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Effectiveness of structured teaching program on knowledge of asthmatic School children towards control of bronchial asthma

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Abstract

Background: India has an estimated 15-20 million asthmatics. Asthma attacks all age groups but often starts in childhood. In India, rough estimates indicate a prevalence of between 10% and 15% in 5-11 year old children. **Aim:** The aim is to assess the effectiveness of structured teaching program on knowledge of school children towards control of bronchial asthma and to associate the relationship between demographic variables and knowledge of asthmatic children towards control of bronchial asthma. **Materials and methods:** A quasi-experimental study was conducted to assess the knowledge of asthmatic school children. Pre-test post-test design was adopted. A sample of 40 asthmatic children was selected by using purposive sampling technique. Children between the ages of 8-11 years diagnosed as asthmatics were selected as a study participant. Based on the knowledge of children a structured teaching programmed was developed and its effectiveness was determined by using the same pre-test questionnaire. **Results:** The basic knowledge on bronchial asthma was insufficient. In pre-test majority 63% had inadequate knowledge on bronchial asthma; 30% had the moderately adequate knowledge and only 8% had adequate knowledge. Whereas in post-test 15% had inadequate knowledge; 45% had the moderately inadequate knowledge and 40% had adequate knowledge. The effectiveness of structured teaching program was determined by using paired t-test which is significant at $P<0.001$. In both pre-test and post-test, there was no significant association between level of knowledge and selected demographic variables. **Conclusion:** The basic knowledge of asthmatic school children was insufficient. Structured teaching program enables the child to identify the symptoms early and to take prompt treatment thereby reducing the morbidity rate and frequent hospital visits.

Key words: asthma, school children, structured teaching program, knowledge.

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1. Introduction

Bronchial asthma is a hugely neglected public health problem at the global level [1, 2]. Every day, millions of people around the world suffer distressing breathlessness, disability, and many people die due to asthma [3].In several areas of the world, there is a noticeable increase in healthcare burden due to asthma [4]. Despite enormous therapeutic advances, bronchial asthma remains a highly prevalent and serious health problem [5].

The number of people with asthma in the world may be as high as 334 million. In the years between 2011-2014, reports indicated that the asthma children in the world have been increased from 235 to 334 million; which illustrates the need for high-quality data on asthma to be collected in an ongoing way [2].

There is very limited data on asthma epidemiology from the developing world, including India [4].India has an estimated 15-20 million asthmatics. Asthma attacks all age groups but often starts in childhood.

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In India, rough estimates indicate a prevalence of between 10% and 15% in 5-11 age groups. Two-thirds of all asthma patients are diagnosed before the patient is 18 years [6].

In a study conducted by Chandra et al., the overall prevalence of asthma was found to be 8.20%. Boys had a higher prevalence than girls. In children aged 5-8 years, the prevalence was 7.04%, 7.67% in children aged between 9-11 years and 9.67% in children aged between 12-15 years [7]. Asthma accounts for more hospitalizations in children than any other chronic illness. Children younger than 18 years of age account for a large portion of emergency department visits and hospitalizations due to asthma exacerbations [8]. Rambabu et al. concluded that the prevalence of asthma in urban and rural areas was 16.8% and 13.4% respectively. The prevalence of asthma in boys and girls was 17.7% and 12.6% respectively [9].

Asthma creates a substantial burden on individuals and families as it is more often under-diagnosed and under-treated. It affects men and women, boys and girls, of all ages. Although largely avoidable, asthma tends to occur in epidemics and affects young people. The human and economic burden associated with this condition is severe. Moreover, asthma causes children and adolescents to miss school and causes parents to miss days at work. Worldwide, the economic costs associated with asthma are estimated to exceed those of TB and HIV/AIDS combined [6].

Good long-term management can reduce the burden of asthma. This includes using relatively simple measures within a systematic national or local strategy which can improve early detection of asthma and provide effective preventive treatment [2]. Although Asthma cannot be cured, clinical episodes can largely be prevented and controlled by proper management [10].

An asthma exacerbation impairs activities of daily living and leads to school absenteeism. The complications of bronchial asthma could be influenced by inadequate knowledge, improper use of inhaler technique, non-compliance and negative attitude toward the illness and drugs [11]. Imparting adequate knowledge enables the child to identify signs of exacerbations, take prompt treatment and prevent exacerbations.

Objectives of the study

1. To assess the knowledge of asthmatic school children on control of bronchial asthma.
2. To assess the effectiveness of structured teaching program on knowledge of school children towards control of bronchial asthma.
3. To associate the relationship between demographic variables and knowledge of asthmatic children towards control of bronchial asthma.

2. Materials and methods

A quasi-experimental study was used to assess the knowledge of asthmatic school children. Pre-test post-test design was adopted. Based on the knowledge of asthmatic children a structured teaching programme was developed and its effectiveness was determined by using the same pre-test questionnaire. The study was conducted at selected schools, Chittoor. The population was children who were diagnosed with bronchial asthma. A sample of 40 asthmatic children was selected by using Purposive sampling technique. Children between the ages of 8-11 years were selected as a study participant.

A structured questionnaire consists of 2 sections; section I includes demographic variables. Section II includes 20 questions on knowledge related to respiratory system structure and function, risk factors, signs and symptoms, management and prevention of asthma.

Structured teaching program includes definition, anatomy, and physiology of respiratory system, risk factors, signs and symptoms, diagnosis, management and measures to be taken to prevent asthma exacerbation. Reliability of questionnaire related to knowledge on bronchial asthma was 0.88.

The prevalence questionnaire was sent with children to be filled with their parents. It includes questions on demographic variables and questions related to the diagnosis of asthma in their children. The children were asked to return the questionnaire duly filled by their parents within three days. Consent has been obtained from parents of asthmatic children to involve as study participants. The knowledge level of children with asthma has been assessed by self-administration of the questionnaire. The children were instructed to mark yes or no to the questions related to knowledge. The right answer was given a score of 1 and wrong answer scores 0. The Maximum total score was 20.The scores were interpreted as

< 50%- Inadequate knowledge

50-74%- Moderately adequate knowledge

>75%-Adequate knowledge

The effectiveness of structured teaching program was assessed by using the same pre-test questionnaire.

3. Result

Table No 1- Distribution of demographic variables of asthmatic school children

S.N	Demographic variables	Frequency	%
1	Age		
	A. 8-9 years	26	65
	B. 10-11 years	14	35
2	Sex		
	A. Male	22	55
	B. Female	18	45

S.N	Demographic variables	Frequency	%
3	Residence		
	A. Urban	29	72.5
	B. Rural	11	27.5
4	Fathers education		
	A. Illiterate	7	17.5
	B. Basic education	11	27.5
	C. Secondary education	16	40
	D. Collegiate	2	5
	E. Technical education	4	10
5	Mothers education		
	A. Illiterate	4	10
	B. Basic education	14	35
	C. Secondary education	14	35
	D. Collegiate	5	12.5
	E. Technical education	3	7.5
6	Occupation of the father		
	A. Laborer	4	10
	B. Agriculture labor	5	12.5
	C. Business	9	22.5
	D. Employee	14	35
	E. Others	8	20
7	Occupation of the mother		
	A. Housewife	5	12.5
	B. Laborer	2	5
	C. Agriculture labor	3	7.5
	D. Business	4	10
	E. Employee	17	42.5
	F. Other	9	22.5
8	Family income		
	A. < 5000	7	17.5
	B. 5000- 10,000	18	45
	C. 10,000-15,0000	8	20
	D. 15,000-20,000	4	10
	E. >20,000	3	7.5
9	Family history of asthma		
	A. Yes	23	57.5
	B. No	17	42.5

Table No -1 show that out of 40 asthmatic children, 65% (26) were aged between 8-9 years and 35% (14) were aged between 10-11 years. With regard to sex, 55% (22) of asthmatic children were males and 45% (18) were females. Among the sample children majority, 72.5% (29) were residing in the urban area and 27.5% (11) were from rural area.

With regard to fathers education; 17.5% (7), were illiterates, 27.5% (11) obtained a basic education, 40% (16) were educated up to secondary education; 5% (2) completed their collegiate education and 10% (4) completed technical education. With respect to mother's education, 10% (4) were illiterates; 35% (14) completed their basic education, 35% (14) were educated up to secondary education, 12.5% (5) completed their collegiate education and 7.5% (3) completed technical education.

With regard to father's occupation, 10% (4) were laborers, 12.5% (5) were agricultural laborers; 22.5% (9) were doing business, 35% (14) were employees and 20% (8) were doing various other occupation like electrician, plumber etc. With regard to mothers occupation, 12.5% (5) were housewives, 5% (2) were laborers and 7.5% (3) were agricultural laborers, 42.5% (17) were employees and 10% (4) were doing business.

Regarding family income, 17.5% (7) of family income is Rs. <5000, 45%(18) of children had a family income between Rs5000-Rs10,000; 20% (8) of children's family income is between Rs.10,000-15,000, 10%(4) had family income between Rs.15,000-20,000 and only 7.5% (3) had a family income above Rs.20,000.

In accordance with the family history of asthma; majority 57.5% (23) had a family history of asthma and remaining 42.5% (17) had no family history of asthma.

Table No -2 Distribution of level of knowledge on bronchial asthma among asthmatic school children in pre-test and post-test

	Inadequate knowledge		Moderately adequate knowledge		Adequate knowledge	
	No.	%	No.	%	No.	%
Pre-test	25	63	12	30	3	8
Post-test	6	15	18	45	16	40

Table No -2 shows that out of 40 asthmatic children in pre-test majority 63% (25) had inadequate knowledge on bronchial asthma; 30% (12) had the moderately adequate knowledge and only 8%(3) had adequate knowledge. Whereas in Post-test 15% (6) had inadequate knowledge; 45% (18) had the moderately inadequate knowledge and 40% (16) had adequate knowledge.

Table No -3 Effectiveness of structured teaching program between pre-test and post-test

	Mean	Standard Deviation	t-value	Significance
Pre-test	9.3	3.78	5.96	0.00
Post-test	13.2	3.32		

Table-3 represents, pre-test mean knowledge was 9.3 and the standard deviation was 3.78. In post-test mean knowledge was 13.2 and the standard deviation was 3.32. The paired t-test value shows, there was a significant improvement in the knowledge on bronchial asthma among asthmatic children at P<0.001 level. χ 2 test shows there was no significant association between demographic variables and level of knowledge in both pre-test and post-test

4. Discussion

Asthma results in increased morbidity and mortality. The magnitude of the problem of asthma has not been defined with certainty, in spite of several epidemiological studies conducted in various regions of the world. Indeed, studies on the prevalence of bronchial asthma lack consistency, possibly because of ill-defined diagnostic criteria, non-standardized study protocols, different methodologies, environmental exposures and the healthcare infrastructure. These have made international and even national comparisons difficult, which incidentally also has significant ethnic and regional variations [16].

Bronchial asthma is a major health problem of all ages. In the present study majority, 65% aged between 8-9 years and 35% were aged between 10-11 years. Majority 55% of asthmatic children were males and 45% were females. Majority 57.5% of children had a family history of asthma. The findings of the present study were supported by a study conducted by Huda Anwar et al., which shows most of the cases were boys (79 boys & 52 girls). More than half of the studied students have a positive family history of bronchial asthma [11].Behl et al also concluded that boys had a higher prevalence (3.1%) than girls (1.4%). They also found a significant association between asthma prevalence and family history of asthma and other atopic manifestations [12].

Magzamen et al., who have identified eligible students through an in-class asthma case identification survey, also supported the findings. Approximately 10-15 students identified as asthmatic were recruited for each series of the Kickin' Asthma intervention. An asthma nurse in a series of four 50-minute sessions delivered the curriculum. Students completed a baseline and a 3-month follow-up survey that compared symptom frequency, health care utilization, activity limitations, and medication use. Comparison of baseline to follow-up data indicated that students experienced significantly fewer days with activity limitations and significantly fewer nights of sleep disturbance after participation in the intervention. For health care utilization, students reported significantly less frequent emergency department visits or hospitalizations between the baseline and follow-up surveys [13].

In the present study, the initial knowledge of asthmatic children was inadequate. The post-test scores proved the effectiveness of structured teaching program on various aspects of asthma to schoolchildren. Increased knowledge levels of children enable the children to adopt preventive measures, which in turn help to reduce school absenteeism as well as morbidity rate. It also helps the child to lead a good quality of life. A study conducted by Arlene et al also proved that an interactive asthma education intervention was associated with increased asthma knowledge and self-efficacy, decreased symptom reports among children aged between 6-12 years[14]. It was also supported by Varalakshmi et al., who concluded that educating patients remarkably increased their knowledge levels, which facilitate their behavioral modification thus enhances their self-care. Further, it decreases asthma-related morbidity and frequent visit to hospitals [15].

Recommendations

- A similar study can be conducted in various school settings.
- The teachers play a major role in educating the children and in caring the children in the school premises, so their knowledge levels need to be assessed. Based on knowledge levels health education on bronchial asthma can be planned.
- The quality of life of asthmatic children can be assessed to identify the problems of asthmatic school children.

Conclusion

The basic knowledge on bronchial asthma among asthmatic children was insufficient. Structured teaching was proved effective in improving knowledge on bronchial asthma. In pediatric wards, schools and at home settings structured education can be planned to reduce the mortality rate and to minimize the periodic hospital visits.

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References

[1] Kumar GS, Roy G, Subitha L, Sahu SK. Prevalence of bronchial asthma and its associated factors among school children in urban Puducherry, India. Journal of natural science, biology, and medicine. 2014 Jan;5(1):59.

[2] The Global Asthma Report [Internet]. New Zealand; 2014: The global asthma network.

[3] Asher I, Chair A, Nils E, Billo B, Karen BA, Chiang CT, et al. World asthma day 2015. New Zealand.Global Asthma Network: World Asthma Day. 2015.

[4] Aggarwal AN, Chaudhry K, Chhabra SK, D Souza GA, Gupta D, Jindal SK, Katiyar SK, Kumar R, Shah B, Vijayan VK. Prevalence and risk factors for bronchial asthma in Indian adults: a multicentre study. Indian Journal of Chest Diseases and Allied Sciences. 2006 Jan 18;48(1):13.

[5] Amon A, Pahl A, Szelenyi I. Is asthma research in dead end? Experimental and Toxicologic Pathology. 2006 Jun 15; 57:45-7.
[6] World Health Organization. Bronchial Asthma: Media centre [Internet]. 2015.
[7] Chandra MS, Santokh SB, Deepti S, Ravi PA, Manoj KM., &Bijay K. Prevalence of asthma in school children of rural Areas of Kanpur, Uttar Pradesh. J of Evol Med and Dent Sci. 2010; 2(29):5298-5301.
[8] Girish S. Asthma in children [Internet].Atlanta: Webmed. 2017.
[9] Rambabu B, Chandran CN, Prasad AK, Manikyamba D, Kumari RA. Study of prevalence and risk factors of bronchial asthma in school children in urban and rural areas of Kakinada. JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS. 2016 Mar 14; 5(21):1096-9.
[10] Jindal SK, Gupta D, Aggarwal AN, Agarwal R. Guidelines for management of asthma at primary and secondary levels of health care in India (2005). The Indian journal of chest diseases & allied sciences. 2005; 47(4):309-43.
[11] Huda Anwar NH, Jaffer N, Al-Sadri E. Asthma knowledge among asthmatic school students. Oman medical journal. 2008 Apr; 23(2):90.
[12] Behl RK, Kashyap S, Sarkar M. Prevalence of bronchial asthma in school children of 6-13 years of age in Shimla city.
[13] Magzamen S, Patel B, Davis A, Edelstein J, Tager IB. Kickin'Asthma: School-Based Asthma Education in an Urban Community. Journal of School Health. 2008 Dec 1; 78(12):655-65.
[14] Butz A, Pham L, Lewis L, Lewis C, Hill K, Walker J, Winkelstein M. Rural children with asthma: impact of a parent and child asthma education program. Journal of Asthma. 2005 Jan 1; 42(10):813-21.
[15] Manchana V, Mahal RK. Impact of Asthma Educational Intervention on Self-Care Management of Bronchial Asthma among Adult Asthmatics. Open Journal of Nursing. 2014 Oct 10; 4(11):743.
[16] Rao S, Rao S, Ashok NC, Jain T, Anuradha R. Muralidhar. Influence of Associated Factors in the Prevalence of Asthma: A Community Based Study in Mysore. J Clin Diag Res. 2011; 5:721-4.