"A Study on Determinants of Childhood Asthma on School Going Children in Chitradurga"

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ABSTRACT

Background: The assessment of asthma in school children is an essential element of health care evaluation andhelps suggest suitable measures in preventing the increase of asthma patients in among children.

Objectives: To assess the prevalence risk factors of asthma in school children. Comparison between prevalence in rural and urban school going children who are affected with asthma in Chitradurga.

Materials and methods: A prospective cross sectional study was conducted on a total of 300 school going children in which 150 rural (10-15years) and 150 urban (10-15 years) of Chitradurga for a period of 6 months. We also given a questionnaire and answers are collected and evaluated.

Results: A total of 300 children data were collected., The study results shows that; Highest number of asthmatic children were seen in age group of 14 years. Prevalence of asthma were more in females when compare to males. Asthma prevalence were both similar between representative rural and urban locality. Risk factors like family history, air pollution, smokers in family, dust pollution, breathing problem, smoking, wheezing problem and unusual symptoms were seen in children.

Conclusion: Highest number of asthmatic children were seen in age group of 14 years. Prevalence of asthma were more in females when compare to males. Asthma prevalence were both similar between representative rural and urban locality. Children were got more source of information from newspaper and journal followed by TV and Radio. Risk factors like family history, air pollution, smokers in family, dust pollution, breathing problem, smoking, wheezing problem and unusual symptoms were seen in children. Difficulty in performance were seen in less children.

Keywords: Asthma, prevention, Awareness.

I. INTRODUCTION

Asthma is a major health problem which is spread worldwide with varying differences in prevalence and severity throughout the world. Significant increases in the prevalence and the severity have been noticed globally over the past few decades in certain geographical region. However, recently evidence has emerged that the increase in asthma prevalence in the past few decades has been slowed or stabilised.[1]

Asthma is a chronic airway inflammatory disease, often arising from allergies, characterised by bronchospasm that subsequently cause shortness of breath, wheezing and coughing. These flare ups are named as asthma attacks or exacerbations. Asthma effects children in different ways. Some children have asthma attacks only during allergy season, when they breath in cold air, or when they exercise.[2]

Early- life experience and environmental exposures have been associated with childhood asthma. To evaluate further whether the timing of such experiences and exposure is associated with the occurrence of asthma. Environmental exposure with during the first year of life are associated with childhood asthma risk like breastfeeding, cockroach, day care, farm environment, herbicide, pesticide, sibship size, wood smoke etc.[3]

Home environment factors are strongly associated with asthma in school going children in a developing nation. Important association were found between asthma and several home environmental factors as well as supplemental salt intake. This include concerns regarding the representatives of the study population, and the lack of objectives measures such as fungal or home dust mite antigens or indoor air pollutants.[4]

Airborne phthalate esters are observed at detectable levels across the world. They were first identified in outdoor urban air and subsequently have been recognized as global pollutants and major constituents of indoor airpollutions.[5]

II. MATERIALS AND METHODS

STUDY SITE: The study will be conducted at higher, primary schools of Chitradurga.

STUDY DESIGN: A prospective cross sectional community based study.

STUDY PERIOD: This study will be carried out for a period of 6 months.

STUDY SUBJECTS: This study will include school children in Chitradurga.

INCLUSION CRITERIA:
• School children affected by asthma (age10-15yrs) of Chitradurga.
• Consent and assent should be taken from parents, guardian or teacher for the study.

EXCLUSION CRITERIA
• School children of age below 10 years.
• School children of age above 15 years.
• Asthma children who are absent during the study.

SOURCES OF DATA:
• Demographics details of the children was obtained and documented in suitably designed children data collection form.
• Other relevant data from children by one to one interaction.

STUDY PROCEDURE:
• The study will be conducted in selected schools of Chitradurga
after obtaining the Ethical clearance from institutional Ethics committee.
• The study will be carried out with the prior permission from the principals/higher authorities of selected schools in Chitradurga after explaining the importance of the study.

• The data will be collected from the children in a suitably designed children data collection form.
• A survey will be conducted in selected schools of asthmatic children until desired sample is met.
• The children will be educated regarding ASTHMA and its prevention measures by means of educational leaflets, charts, and other suitable resources (both in English and Kannada versions)

STATISTICAL ANALYSIS:
The collecting data will be entered in Microsoft excel 2007 and results are analyzed using Spss software. Odds ratio will be calculated to know the strength of association. Chi square test will be calculated to the significance.

III. RESULT

Out of the total 300 children were randomly collected from 4 schools in the Chitradurga. The case data were collected from the children in a suitably designed Data Collection Form. Here, 31 children were asthmatic and 269 children were non asthmatic patients.

1. DETAILS OF CHILDRENS ACCORDING TO AGE GROUP

A total 300 subjects were found during the study period. The majority of children 97(32.3%) belonged to age group 14 years and the minority of children 1(0.3%) belonged to age group 16 years. The result are shown in table 1 and graphically represented in figure no.1.
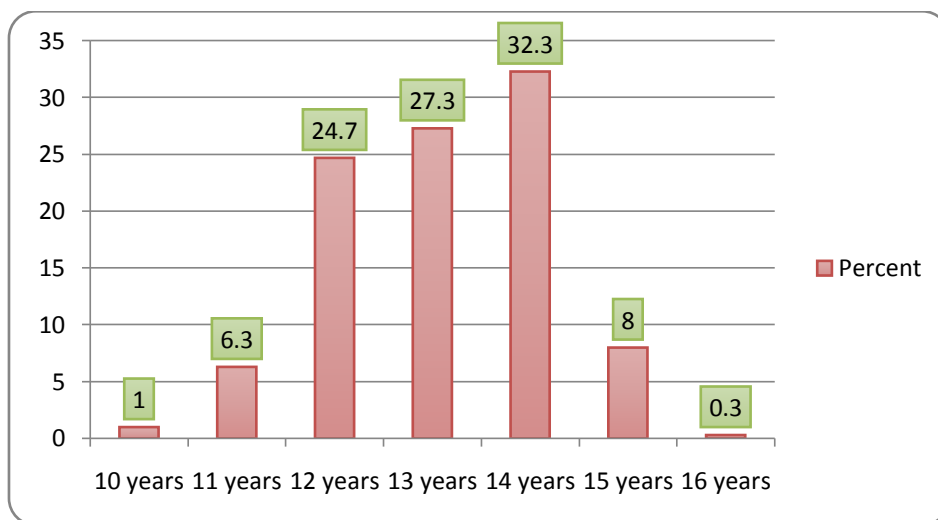

Figure No. 1: Details of Children According to Age Group

2. DETAILS OF CHILDRENS ACCORDING TO GENDER

In the study population, 162(54%) were females and 138(46%) were males. The results are shown in table 2 and graphically represented in figure 2.
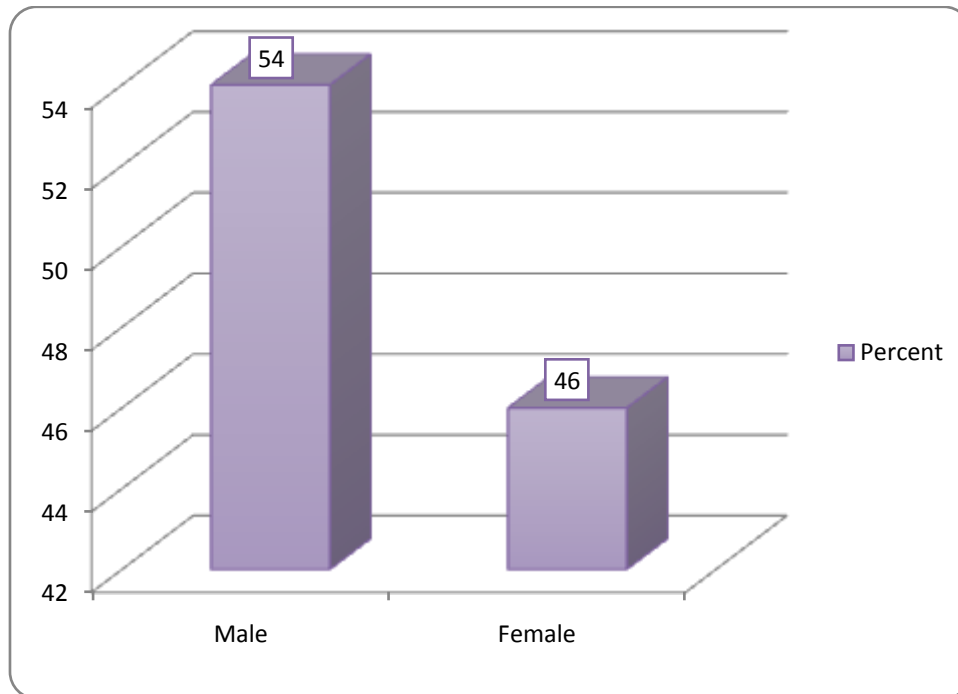

Figure No. 2: Details of Children According to Gender

3. DETAILS OF CHILDREN ACCORDING TO LOCALITY
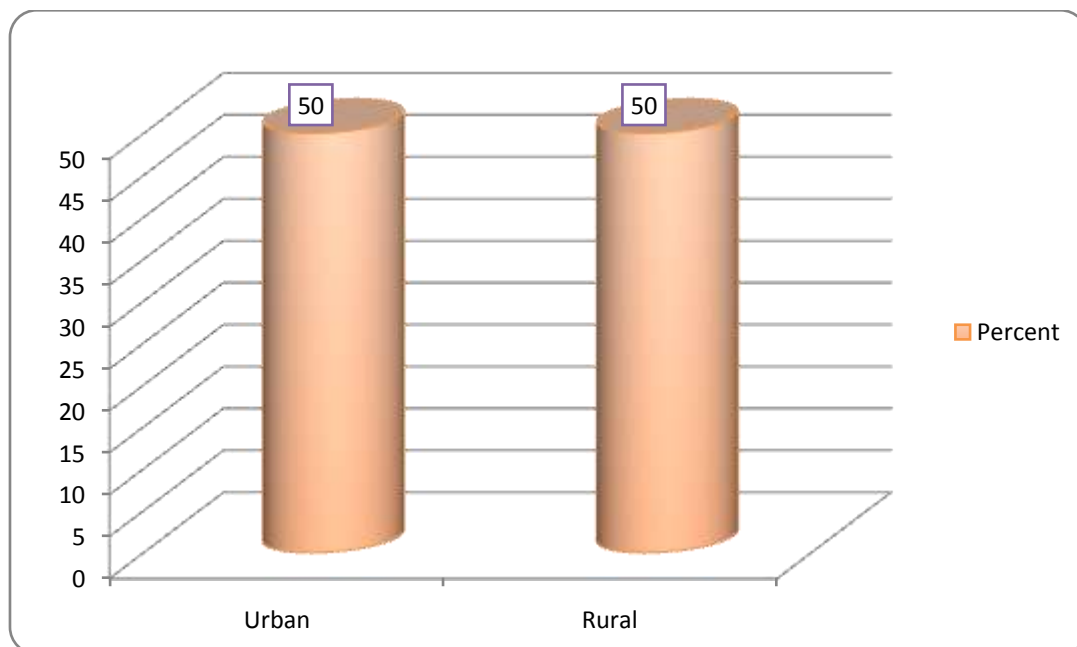Out of 300 children, 150(50%) of children were both from Urban and Rural locality.

Figure No. 3: Details of Children According to Locality

4. DETAILS OF CHILDRENS ACCORDING TO FREQUENCY
Out of 300 children, 31(10.3%) were asthmatic and 269(89.7%) were non asthmatic children.
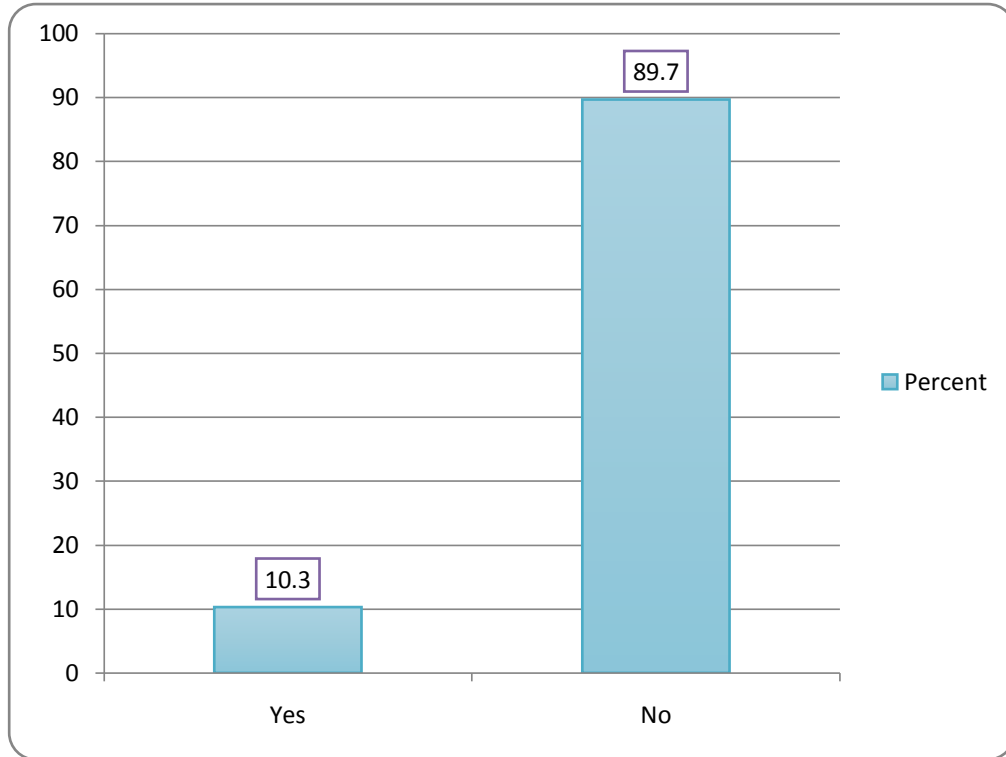
Figure No. 4: Details of Children According to Frequency

5. DISTRIBUTION OF CHILDREN ACCORDING TO AGE AND ASTHMA

Out of 31(10.3%) asthmatic children, 1(3.2%) were in the age group of 10 years followed by 5(16.1%), 14(45.2%), 7(22.6%), 4(12.9%) selected from 11years,12years, 13 years and 14 years respectively.15 and 16 years children don't have any asthmatic problem. Out of 269(96.3%) non asthmatic children 2(0.7%) were 10 years of age group followed by 14(5.2%), 60(22.3%), 75(27.9), 93(34.6%), 24(8.9%) and 1(0.4%) selected from 11, 12, 13, 14, 15 and 16 years respectively.
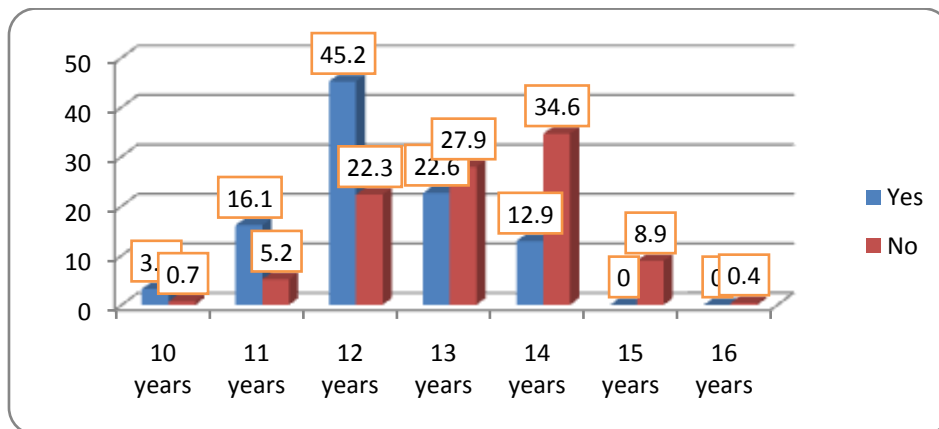

Figure No. 5: Distribution of Children According to Age and Asthma

6. DISTRIBUTION OF CHILDRENS ACCORDING TO GENDER AND ASTHMA

Out of 300 children, Asthmatic male were 15(48.4%) and female were 16(51.6%) and among non asthmatic children male were 147(54.6%) and female were 122(45.4%). From the analyzed data we found that the larger number of asthmatic children were female than male.
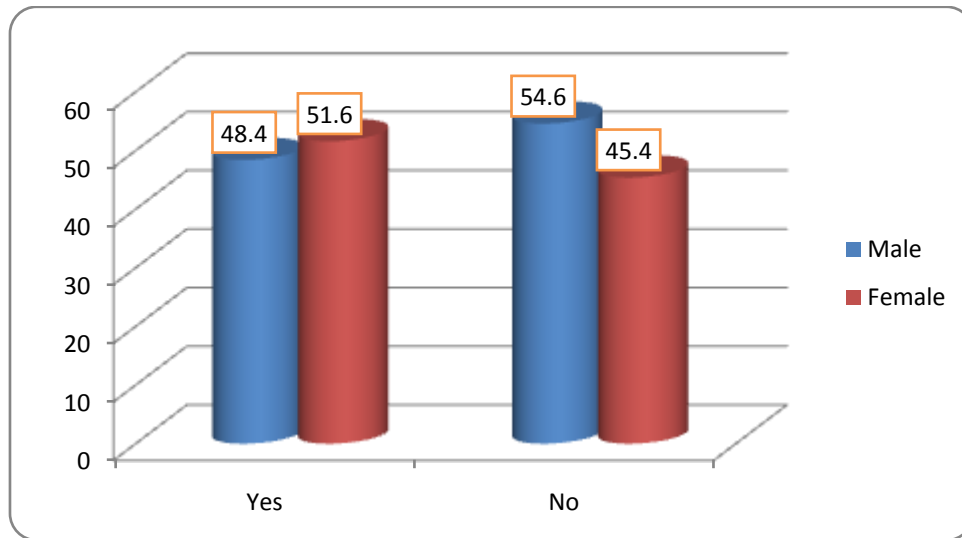

Figure No. 6: Distribution of Children According to Gender and Asthma

7. DISTRIBUTION OF CHILDREN ACCORDING TO LOCALITY V/S ASTHMA

In our study, 21(67.7%) asthmatic and 129(48%) non asthmatic children from Urban locality. Then, 10(32.3%) asthmatic and 140(52%) non asthmatic children from Rural locality.
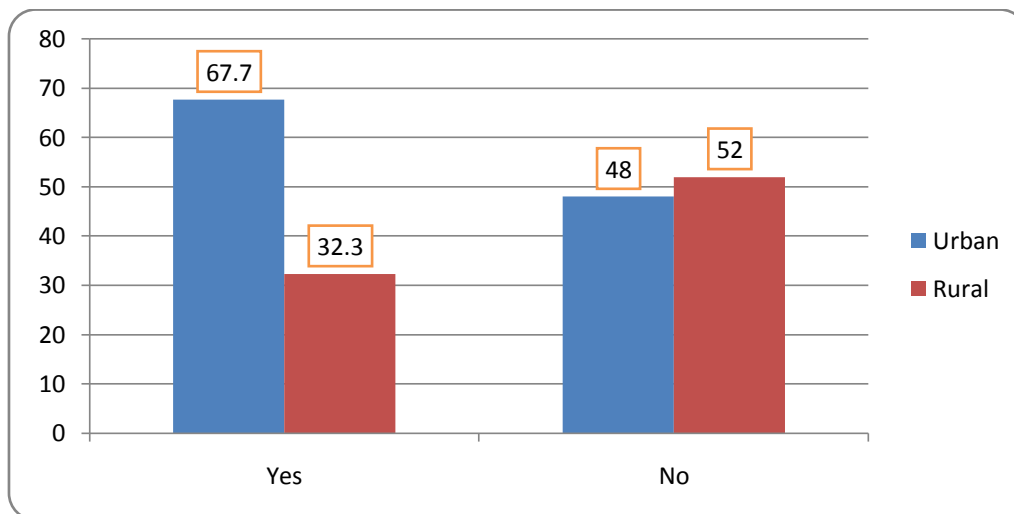

Figure 7: Distribution of Children According to Locality and Asthma

8. DISTRIBUTION OF CHILDREN ACCORDING TO SOURCE OF INFORMATION

In our study, Asthmatic children got most of the information from health workers (35.5%) followed by TV and Radio (29%), News paper, publication and journals (3.2%) and others (32.3%). Non asthmatic children got most of the information from health workers (33.1%) followed

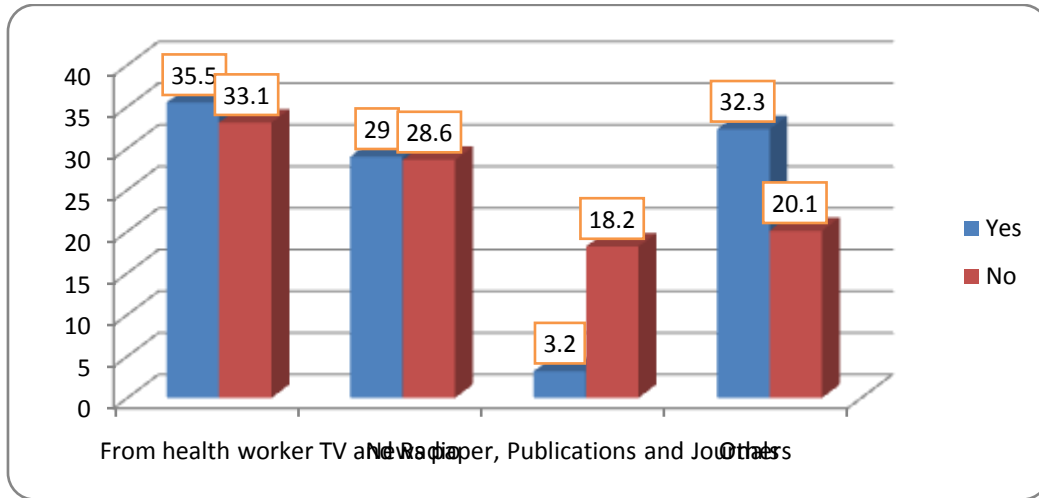by TV and radio (28.6%), News paper, publication and journals (18.2% and others (20.1%).

Figure No. 8: Distribution of Children According to Source of Information

9. DISTRIBUTION OF CHILDREN ACCORDING TO SOURCE OF ASTHMA

Out of 31 asthmatic children, 13(41.9%) children were exposed to air followed by 2(6.5%) contact way, 13(41.9%) dirty hand and 3(9.7%) other ways. In 269 non asthmatic children; 177(65.8%) children were exposed to air followed by 35(13.0%) contact way, 38(14.1%) dirty hand and 19(7.1%) other ways.
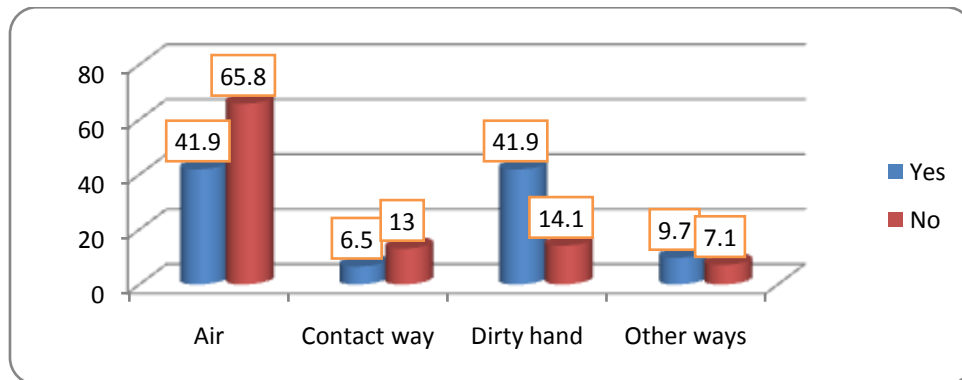

Figure No. 9: Distribution of Children According to Source of Asthma

10. DISTRIBUTION OF CHILDRENS ACCORDING TO AIR POLLUTION

Out of 31 asthmatic children, 27(87.1%) were exposed to air pollution, 4(12.9%) were not exposed to air pollution. Out of non asthmatic children, 218(81%) were exposed to air pollution and 51(19%) were not exposed to air pollution.
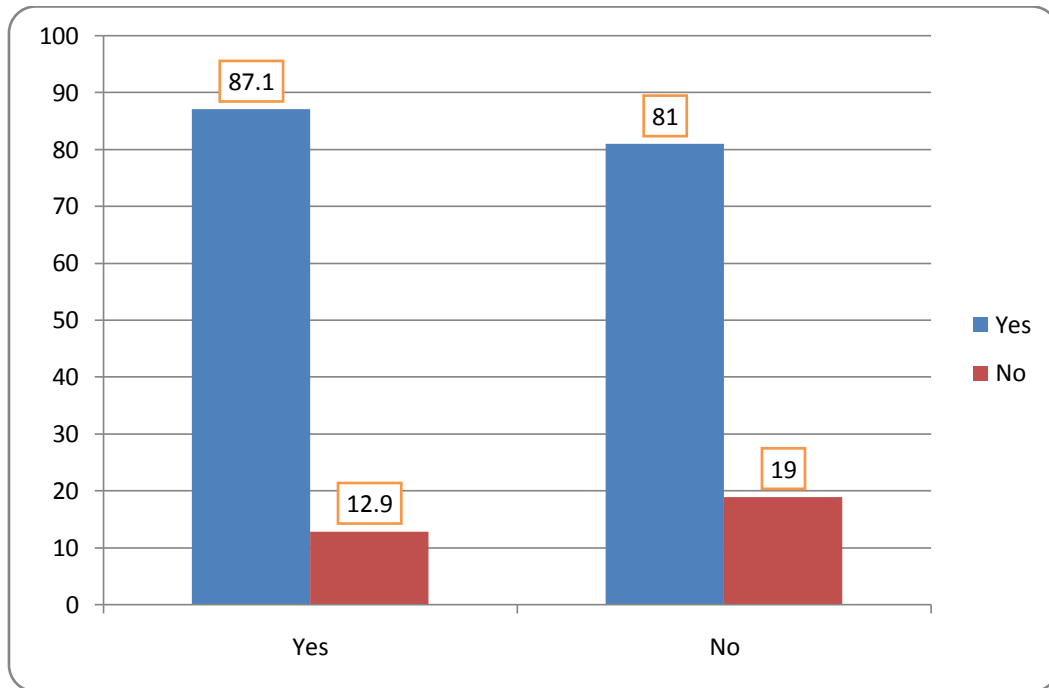
Figure No. 10: Distribution of Children According to Air Pollution

11. DISTRIBUTION OF CHILDREN ACCORDING TO SMOKER IN FAMILY

Out of 31 asthmatic children, 71% of children were not having smoker in family and the 29% with family history. Out of 269 non asthmatic children; 83.6% of children were not having family history and 16.4% with family history.

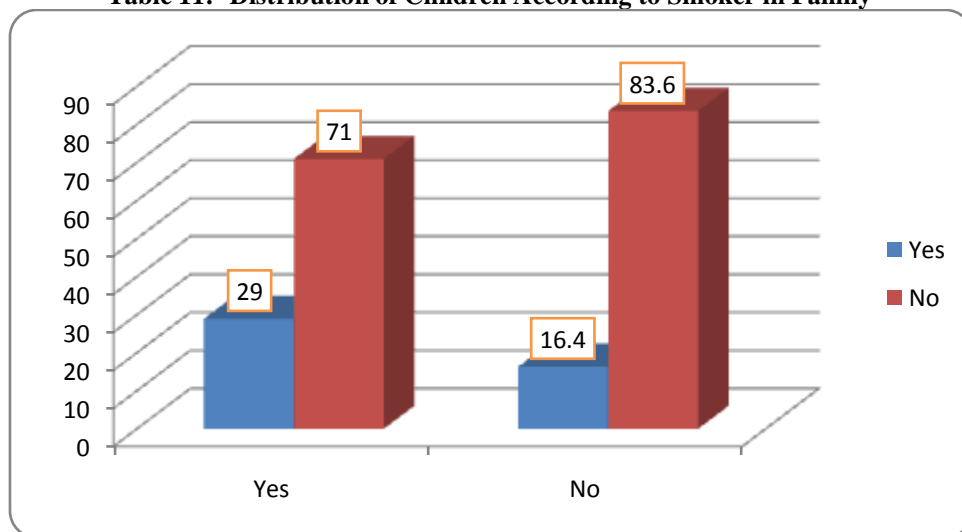**Table 11:- Distribution of Children According to Smoker in Family**

Figure No. 11:-Distribution of Children According to Smoker in Family

12. DISTRIBUTION OF CHILDREN ACCORDING TO FAMILY HISTORY

In Our study, 19.4% family history and 80.6% non family history were present in the asthmatic children. 2.7% family history and 90.3% non family history were present in the non asthmatic children.
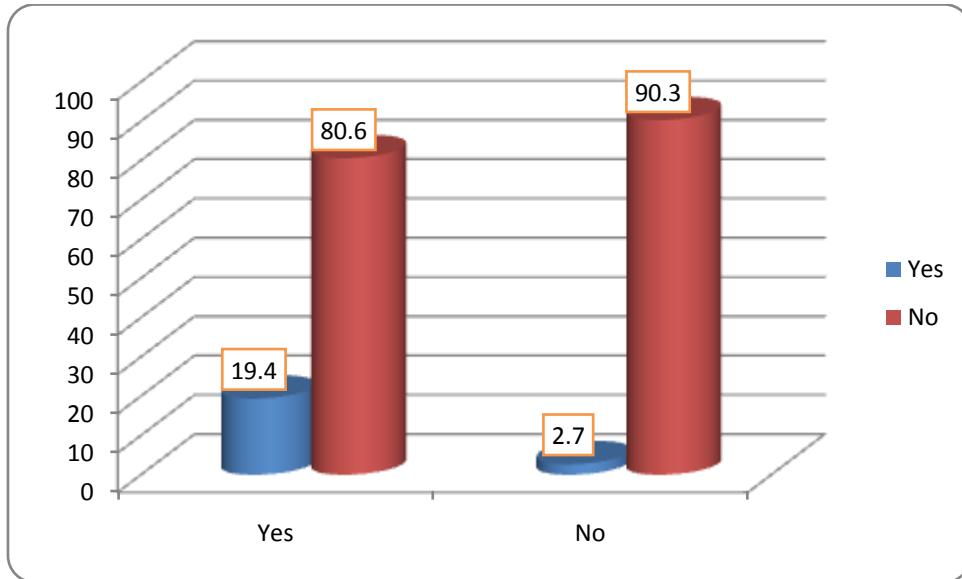
Figure no.12:Distribution of Children According to Family History

13. DISTRIBUTION OF CHILDREN ACCORDING TO AIR POLLUTION

In our study, Out of 31 asthmatic children 45.2% were exposed to air pollution and 54.8% were not exposed to air pollution. Out of 269 non asthmatic children, 26% were exposed to air pollution and 74% were not exposed to air pollution.
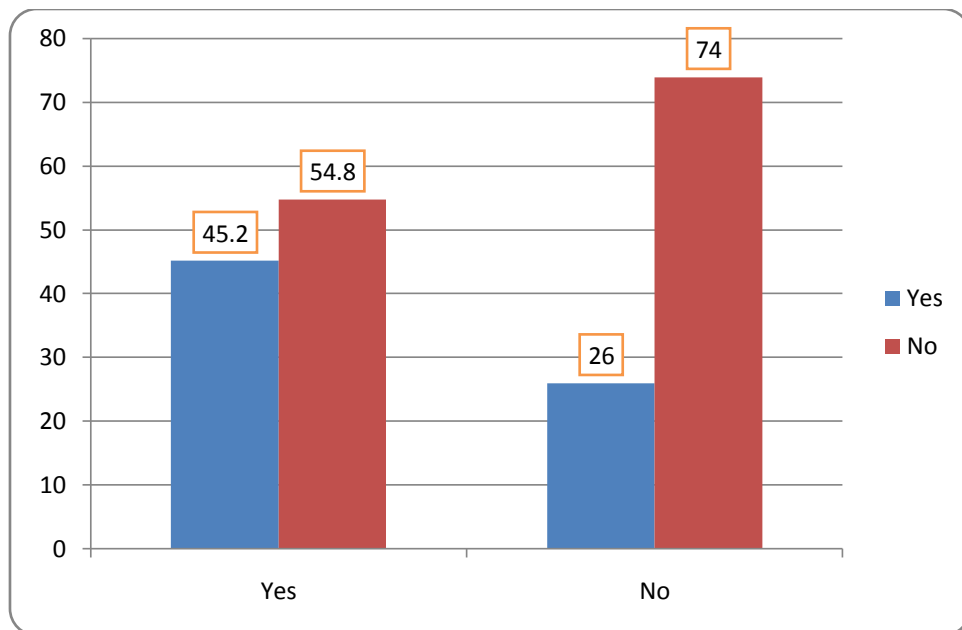

Figure No. 13: Distribution of Children According to Air Pollution

14. DISTRIBUTION OF CHILDREN ACCORDING TO BREATHING PROBLEM

In our study, Out of 31 asthmatic children 41.9% of children were having breathing problem and 58.1% of children were not having breathing problem. Out of 269 non asthmatic children 22.7% of children were having breathing problem. The results are shown in the table 13 and graphically represented in figure13.
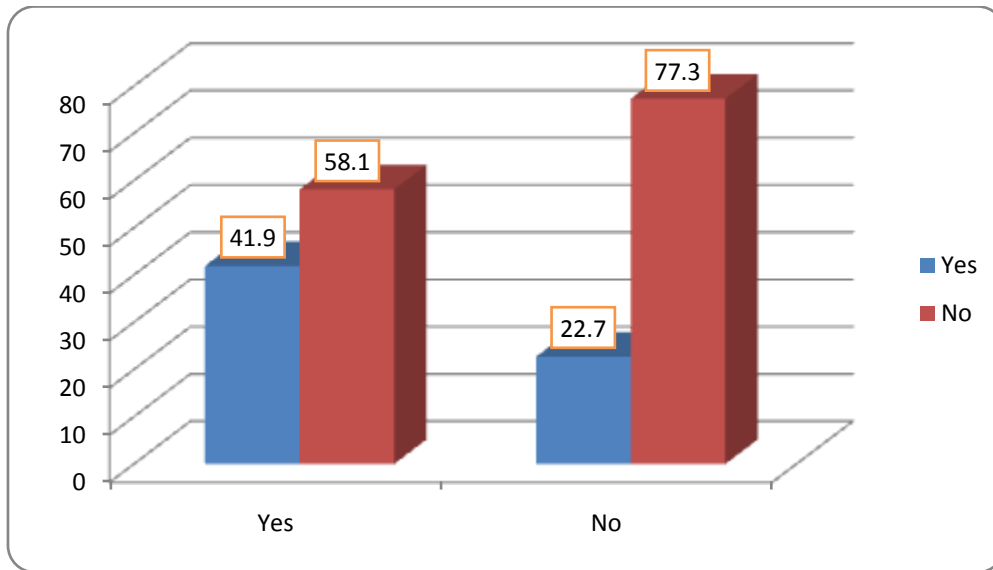
Figure No. 14: Distribution of Children According to Breathing Problem

15. DISTRIBUTION OF CHILDREN ACCORDING TO BREATHING PROBLEM DURING SLEEPING

In our study, Out of 31 asthmatic children 41.9% of children were having breathing problem and 58.1% of children were not having breathing problem. Out of 269 non asthmatic children 22.7% of children were having breathing problem. The results are shown in the table 14 and graphically represented in figure14.
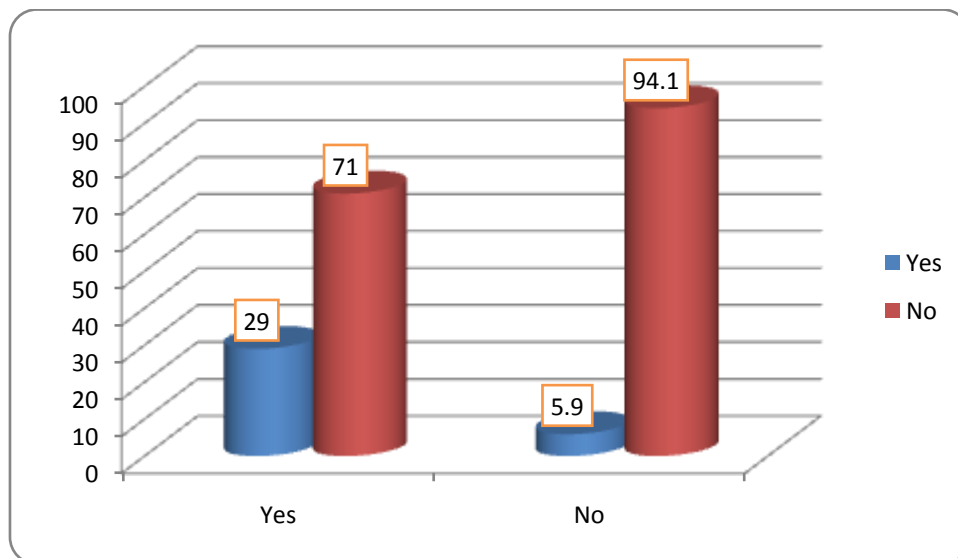

Figure No. 15: Distribution of Children According to Breathing Problem During Sleeping

16. DISTRIBUTION OF CHILDREN ACCORDING TO INFORMATION ON ASTHMA PREVENTION

In our study, 25.8% of the asthmatic children were known about the information on asthma prevention and 45% of the non asthmatic children were known about the prevention on asthma prevention. The results are shown in the table 15 and graphically represented in figure15.
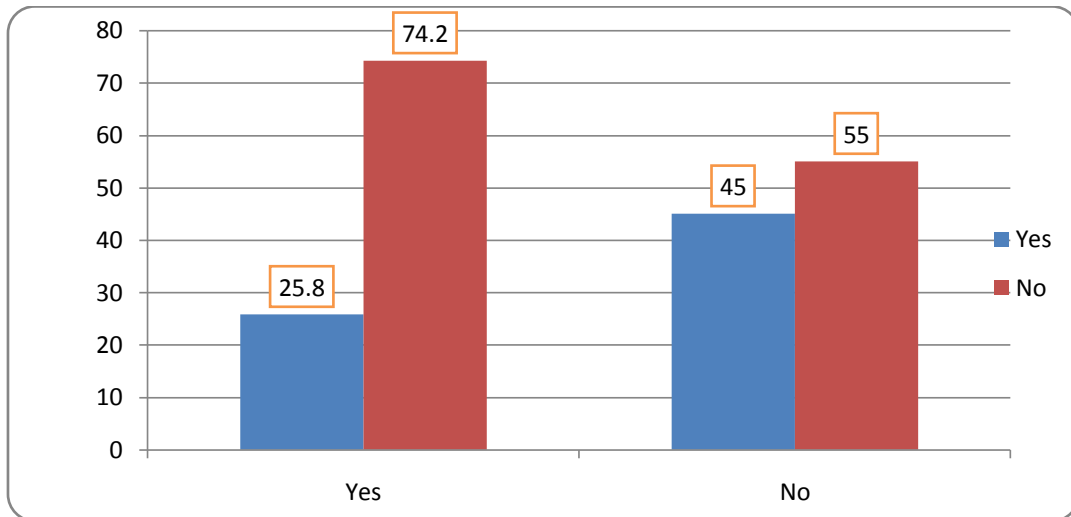
Figure No. 16: Distribution of Children According to Information on Asthma Prevention

17. DISTRIBUTION OF CHILDREN ACCORDING TO SMOKING

In our study, Out of 31 asthmatic children 16.1% were exposed to air pollution and 83.9% were not exposed to air pollution. Out of 269 non asthmatic children, 4.1% were exposed to air pollution and 95.9% were not exposed to air pollution.
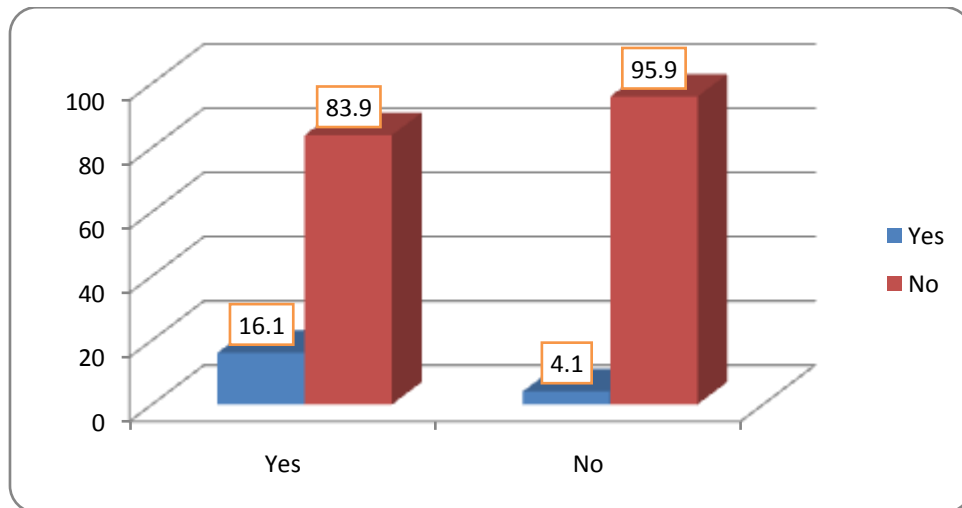

Figure 17:- Distribution of Children According to Smoking

18. DISTRIBUTION OF CHILDREN ACCORDING TO WHEEZING

In our study, Out of 31 asthmatic children 41.9% of children were don't have wheezing problem, followed by 16.1%of children with most of the time wheezing, followed by 3.2% of children with a lot of time wheezing, followed by 22.6% of children with a little of time wheezing. Out of 269 non asthmatic children 72.9% of children were don't have wheezing problem, followed by 7.4% of children with most of the time wheezing, followed by 2.6% of children with a lot of time wheezing and followed by 17.1% of children with a little of time wheezing. The results are shown in the table 17 and graphically represented in figure17.
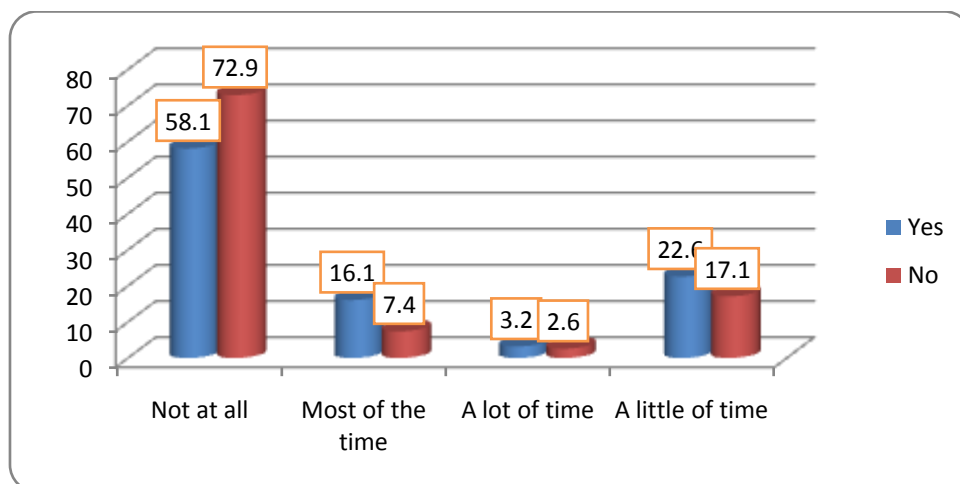
Figure No. 18: Distribution of Children According to Wheezing

19. DISTRIBUTION OF CHILDREN ACCORDING TO DIFFICULTY IN PERFORMANCE

Out of 31 asthmatic children, 3 children (9.7%) were having difficulty in performance and 28 children (90.3%) were not having difficulty in performance. Out of 269 non asthmatic children, 20 children (7.4%) were having difficulty in performance and 249 children (92.6%) were not having difficulty in performance. The results are shown in the table 18and graphically represented in figure18.
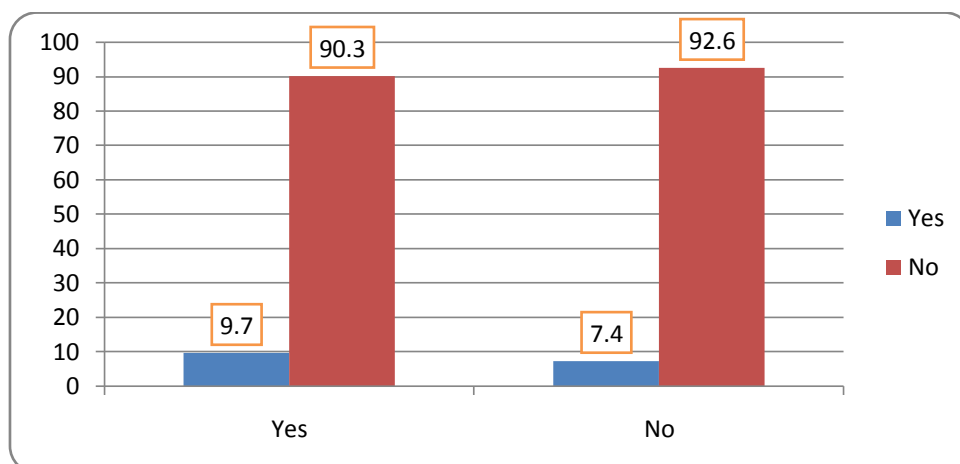

Figure No. 19: Distribution of Children According to Difficulty in Performance

20. DISTRIBUTION OF CHILDREN ACCORDING TO UNUSUAL SYMPTOMS

Out of 31 asthmatic children, 8 children (25.8%) were having unusual symptoms and 23 children (74.2%) were not having unusual symptoms. Out of 269 non asthmatic children, 22 children (8.2%) were having unusual symptoms and 247 children (91.8%) were not having unusual symptoms. The results are shown in the table 19 and graphically represented in figure19.
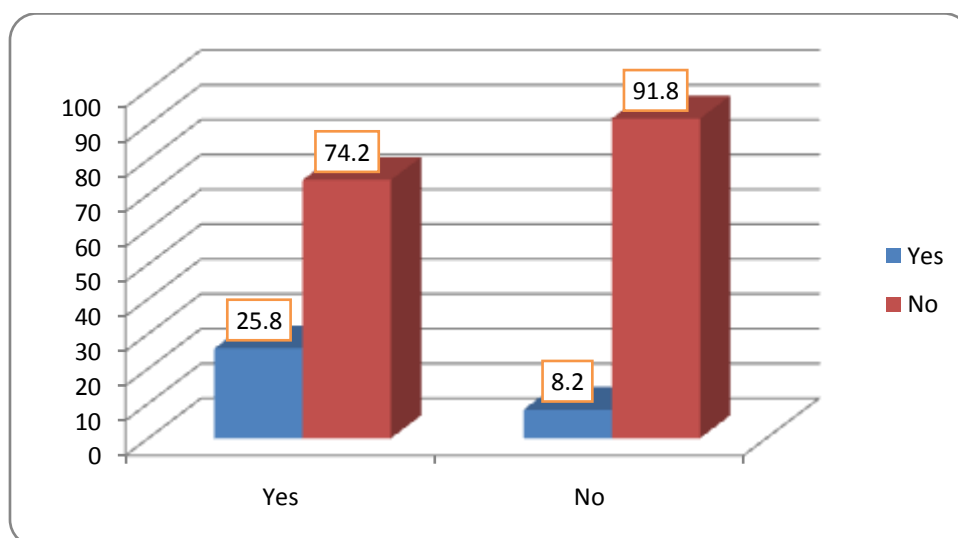
Figure No. 20: Distribution of Children According to Unusual Symptoms

IV. DISCUSSION
DISCUSSION

Asthma is a condition in which your airways narrow and swell and produce extra mucus, which makes it difficult to breath. Childhood asthma can cause bother some daily symptoms that interfere with play, sports, school and sleep. In some children unmanaged asthma can cause dangerous asthma attacks.

Factors that might increase child`s likelihood of developing asthma include; exposure to tobacco smoke, include before birth, prevalence allergic reactions, food allergies respiratory conditions such as chronic, runny or stuffy nose or pneumonia.

In our study we have enrolled 300 children and the majority children, 14 (45.2) were in age group of 12 years and the minor of children were belongs to the age group of 15 and 16 years. Dahal. S et al., had conducted a study on the topic "Prevalence of Bronchial Asthma in Indian Children" and a similar result was observed in detail on patient based on age group.

In our study population, 16 (51.6%) were females and 15(48.4%) were in males. A study conducted by Yadav P K et al., study show that a similar results 65% are males and 35% are female.

In our study, out of 300 children 21(67.7%) children were affected asthma from urban and 10(32.3%) children from rural . Hatez AA et al., conducted a study on the topic "The prevalence of bronchial asthma among primary school children and a similar result was observed in detail of children based on locality.

Among the total of 300 children, 35.5% of children got most of the information from health workers, followed by 29% of tv and radio. The less information from newspaper and journals. Hassan N et al., state the source of information about asthma.

In our study we found that 19.4 % of family history of asthma 87.1% of air pollution, 29% of smokers in family, 41.9% of breathing problem, 16.1% of smoking habitters, 3.2% of wheezing problem and 25.8 of unusual symptoms were the risk factor of childhood asthma. This match with the result of study conducted by Awasthi S et al., which concluded that the study on risk factor for asthma among children and with that of the study conducted by Adrian G et al., which concluded that the topic of air pollution and child respiratory health and also match with the result from the Saraclar Y et al., which concluded the study on the prevalence of symptoms suggestions of asthma in children.

V. CONCLUSION
In the present study, following conclusion were made,
- Highest numbers of asthmatic children's were seen in age group of 12 years.
- Prevalence of asthma were more in females when compare to males.
- Asthma prevalence were more in urban than rural locality.
- Children were got more source of information from Health workers followed by TV and Radio , News paper, publication and journals.

- Risk factors like air pollution, smokers in family, dust pollution, breathing problem, smoking, wheezing problem and unusual symptoms were seen in children.

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