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PREVALENCE OF CHILDHOOD BRONCHIAL ASTHMA AMONG SCHOOL GOING CHILDREN IN KOMARAPALAYAM, NAMMAKAL DISTRICT,TAMIL NADU,INDIA.

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ABSTRACT

Childhood asthma is the common chronic illness among school going children. It was a syndrome characterized by airflow obstruction that differs strikingly. There were very few school based studies on the prevalence of asthma in Indian children. We aimed to estimate the prevalence of asthma in children between 12 -15 years of age group at Komarapalayam, Namakkal District, Tamil Nadu on the basis of Intenational Study Of Asthma and Allergies in Childhood (ISAAC) tool. A total of 991 students were selected from three schools of Komarapalayam, Namakkal district for the period of May 2018 to October 2018. The data was collected by using the ISSAC questionnaire. The results obtained were significant for the different age group of students. Out of 991 students, the overall prevalence of childhood asthma was found to be 10.3%. In this study, the total number of diagnosed students was 102 and out of such 102 students, early diagnosed was found to be 48 and newly diagnosed was 54. The higher prevalence was seen in 12 and 15 years of aged category students when compared with the other two. Our study suggested that asthma can be seen more in this study population. So, these exposures can be prevented by giving proper awareness programs for both children and parents, proper education and screening of asthma in school for early diagnosis and better asthma management.

KEYWORDS: *Asthma, Prevalence, Wheezing, School absenteeism, Awareness.*

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INTRODUCTION

The prevalence of allergic diseases has an upward trend in children, in the world. Asthma is considered as one of the mostrisky and existence threatening continual diseases. It generally affects all age groups, especially those below 18 years old.[1] It may affect the high quality lifestyles of children such as school absenteeism, poor school performance, overall performance, frequent nocturnal awakenings[2] may additionally motive depression, competitive behaviour, attention problems and poor performance in physical exercise.[3] It mainly occurs due to small airways, impaired function of lungs at birth itself, maternal smoking, sex, ethnicity, and race. An inflammatory lung ailment which is characterized through signs and symptoms of cough, wheezing, dyspnea, and chest tightness, which may occur in spasm, and typically associated with unique triggering events, airway narrowing partly or completely reversible and extended airways responsible to variety of stimuli.[4] The inflammatory features characteristic of asthma encircle, infiltration of the airway through the inflammatory cells, which leads to an increase in airway edema and mucus secretion, hypertrophy and hyperplasia of airway smooth muscle cells and extended airway vulnerability, eventually can also end in airflow obstruction.[5] Furthermore, uncontrolled asthma inflicts a far greater burden at the patients, their families, and society than well–controlled asthma.[6-7] The aim of our study was to find out the prevalence of childhood bronchial asthma among the school going children. This study was done in Komarapalayam, Namakkal District, Tamil Nadu because the area is industrialized consisting of more number of textiles/spinning mills which may emit pollutants. Moreover, no other study was conducted about the prevalence of childhood bronchial asthma in this area

MATERIALS AND METHODS

All procedures performed in this study involving human participants were in accordance with the ethical standards of JKK Nattraja Instituitional Ethical Committee (JKKNCP/ETHICS-PRACTICE/018PDS14). This study was a Prospective Observational Study conducted in three schools at Komarapalayam, Namakkal district around 6 months. The study population was 991, where the study criteria includes school going children aged 12-15 years from 7th standard to 10th standard and excluded the children who are not willing and the children with pre-existing congenital heart disease. The students were randomly selected and the chosen subjects were given a ISAAC[9] questionnaire to collect data and questionnaires was explained to children before collecting data to reduce the bias of understanding the knowledge of questions. It was a type of questionnaire containing eight questions and each question is having 2 marks.

ISAAC TOOL QUESTIONNAIRE

SOCIODEMOGRAPHIC STATUS

Name:

Age:

Sex:

Educational Status:

Past Medical History:

Past Medication History:

Family History:

Please complete the following questions on your own:

1.Have you ever had wheezing in the chest at any time during the last 4 weeks?

- o Not at all
- o 1-3 days
- o 4-10 days
- o Every day

2.How many attacks of wheezing have you had in the 12 months?

- o None
- o 1-3 times
- o 4-12 times
- o More than 12 months

3.In the last 12 month how often, has your sleep been disturbed due to wheezing?

- o Never worsen with wheezing
- o Less than 1 night per week
- o 1 or more night per week
- o Everyday

4.Have you ever identified any allergens that makes you to breathe difficult?

- o Never identified
- o Identified
- o Sometimes

5.In the last 3 weeks, how many times your chest sounded wheezing during or after exercise?

- o None
- o 2-3 times
- o 4-6 times
- o Every time

6.In the last 12 month has wheezing ever been severe enough to limit your speech to only 1 or 2 words at a time between breathe?
o Yes
o No

7.In the last 12 month have you had a dry cough at night, apart from a cough associated with a cold or chest infection?
o Yes
o No

8.Have you ever had Asthma?
o Yes
o No

RESULTS

A total of 991 students were included in this study, out of which 385 were boys; 606 were girls. Overall prevalence of childhood asthma was found to be 10.3%. On the basis of ISAAC scoring 54 (5.4%) were found to be the case of asthma. The maximum number of asthma cases were found at the age of 12 and 15 years(27.4%) when compared with the other two. In this study, wheezing (100%), sleep disturbance due to wheezing (67.6%), speaking trouble due to wheezing (41.1%) can be seen more when compared with other symptoms.

Table 1
Distribution based on diagnosed students

Sl. No	Age(years)	Diagnosed Students		Total population	Percentage(%)
		Male (n=42)	Female (n=60)		
1	12 years	8	20	28	27.4
2	13 years	12	10	22	21.5
3	14 years	9	15	24	23.5
4	15 years	13	15	28	27.4

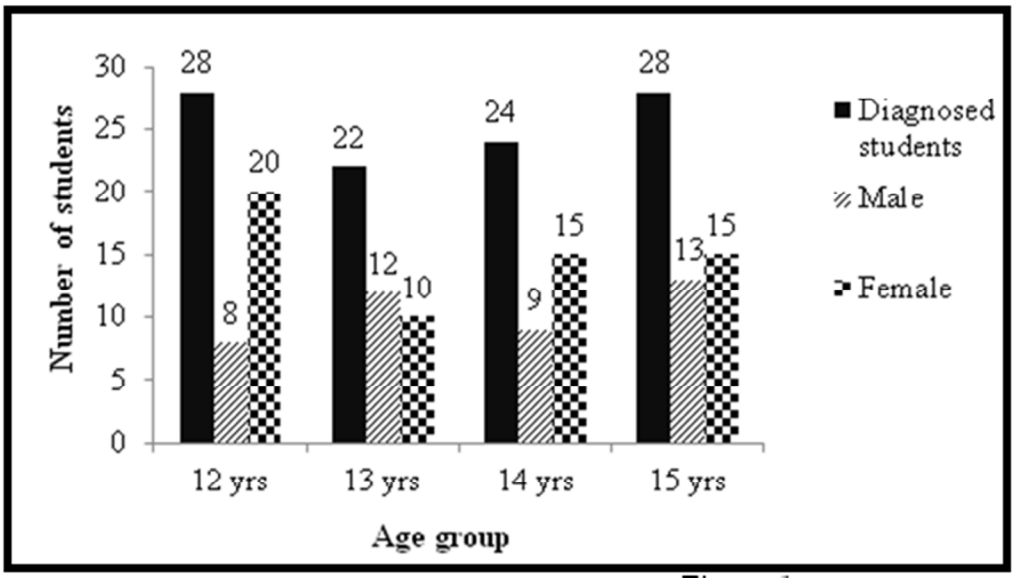

Figure 1
Distribution based on diagnosed students

Table 2
Distribution based on symptoms

Sl. No	Symptoms	Frequency(n=102)	Percentage(%)
1.	Wheezing	102	100%
2.	Sleep disturbances due to wheezing	69	67.6%
3.	Speaking trouble due to wheezing	42	41.1%

Table 3
Distribution of early diagnosed and newly diagnosed students based on gender

Sl. No	Gender	Early diagnosed students (n=48)	Newly diagnosed students (n=54)	Total population (n=102)	Percentage(%)
1	Male	20	20	40	39.2
2	Female	28	34	62	60.7

Table 4
Prevalence of Asthma among school students

Sl. No	Students	Frequency (n=991)	Prevalence (%)
1	Students having asthma	102	10.3%
2	Students not having asthma	889	89.7%

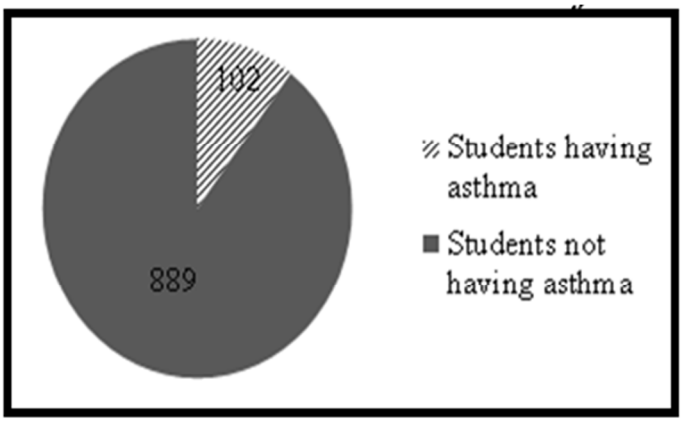

Figure 2
Prevalence of Asthma among school students

DISCUSSION

From the total population, 42 male students and 60 female students were diagnosed as asthma. In this study, 8 male and 20 female students were coming in 12 years category **in** 13 years of age group, 12 male and 10 female students were found. **in**1 4 years of age group, 9 male and 15 female students were found. Number of students with asthma was increasing according to age group (Table1) because of more amount of pollutants in this area. Similarly Arun BJ et al; conducted a study in Central Karnataka, where the students with asthma was increasing according to age group.[10] Out of 102 diagnosed students, based on symptoms the higher prevalence was seen in wheezing problem when compared with sleep disturbance due to wheezing (67.6%) and speaking trouble due to wheezing (41.1%) (Table 2) because one of the major and initial symptoms for asthma is wheezing. In a study conducted by Shibi C et al; in Tamil Nadu, where dry cough (21%) was having higher prevalence when compared with wheezing (18%) because of more amount of pollutants in that area.[11] There is increased pollution in our study site mainly due to more amount of pollutants produced from mills and also from industries when compared with previous years Based on Gender among female category 28 students were early diagnosed as asthma and 34 students were newly diagnosed as asthma. Among male category, 20 students were early and newly diagnosed as asthma. In this study, asthma was more in females as compared to male(Table 3) because one of the schools we selected was girls only. In a study conducted by Alaa Eldin et al; in Primary school children in Egypt where, male(55.2%) had more asthmatic symptoms than female(44.8%).[12] Out of 991 students, 102 students were identified as having asthma(10.3%) and 889 students were identified as not having asthma(90%) (Table 4). In a study conducted by Maria C et al; in Pune city where the prevalence of students with asthma was found to be 12% because Pune was a developed area with more traffic and that may emit pollutants.[13]

CONCLUSION

We concluded that,

1. There is a 10.3% prevalence of bronchial asthma among school going children.
2. Moreover, India is an illiterate country, so these exposures can be prevented by giving proper awareness programs for both children and parents, proper education and screening of asthma in school for early diagnosis and better asthma management.
3. We also suggested that health authorities implement and support efficient and effective national and regional asthma programs, in order to lessen morbidity and mortality**.**

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AUTHORS CONTRIBUTION STATEMENT

Sneha sen and Praisy Elsa Varughese conceived the presented idea, gathered data and performed the computations. Dr.N.Venkateshwaramurthy verified and investigated the research work. Dr.R.Sambathkumar encouraged and supervised the findings of the work. All authors discussed the results and contributed to the final manuscript

CONFLICT OF INTEREST

Conflict of interest declared none.

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