

Effectiveness of Buteyko breathing exercise on quality of life of asthmatic school children

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Abstract

Hospitalization in children due to asthma is considerably higher than any other illness. Hyperventilation symptoms of asthma can be controlled by performing various breathing exercises like Buteyko breathing technique or any other similar intervention that manipulates the breathing pattern.

Objectives: The aim is to know the effectiveness of Buteyko breathing exercise among asthmatic children.

Materials and methods: One group pre-test post-test design was used. A sample of 80 children diagnosed as asthmatics was selected by using purposive sampling technique. A mini pediatric asthma quality of life questionnaire was used to assess the quality of life of asthmatic school children.

Results: The paired t-test value shows, there was a significant improvement in the quality of life suggesting that the Buteyko breathing exercise is effective in improving the quality of life of asthmatic children.

Conclusion: Buteyko breathing exercise is proved to be effective in improving the quality of life of asthmatic school children.

Keywords: Asthma, quality of life, Buteyko breathing exercise, children

1. Introduction

The prevalence of asthma in India is estimated to be more than 15 million. There are obvious differences in prevalence of disease and approach to management of health problems [1]. Hospitalization in children due to asthma is considerably higher than any other illness. Every year, people with asthma require treatment in the emergency department with a portion requiring hospitalization considerably higher in children younger than 18 years [2].

There was an increasing public interest towards breathing exercise for the treatment of asthma. Surveys suggest that many people with asthma use breathing exercises without the knowledge of their medical practitioners. The evidence supporting the effect of breathing exercise for asthma was limited by the small size and lack of dissemination of research findings [3].

Non-pharmacological intervention like breathing exercise has been used routinely in the treatment of patients with asthma. Hyperventilation symptoms of asthma can be controlled by performing various breathing exercises like Pursed lip breathing, Buteyko breathing technique, Diaphragmatic breathing exercise, Yoga or any other similar intervention that manipulates the breathing pattern [4].

The Buteyko breathing technique is designed for people with asthma and other breathing disorders which teach people to 'breathe less' [5]. The Buteyko approach got a boost in 2009 when Jane Brody, writes the Personal Health column in the New York Times, how a friend of hers with severe asthma was able to reduce the use of inhaler day by day after three months of breathing lessons. After few days he discontinued taking oral medications as well [6].

Romella concluded that the use of Buteyko method helps in asthma control and quality of life of asthmatic children [7]. Research has demonstrated Buteyko breathing as a safer technique for children as young as 4 years. An extensive review of 22 studies by Agency for healthcare research and quality was carried out to find out whether asthma is controlled through breathing exercises. The findings shows that asthma symptoms and use of bronchodilators have been reduced through Buteyko breathing technique as evidenced from various reviews [8].

More research is urgently required before Buteyko breathing technique or other breathing re-training approaches are incorporated as asthma management guidelines which in turn help to reduce mortality and morbidity resulting from beta agonist use [9].

1.1 Objectives

1. To assess the quality of life of asthmatic school children
2. To know the effectiveness of Buteyko breathing exercise among asthmatic children.

1.2 Hypotheses

There is no significant difference in quality of life of asthmatic children before and after demonstration of Buteyko breathing exercise.

2. Materials and Methods

Qualitative research approach was used. One group pre-test post-test design was used. The sample for the study were children aged between 7-10 years of age studying in 2nd, 3rd, 4th and 5th standard in selected schools of Chittoor Mandal.

The total study population is 770 of which 81 were diagnosed as asthmatics. In the present study school children aged between 7 to 10 years who were diagnosed as asthmatics were selected for the study. A mini pediatric asthma quality of life questionnaire has been adopted after obtaining written permission from Ms. Elizabeth Juniper to measure asthma specific quality of life in children aged 7-10 years. Structured teaching program on Buteyko breathing exercise was developed. The reliability of the tool was assessed by using test-retest method.

The children diagnosed as asthmatics have been sent a consent form to get signed from their parents and return it back within 5 days. Any clarifications pertaining to this has been clarified either by phone or direct communication from 9-10A.M. in the school premises. Out of 81 asthmatic children only 60 children returned the consent form.

An initial quality of life of asthmatic children was assessed. 60 children have been demonstrated Buteyko breathing exercise on day one and day two for 30 minutes a day. On day one, basic knowledge on asthma i.e. a brief note on respiratory system, meaning of bronchial asthma, risk factors and symptoms of asthma have been explained and on day two, Buteyko breathing exercise has been demonstrated and from day three for the next 15 working days the children

were instructed to practice every day for 10 minutes after their prayer. Five teachers have been trained to supervise the students practicing the exercise. Three children have been dropped out due to various reasons. After 15 working days quality of life of asthmatic children were re-assessed.

3. Results and Discussions

Figure- 1 shows the percentage distribution of quality of life of asthmatic children in pre-test. Pertaining to total score obtained in all the three domains; out of 57 asthmatic children; 46(80.7%) had poor quality of life, 11(19.3%) had moderate quality of life and none had good quality of life. With respect to symptoms; 43(75.43%) had poor quality of life, 14(24.57%) had moderate quality of life and none of the children had good quality of life. In considering emotional functions; 45(78.95) children had poor quality of life and 12(21.05%) children had moderate quality of life. With regard to activity limitation; 50(87.72%) children had poor quality of life and 7(12.28%) children had moderate quality of life. Majority of children had poor quality of life. In symptoms domain, emotional function and activity limitation majority of children had poor quality of life and none had good quality of life.

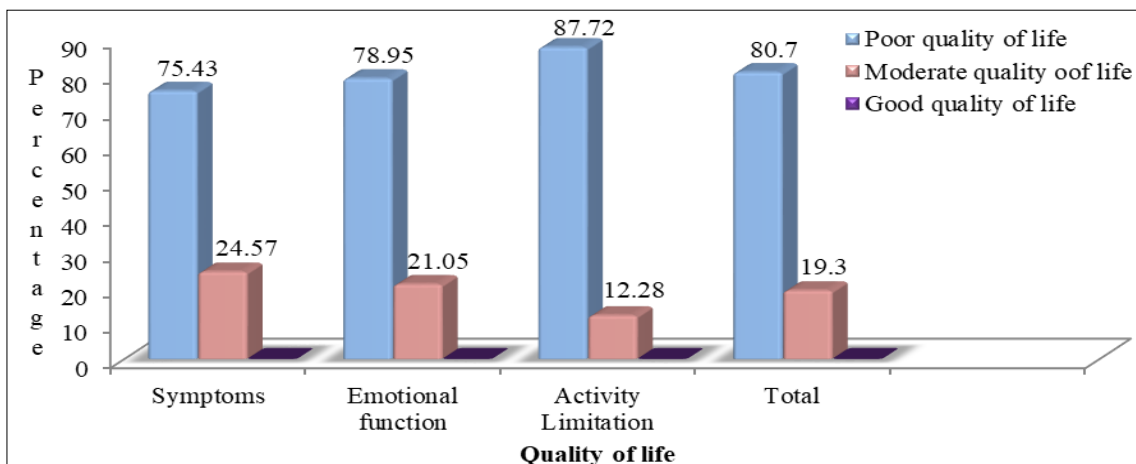


Fig 1: Percentage distribution of quality of life of asthmatic children in pre-test

The findings of the present study was supported by a study done by Al Zahrani *et al.*, (2014) which states activity limitation domain was more affected in children and

adolescents [10]. The study was also supported by Soad *et al.*, (2016) who proved that the childhood asthma affects the quality of life [11].

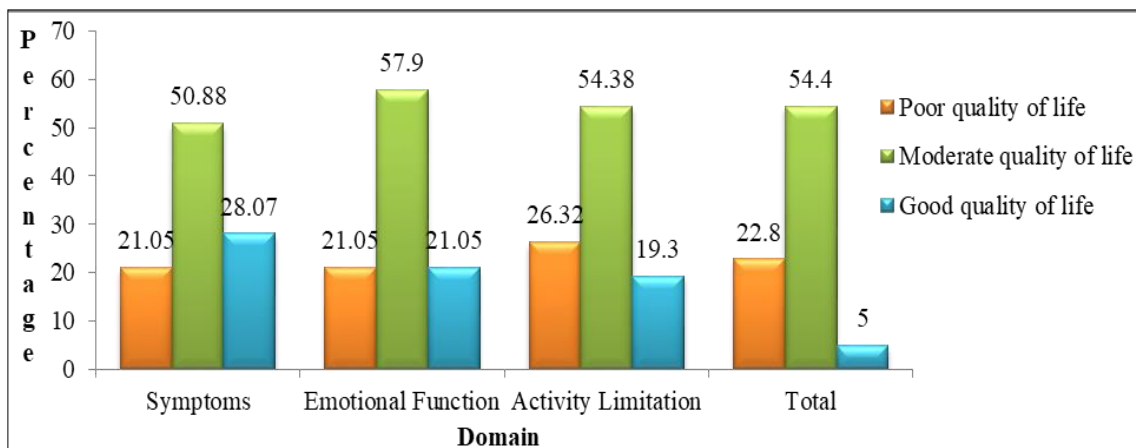


Fig 2: Percentage distribution of quality of life of asthmatic children in post-test

Figure-2 shows quality of life of asthmatic children after regular practice of Buteyko breathing exercise. The total scores obtained in all the three domains shows out of 57 asthmatic children; 13(22.8%) had poor quality of life, 31(54.4%) had moderate quality of life and 13(22.8%) had good quality of life. With regard to symptoms; 12(21.05%) children had poor quality of life, 29(50.88%) children had moderate quality of life and 16(28.07%) children had good quality of life. Whereas in emotional function; 12(21.05%) children had poor quality of life, 33(57.9%) children had moderate quality of life and 12(21.05%) children had good quality of life. With respect to activity limitation; 15(26.32%) children had poor quality of life, 31(54.38%) children had moderate quality of life and 11(19.3%) children had good quality of life.

Among asthmatic children; majority had moderate quality of life and very few had poor quality of life in the symptoms domain. The children after regular Buteyko breathing exercise stated the symptoms; cough, wheezing, tightness in the chest, difficulty in breathing, tiredness and sleep

disturbance reduced. With respect to emotional function majority had moderate quality of life and a very few had poor and good quality of life. Pertaining to emotional functions the children are less worried, expressed satisfaction in their activities in post-test after Buteyko breathing exercise. Where as in activity limitation; majority had moderate quality of life and very few had good quality of life. The children actively participating in play and other extra-curricular activities after practicing Buteyko breathing exercise which represents the effectiveness of breathing exercise. Overall scores show that majority of asthmatic children had moderate quality of life and a very few had poor and good quality of life.

The current study reveals that Buteyko breathing exercise was effective in improving the quality of life of asthmatic children. The study was supported by Jibin *et al.*, (2017) which demonstrated that breathing technique is effective in improving the breathing pattern of asthmatic children but the emotional and activity level were not determined in their study^[12].

Table 1: Mean, standard deviation and t-value in pre-test and post-test quality of life of asthmatic children

Parameters	Mean	Standard deviation	t- Value
Pre test			20.792* & **
Symptoms	17.65	4.49	
Emotional function	11.98	3.38	
Activity Limitation	8.70	2.95	
Total	38.33	6.42	
Post test			
Symptoms	28.11	5.13	
Emotional function	19.05	3.48	
Activity Limitation	14.23	3.31	
Total	61.40	8.93	

Significance

* $P < 0.05$, 5% ** $P < 0.01$, 1%

The pre-test mean quality of life was 38.33 and standard deviation 6.24. The results represent the post-test mean of the quality of life to be 61.40 and the standard deviation 8.93.

The paired t-test value shows, there was a significant improvement in the quality of life at $P < 0.001$ and $P < 0.005$ level. Hence the hypothesis was rejected suggesting that the Buteyko breathing exercise is effective in improving the quality of life of asthmatic children. The findings of the study was supported by Bowler *et al.*, (1998) which proved that there was a greater improvement in the quality of life among the subjects practicing Buteyko breathing technique^[13]. The findings were also supported by Giselle *et al.*, (2014) who have concluded that the Buteyko method has a significant positive effect on asthma control and the quality of life when used as adjunct treatment in adults with bronchial asthma^[14].

4. Conclusion

Initial assessment demonstrated poor quality of life among asthmatic school children. After regular practice of Buteyko breathing exercise the quality of life of asthmatic children were improved. In conclusion, with the right approach children will retain what physicians and nurses teach and spread the word about asthma control. One of the main philosophies to control asthma is that the children themselves should be able to commence breathing exercise at home; school such an achievement will be historic turning point in

our struggle to combat asthma control over time.

5. References

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