test score is (17.3), SD(5.11) and t value = 4.25 obtained, which is significant at P>0.005 so the H1 hypothesis is accepted. The findings related to respiratory parameters in pre test and post test in control group. The post test (36), SD (1.2) is higher than the pre test score is (36.7), SD (2.3) and t value = 1.29 obtained, which is non-significant at P value.

Keywords: Balloon therapy, Respiratory parameters, Carrolls pulmonary index score.

1. Introduction

The 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 to miss their school work. Most children have 3 to 5 attacks of acute respiratory infection in each year. The respiratory rate is a valuable clinical sign diagnosing acute lower respiratory infection in children who cough and breathe rapidly. balloon therapy their respiratory muscles, a group of muscle interacting to adapt thoracic dimension to certain breathing stages. Respiration is the sequence of events that results in the exchange of oxygen and carbon dioxide between the atmosphere and the body cells. Every 3 to 5 seconds, nerve impulses stimulate the breathing process, or ventilation, which moves air through a series of passages into and out of the lungs. After this, there is an exchange of gases between the lungs and the blood. This is called external respiration. The blood transports the gases to and from the tissue cells. The exchange of gases between the blood and tissue cells is internal respiration. Finally, the cells utilize the oxygen for their specific activities: this is called cellular metabolism, or cellular respiration. Together, these activities constitute respiration. Balloon therapy is a simple exercise that creates lung capacity is blowing up a certain amount of balloons each day. Blowing balloons works out the intercostals muscles responsible for

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spreading and elevating diaphragm and ribcage. This allows lungs to absorb oxygen, alter its chemical composition while still in the lungs, and expel carbon dioxide as exhaling is commenced. Balloon blowing, while effectively exercising the lungs' ability to expand and take in air, does not affect the size or 6 number of alveoli contained in the lungs. Alveoli are air sacs that disperse carbon dioxide during exhalation and oxygen into the blood during inhalation. Most of the patients in India with chronic lower respiratory tract infection used to be on some forms of bronchodilator therapy, which has its own side effects also, the balloon blowing exercise can be helpful for recovery speedily and reduction of length of stay in the hospital for children as well as ballon is the one of the play items for the children which will show less fear towards the ballon blowing exercise as compare to the use of other device such as spirometry. it is a cost-effective method as compare to other non-pharmacological therapies, so it will decrease the economy burden of nation as well as family, balloon blowing exercise also act as breathing exercise so, it will help to reduce the stress level in children due to hospitalization and parental separation.

So, the investigators felt that if this cost-effective balloon therapy is found to be effective in improving the respiratory status of patients, can replace the drug usage or reduce its dosage and thereby can improve the Quality of life of patients with lower respiratory disorders.

So, the present study is to assess the effectiveness of balloon therapy on respiratory parameters among children aged between 6-12 years with lower respiratory tract infection.

2. Result and Discussion

A. Organization of Data

The findings of the study were discussed under five sections stated below

Section I: Distribution of subjects according to demographic & clinical variables using frequency and percentage.

Section-II: Criteria wise analysis of pretest level of respiratory parameters among children aged between 6-12years with lower respiratory tract infection in experimental and control group

Section III: Evaluate the effectiveness of balloon therapy on respiratory parameters among children aged between 6-12years with lower respiratory tract infection in experimental group and control group

Section IV: Chi-square analysis to find out association between level of pre test level of respiratory parameters among children aged between 6-12years with lower respiratory tract infection with their selected socio-demographic variables.

The analysis of data was organized and presented under the following headings:

It shows that in experimental group majority of subjects 9 (45%) belonged to age group 9-10 years of age, 6 (30%) belonged to age group 6-8years of age, and 5(25%) were belongs to 11-12years of age whereas in control group majority of subjects 10 (50%) were belongs to 6-8years of age, 6(30%) were belongs to 11-12years of age, 3(15%) were belongs to 9-10years of age.

In experimental group majority of subjects 13 (65%) were female and 7(35%) were male, whereas in control group majority of subjects 14 (70%) were female and 6(30%) were male.
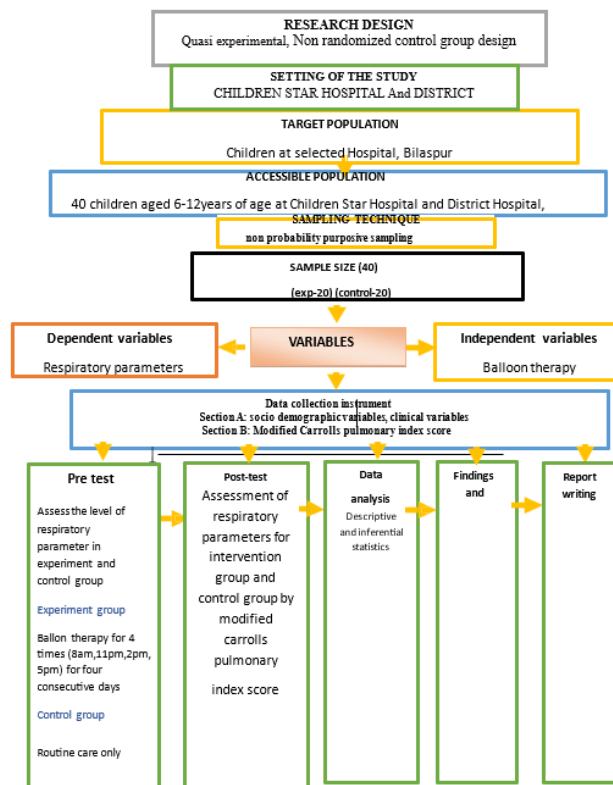

Fig. 1. Methodology

In experimental group majority of subjects 12 (60%) were having no formal education, 3(15%) were having secondary and graduate, 2(10%) were having primary education, whereas in control group majority of subjects 12(60%) were having non formal education, 3(15%) were having primary and secondary education, 2(10%) were having graduate education.

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In experimental group majority of subjects 8(40%) were doing daily wages, 7(35%) were doing other, 3(15%) were doing government job, 2(10%) were doing private job, whereas in control group majority of parents 11(55%) were doing daily wages, 5(25%) were doing other job, 2(10%) were doing government and private job.

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In experimental group majority of subjects 13 (65%) were living in urban areas and 7(35%) were living in rural areas,

whereas in control group majority of subjects 14(70%) were living in urban areas and 6(30%) were living in rural areas.

In experimental group majority of subjects 13 (65%) were not having infection and 7(35%) were having infection, whereas in control group majority of subjects 14(70%) were not having infection and 6(30%) were having infection.

B. Distribution of Subject According to Clinical Variable by Frequency and Percentage

In experimental group majority of subjects 9 (45%) were per term at birth, 6 (30%) were post term at birth, and 5(25%) were full term at birth whereas in control group majority of subjects 10 (50%) were pre term at birth, 6(30%) were post term at birth, 3(15%) were full term at birth.

In experimental group majority of subjects 13 (65%) were got delivery in private hospital and 7(35%) were got delivery in government hospital, whereas in control group majority of subjects 14(70%) were got delivery in private hospital and 6(30%) were got delivery in government hospital.

In experimental group majority of subjects 8(40%) were having 2.5-3.0kg birth weight, 7(35%) were having >3.0kg birth weight, 3(15%) were having <2kg birth weight, 2(10%) were having 2.0-2.5kg birth weight, whereas in control group majority of subjects 11(55%) were having 2.5-3.0kg birth weight, 5(25%) were having >3.0kg birth weight, 2(10%) were having >2kg birth weight, 2.0-2.5kg birth weight.

In experimental group majority of subjects 12 (60%) were done 0-3month breast feeding, 3(15%) were done >6 month feeding, 2(10%) were done 3-6month feeding, whereas in control group majority of subjects 12(60%) were done 0-3month feeding, 3(15%) were done 3-6 month feeding, 2(10%) were not done feeding.

In experimental group majority of subjects 9 (45%) were 2times hospitalization, 6 (30%) were 1times hospitalization, and 5(25%) were more than 2 times hospitalization of age whereas in control group majority of subjects 10 (50%) were 1times hospitalization, 6(30%) were more than 2times hospitalization, 3(15%) were 2times hospitalization.

Pre test level of respiratory parameters among children aged between 6-12years with lower respiratory tract infection In experimental group 17(85%) were having moderate respiratory parameters, 3(15%) were having mild respiratory parameters. In control group 15(75%) were having severe respiratory parameters, 5(25%) were having moderate respiratory parameter.

The post test level of respiratory parameters among children aged between 6- 12years with lower respiratory tract infection. In experimental group 15(75%) were having mild respiratory parameters, 5(25%) were having moderate respiratory parameters. In control group 15(75%) were having severe respiratory parameters, 5(25%) were having moderate respiratory parameters.

The comparison of pre test and post test in experimental group.
- The findings related to respiratory parameters in pre test and post test in experimental group. The post test (19), SD (2.92) is higher than the pre test score is (17.3), SD(5.11) and t value = 4.25 obtained, which is significant at P>0.05 h1 hypothesis is Accepted.
- The comparison of pre test and post test in control group.
- The findings related to respiratory parameters in pre test and post test in control group. The post test (36), SD (1.2) is higher than the pre test score is (36.7), SD(2.3) and t value = 1.29 obtained, which is non significant at P<0.005.h1 is rejected.
- It shows the association between level of pre test level of respiratory patterns in experimental group with their socio demographic characteristics such as age, gender, educational status of mother, educational status of father, occupational status of mother, occupational status of father, area of residence, history of previous respiratory infection.
- The calculated value of chi square for educational status of father (13.44), area of residence (9.82) were significant were as age (0.21), gender (1.55), educational status of mother (2.54), occupational status of mother (2.71), occupational status of father (3.98), history of previous respiratory infection (0.23) were not significant.
- It shows the association between level of pre test level of respiratory parameters in experimental group with their clinical variables characteristics such as term of baby at birth, place of delivery, birth weight of baby, duration of breast feeding, duration of hospitalization in one year.
- The calculated value of chi square for term of baby at birth (19.23), duration of breast feeding (35.4) were significant were as place of delivery (0.23), birth weight of baby (4.10), duration of hospitalization in one year (0.21) were not significant

3. Conclusion

It shows that in experimental group pretest mean is 17.3 and SD is 5.11 & in post test mean is 19 & SD is 2.92, & t value is 4.25 which is significant at p>0.05 so, the H1 hypothesis is accepted. It shows that in control group pretest mean is 36.7 & SD is 2.3 & t value is 2.05 which is not significant at p> 0.05 so, the h1 is rejected.

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