

To Assess the Effectiveness of Buteyko Breathing Technique on Respiratory Pattern among 3 to 12 Years Children with Respiratory Diseases

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Abstract

This study was carried out to reduce the episodes respiratory attacks and to manage respiratory emergencies by the use of non pharmacological interventions like Buteyko breathing technique among the children of 3 to 12 years of age group those who are suffering from different types of respiratory diseases, this study will also improve the level of understanding of children as well as of the family members to manage these condition initially at home so that the anxiety level of the parents will be reduced, along with reduction in mortality and morbidity rate of this age group children.

Keywords: Buteyko Breathing Technique; Improve Level of Understanding; Children 3-12 Years; Respiratory Diseases; Non Pharmacological Intervention.

Introduction

Today's society is complex and ever changing. As children grow they must not only to cope with current demand but also to prepare for many unexpected events they will face in their tomorrows'. Changes brought by new techniques and technologies will continue to have an impact on society as whole.

The buteyko breathing technique was originally developed in the 1950s by physiologist Konstantin Pavlovich Buteyko in Russia. This method is based on the assumption that numerous medical conditions including asthma caused by chronically increased respiratory rate (hyperventilation). Normally, when the amount of CO₂ in our blood rises, we breathe. This replaces some of the CO₂ with O₂ and so lowers the CO₂ level back to normal. During an asthma attack, people panic and breathe too quickly. They actually over breathe because they are breathing so rapidly. This over breathing causes the amount of CO₂ in the blood to fall too low, which can subsequently lead to disturbances of the acid base balance in the blood and lower tissue oxygen level. The body reacts by causing the airways in the lungs to narrow and reduce the amount of air inhaled in each breath, which panics the patient into trying to breathe even harder. Buteyko breathing technique with will break this "negative feedback" cycle by teaching us to breathe more shallowly and to tolerate a higher concentration of CO₂ in our blood.

Childhood is the age span ranging from birth to adolescence. Many disorders affect the young buds either from birth or on the developmental period. One of them is respiratory disorder. The most common chronic disease among children and causes very high degree of morbidity and 25% of school absence in children under 12 years of age.

Buteyko uses a measurement to monitor the condition of asthma and other breathing problems cold the control pause (CP) defined as the amount of time that and individual can comfortably old breath after normal exhalation. According to Buteyko teachers, with Buteyko reduced - breathing practice, asthmatics are expected to find their CP gradually increases in parallel decreased asthma symptoms. By increasing the CP asthmatics can control the initial over breathing phase and they can prevent a "vicious circle of over breathing" from developing spiraling into an asthma attack. This means that asthma attack may be averted simply by breathing less.

This study was carried out to reduce the episodes respiratory attacks and to manage respiratory emergencies by the use of non pharmacological interventions like Buteyko breathing technique among the children of 3 to 12 years of age group those who are suffering from different types of respiratory diseases, this study will also improve the level of understanding of children as well as of the family members to manage these condition initially at home so that the anxiety level of the

parents will be reduced, along with reduction in mortality and morbidity rate of this age group children.

Problem Statement

“A Pre experimental study to assess the effectiveness of Buteyko breathing technique on respiratory pattern among 3 to 12 years children with respiratory diseases in selected pediatric units at Indore”.

Objectives

- To assess the respiratory pattern of 3 to 12 years children with respiratory disease.
- To assess the effect of Buteyko breathing technique among 3 to 12 years children with respiratory disease.
- To find out the association between pre and post respiratory pattern with selected demographic variables.

Review of Literature

S. Afsharpaiman *et al.* (2013) Respiratory difficulties and breathing disorders in achondroplasia are thought to underlie the increased risk for sudden infant death and neuropsychological deficits seen in this condition. These reviews evaluate literature regarding respiratory dysfunctions and their sequelae in patients with achondroplasia. Delimited number of prospective studies of respiratory disease in achondroplasia means that observational studies and case series provide a large proportion of the data regarding the spectrum of respiratory disease in achondroplasia and their treatment. Amongst clinical respiratory problems described, snoring is the commonest observed abnormality, but the reported incidence of obstructive sleep apnoea (OSA) shows wide variance (10%-75%). Reported treatment of OSA includes adenotonsillectomy, the use of CPAP, and surgical improvement of the airway including mid phase advancement. Otolaryngologic manifestation is also common. Respiratory failure due to small thoracic volumes is reported, but uncommon. Mortality rate at all ages was 2.27 (CI:1.07-3.0) with age-specific mortality increase at all ages. Sudden death was most common in infants in children cardiovascular events are the main cause of mortality in adults despite earlier recognition and treatment of respiratory complication of achondroplasia, increased mortality rates and other complications remain high. Future and ongoing evaluation of the prevalence and

impact of respiratory disorders, particularly OSA, in achondroplasia is recommended.

Buteyko VK, *et al.* (2011) A six year - clinical trial was conducted among 100,000 clients with asthma who were being treated with drugs and showed that, approximately 92,000 of the subjects do not take drugs today. Clinical trial demonstrated that most people who complete the Buteyko course no longer need their reliever medication and eventually give up steroids as well.

Hypothesis

RH1: There will be significant difference between mean pretest and mean posttest scores of breathing parameters among 3 to 12 years children.

RH2: There will be significant association between pre test and post test scores of respiratory pattern with selected demographic variable.

RH0: There will be a no significant difference between mean pretest and mean posttest scores of breathing parameters among 3 to 12 years children.

Methodology

Pre experimental one group pre-test post-test design used, An evaluatory observational approach was used in this study to find out the effectiveness of Buteyko breathing technique on the children suffering from respiratory diseases. An observational approach with one group pre-test post-test design was used in this study. The sample consisting of 100 children those who are admitted in paediatric units. They were chosen by non probability convenient sampling technique. The study was conducted at SAIMS hospital and CNBC hospital of Indore city. The data was collected prior and after that Buteyko breathing technique were administered to the children. The data was collected by the help of demographic variables and observational checklist.

Demographic variables consists of

1. Age
2. Gender
3. Educational status of child
4. Family income
5. Job status of father and mother
6. Any respiratory disease after birth
7. Present days of hospitalization of child
8. Educational status of father and mother
9. Order of child in family

Analysis and Interpretation of Data

Table 1: Comparison between pre-test and post-test breathing score.

S. No.	Breathing Score	Pre-Test Score		Post -Test Score	
		Frequency	Percentage %	Frequency	Percentage %
1	Poor (41-50)	59	59.0	0	0.0
2	Average (31-40)	41	41.0	1	1.0
3	Good (25-30)	0	0.00	99	99.0
	Total	100	100.0	100	100.0

Effectiveness of Buteyko breathing technique on respiratory pattern of children suffering from respiratory disease.

Table 2: Comparison between mean, SD, mean difference and t value of pre-test and post-test breathing score. (N=100)

Breathing score	Mean (x)	S.D. (s)	Std. Error of mean	D.F.	t-value	Significance
Pre-test	40.65	1.966	0.193	9	62.209	P>0.05* Highly significant
Post-test	28.64	0.882				

- 10. Type of family
- 11. Family history of any respiratory disease

Observational checklist contains

Statements of respiratory parameter

- 1. Breathing type
- 2. Breathing sound
- 3. Breath depth
- 4. Breathing Rhythm
- 5. Heart rate

Results

The data was analyzed by descriptive and inferential statistics in the conclusion it can be clearly scan that the “t” value was 62.209 and the p value was < 0.05, which clearly shows that Buteyko breathing exercises were very effective in improving the respiratory problems of these children. It is also seen that there is a significant difference between mean pre-test and post-test scores of breathing parameters among 3 to 12 years children at a p value of < 0.05 is being accepted.

The Association between the demographic variables and the pretest breathing score was seen using Person’s chi-Square test. The chi-Square value is calculated and p value is checked against the degree of freedom from the p value is calculated. If p value < 0.05, we say that there is significant association between the demographic variable and the pretest breathing score, else if p value is > 0.05, we say that there is no association between the

two. Thus, chi-Square only shows the association between the variable and the category, but does not shows the strength of this association which was found to be highly significant.

In this study hypothesis, H1 that, “There will be a significant difference between mean pretest and mean posttest scores of breathing parameter among 3 to 12 years children at a p-value of < 0.05” is being accepted.

Discussion on association between of Demographic Variables

The study shows that there is significant association between respiratory disease after birth, present days of hospitalization of the child, family history of any respiratory disease.

There was a significant $\chi^2=11.40$ ($p < 0.05$) association between the demographic variable with respiratory disease after birth.

There was a significant $\chi^2=6.04$ ($p < 0.05$) association between the demographic variable with present days of hospitalization of child.

There was a significant $\chi^2=6.27$ ($p < 0.05$) association between the demographic variable with family history of any respiratory disease.

In this study hypothesis, H2 that, “There will be a significant association between pretest scores of respiratory pattern and their selected demographic variable at a p value of < 0.05” is accepted partially.

Interpretation and Conclusion

Findings of the study showed that the Buteyko breathing technique was found to be an effective

method to promote the respiratory pattern of the children those who are suffering from respiratory diseases. It was well appreciated and accepted by the children and the family members.

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