

EFFECTIVENESS OF BUTEYKO BREATHING TECHNIQUE AMONG ASTHMATIC CHILDREN IN SELECTED HOSPITAL IN PUDUCHERRY, INDIA

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Abstract: Introduction: Asthma is a long-term condition that affects the airways in the lungs, which are responsible for carrying air in and out of your lungs. **Aim of the study:** The main aim of the study evaluates the effectiveness of Buteyko Breathing Technique in terms of reduction of signs, symptoms of asthma and increase in peak expiratory lung volume among asthmatic children. **Methodology:** A quantitative research approach was adopted for the present study. The sample size for this study was 60 asthmatic children who was selected using convenience sampling technique. **Results:** The present study revealed that out of 60 asthmatic children 51(85%) had significant Hyperventilation, 9 (15%) had Moderate Hyperventilation and None of them had mild hyperventilation in pre-test. In posttest 12 (20%) had Mild Hyperventilation, 40 (66.7%) had Moderate Hyperventilation, 8 (13.3%) had significant hyperventilation respectively. **Conclusion:** The present study concludes that it was evident that Buteyko breathing technique is very effective in the management of asthma.

Key Words: Asthma, Buteyko Breathing, Technique, Effectiveness.

1. INTRODUCTION:

Asthma is a long-term condition that affects the airways in the lungs, which are responsible for carrying air in and out of your lungs. When a person has asthma, their airways can become inflamed and narrowed at times. As a result, it becomes difficult for air to flow out of the airways when they breathe out. According to WHO (2023), Asthma is a chronic lung disease affecting people of all ages. Asthma is included in the WHO Global Action Plan for Preventing and Control Non-communicable diseases and the United Nations 2030 Agenda for Sustainable Development. WHO estimated that the number of people with asthma will grow by more than 100 million by 2025. Workplace conditions, such as exposure to fumes, gases or dust, are responsible for 11% of asthma cases worldwide. About 70% of asthmatics also have allergies. Almost all of these deaths are avoidable. Air pollution damages brain tissue and undermines cognitive development in babies and young children, leading to lifelong consequences that can affect their learning outcomes and future potential. There is evidence to suggest that adolescents exposed to higher levels of air pollution are more likely to experience mental health problems.

2. NEED FOR THE STUDY:

The Global Burden of Disease (GBD) study has estimated that India is home to over 30 million asthmatics, accounting for 13.09% of the global burden. In terms of mortality, more than 42% of all asthma fatalities worldwide occur in India. Daily exercise helps to improve your lung capacity, in other words, the maximum amount of oxygen your body can use. Also, exercise increases blood flow to your lungs, promoting blood flow to the heart which pumps oxygen throughout your body. In study done by Zahra Mohamed Hassan et.al concluded that the group of people who received the Buteyko breathing technique (BBT), and the medications prescribed by the physician revealed a significant decrease in asthma daily symptoms, a significant improvement in Peak expiratory flow rates.

Thayla A Santino et.al states that breathing exercise is effective from the finding of fourteen studies that used Yoga as the intervention, four studies involved breathing retraining, one the Buteyko method, one the Buteyko method and one pranayama, one the Papworth method and one deep diaphragmatic breathing. The studies were different from

one another in terms of the type of breathing exercise performed, number of participants enrolled, number of sessions completed, period of follow-up, outcomes reported and statistical presentation of data.

Buteyko Breathing Technique is a form of complementary or alternative physical therapy that proposes chronic “breathing retraining” as a treatment for asthma as well as other conditions. It is a set of simple breathing exercises to help control asthma and other breathing disorders. At the core of the Buteyko method is a series of reduced-breathing exercises that focus on nasal breathing, breath-holding and relaxation. Alternative therapies for bronchial asthma are acupuncture, Buteyko Breathing Technique, herbal therapy, homoeopathy, hypnosis, supplements and yoga.

3. STATEMENT OF THE PROBLEM :

“A Study to Assess the Effectiveness of Buteyko Breathing Technique among Asthmatic Children in SMVMCH, at Puducherry”.

4. OBJECTIVES OF THE STUDY:

- To assess the signs and symptoms of asthma using Modified Nijmegen Questionnaire and peak expiratory lung volume using Peak Flow Meter among asthmatic children.
- To evaluate the effectiveness of Buteyko Breathing Technique in terms of reduction of signs, symptoms of asthma and increase in peak expiratory lung volume among asthmatic children.
- To correlate the signs and symptoms of asthma with the peak expiratory lung volume among asthmatic children.
- To associate the effectiveness of Buteyko Breathing Technique among asthmatic children with their selected demographic variables.

4.1 ASSUMPTIONS:

- Buteyko Breathing Technique may be an alternative therapy for the reduction of asthmatic symptoms.
- Buteyko breathing technique will not produce any complications.
- Asthmatic children will follow the retraining of breathing pattern in future also to be free from asthma symptoms.
- Children will be less reliant on medication.

5. METHODOLOGY :

The research approach adopted for this study was Quantitative research approach. The research design adopted for this study was pre-experimental - one group pretest and posttest research design. The setting of the study was selected hospital at Puducherry. The sample size for this study was 60 asthmatic children who was selected using convenience sampling technique. Inclusion criteria includes children between 8 to 12 years of age suffering from asthma and Children those who are using respules, inhalers etc.

DATA COLLECTION PROCEDURE

Data is intended to collect by using rating scale (Modified Nijmegen Questionnaire) and bio-physiological method (in vitro - Peak Flow Meter). After obtaining consent from the concerned authority and subjects the investigator collects the demographic data. The investigator assessed the signs and symptoms of asthma and Peak Expiratory Lung Volume among asthmatic children by using Modified Nijmegen Questionnaire and Peak Flow Meter in pre-test. Then the children were demonstrated with the Buteyko Breathing Technique on the day one, after pre-test through manually and video. Buteyko Breathing Technique were taught by starting with nasal breathing technique for 5 minutes, with 5 minutes of interval the second technique of reduced breathing technique were taught for 5 minutes and with the 5 minutes interval the third technique of relaxed breathing technique were taught for 5 minutes with the presence of child’s mother. Repetitive trials were given to the subjects 30-40 minutes a day, for duration of 3 weeks and had instructed to practice at home twice a day morning and evening with a guide of recording sheet given to mother. The investigator had done the post-test to evaluate the effectiveness of Buteyko Breathing Technique expecting the reduced signs, symptoms of asthma and increased Peak Expiratory Lung Volume after 3 weeks of duration with regular practice at home.

Table: 1 Distribution of Mean, Standard deviation, Mean percentage of peak expiratory lung volume among asthmatic children in pre and post- test.

Peak expiratory lung volume	Mean	S.D	Mean %	Effectiveness Mean %
Pretest	145.8	42.23	36.45%	23.09%
Post Test	238.2	115.2	59.54%	

The above table reveals that their mean, standard deviation, mean percentage values are in 145.8, 42.23 and 36.45% in pre-test. In post-test their mean, standard deviation and mean percentage values are 238.2, 115.2 and 59.54% respectively.

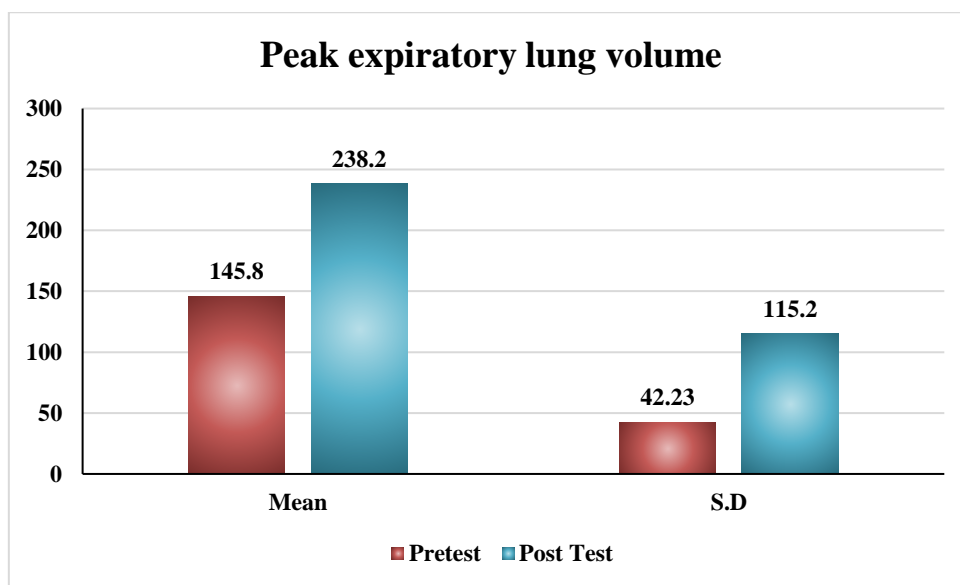


Figure 1: Bar diagram representing Mean, Standard deviation of peak expiratory lung volume among asthmatic children

Table: 2 Correlation of signs and symptoms of asthma with the peak expiratory lung volume among asthmatic children.

Tool	Mean	S.D	Correlation Coefficient (r)
Signs of symptoms	19.85	5.75	0.6824
Peak expiratory lung volume	238.2	115.2	

The above table reveals the mean, standard deviation of signs and symptoms is 19.85, 5.75 respectively. Mean, standard deviation of peak expiratory lung volume is 238.2, 115.2. Correlation coefficient (r) of signs, symptoms and peak expiratory lung volume which is at 0.6824, hence it shows Positive Correlation.

6. MAJOR FINDINGS :

The study reveals that the distribution of selected Demographic variables among asthmatic children, out of 60 asthmatic children majority 24 (40%) are in the age group of 8-9 years. In the aspect of the sex the data shows majority 33(55%) male children. In the aspect of educational status of the child the data shows majority 26 (43.3%) are in 5th standard. In the aspect of medium of education, the data shows that maximum 49 (81.7%) are in English medium. In the aspect of religion, the data shows that majority of 51 (85%) are in Hindu. In the aspect of the educational status of the mother the data shows majority 29 (48.3%) are in primary or higher secondary. In the aspect of type of family the data shows that 51 (85%) belongs to nuclear family. In the aspect of family income, the data shows that 30 (50%) are in 5001-10000. In the aspect of family history of asthma 48 (80%) belongs to no. In the aspect of asthma episodes or year the data shows that 33 (55%) are affected 7 times or year, In the aspect of dietary pattern the data shows that 53 (88.3%) belongs to non-vegetarian. In the aspect of place of stay the data shows that 58 (96.7%) belongs to home. In the aspect of history of allergen the data shows that 45 (75%) are in no. In the aspect of age of mothers the data shows that 49 (81.7%) are in 31- 40 years.

7. RESULTS AND DISCUSSION:

The finding reveals that out of 60 asthmatic children 51(85%) had significant Hyperventilation, 9 (15%) had Moderate Hyperventilation and None of them had mild hyperventilation in pre-test. In posttest 12 (20%) had Mild Hyperventilation, 40 (66.7%) had Moderate Hyperventilation, 8 (13.3%) had significant hyperventilation respectively.

The mean, standard deviation of signs and symptoms is 19.85, 5.75. respectively. Mean, standard deviation of peak expiratory lung volume is 238.2, 115. Correlation coefficient (r) of signs, symptoms and peak expiratory lung volume which is at 0.6824, hence it shows Positive Correlation of Buteyko breathing technique.

After the implementation of Buteyko Breathing Technique, it acts as an alternative therapy for the reduction of asthmatic symptoms. Buteyko breathing technique doesn't produce any complications for the children during and after the study. Asthmatic children are willing to follow the retraining of breathing pattern in future also to be free from asthma symptoms. Children seem to be less reliant on medication during the study period. The parents of the asthmatic children expressed the feelings that Buteyko Breathing Technique is the cost effective. Method in reducing asthmatic symptoms and the child will be acquiring a better sense of control over their asthma. Hence the present study revealed that Buteyko breathing technique is effective in reducing the signs, symptoms of asthma and increase in peak expiratory lung volume.

8. RECOMMENDATION:

Based on findings of the present study, the following recommendations have been made,

- Similar study can be conducted in other parts of the country with a large sample.
- The same study can be conducted with true experimental research design.
- The study can be done for wheeze associated with lower respiratory infection children.
- The study can be done as a longitudinal study.

REFERENCES:

1. "Asthma." World Health Organization (WHO), <https://www.who.int/news-room/fact-sheets/detail/asthma>. Accessed 1 Oct. 2023.
1. 2. "UNICEF." <https://www.unicef.org/turkiye/en/press-releases/immediate-action-needed-south-asia-clean-air-children>. Accessed 1 Oct. 2023.
2. "India Accounts for over 42% of All Global Asthma Deaths: Study - Hindustan Times." Hindustan Times, 20 May 2022, <https://www.hindustantimes.com/cities/lucknow-news/india-accounts-for-over-42-of-all-global-asthma-deaths-study-101653065042600.html>.
3. "Your Lungs and Exercise." Breathe, no. 1, European Respiratory Society (ERS), Mar. 2016, pp. 97–100. Crossref, doi:10.1183/20734735.elf121.
4. Hassan, Zahra Mohamed, et al. "Effect of Buteyko Breathing Technique on Patients with Bronchial Asthma." Egyptian Journal of Chest Diseases and Tuberculosis, no. 4, Medknow, Oct. 2012, pp. 235–41. Crossref, doi:10.1016/j.ejcdt.2012.08.006.

5. 6.Santino, Thayla A., et al. "Breathing Exercises for Adults with Asthma." Cochrane Database of Systematic Reviews, no. 3, Wiley, Mar. 2020. Crossref, doi:10.1002/14651858.cd001277.pub4.
6. Adlepillitery, (2005), "child health nursing", 2nd edition, Philadelphia, J.B. Lippincott Company Publishers, pg 576-589.
7. Aggarwal AN, Gupta D, Behera D, Jindal, SK. Applicability of commonly used Caucasian prediction equations for spirometry interpretation in India. Indian J Med Res, 2005, 122(2): 93-186.
8. Basvanthappa.B.T, (2006), "Pediatric Or Child Health Nursing", 1st edition, New Delhi: Ahuja Publishing House, pg: 615-632.
9. Dorothy .R.M.(2006). "Text book of pediatric nursing", 6th edition, New Delhi, Elsevier Publications, pg: 947-955, 611-613, 768-773.
10. Ghai.O.P (2007), "Essentials Pediatrics", (6th edition), New Delhi: Jaypee Brothers Publishers. Pg: 662-675.
11. Nelson (2004), "Textbook of Pediatrics", (11th Ed.), India: Saunders Publishers. Pg: 1180-1185.
12. Park, K (2009), "Preventive and social medicine", (2nd Ed.), Jabalpur, Bhanot Publishers. Pg: 142-178.