

Pattern of Bronchial Asthma among Children at Urban Slums in Dhaka City

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Abstract

Background: Bronchial asthma is a common chronic disease affecting any age, race and socio- economic condition globally and its prevalence is changing upwards worldwide. The increase in prevalence may be due to changes in life style, rapid industrialization and increase in air pollution. **Materials and Methods:** This is a cross sectional descriptive study from two slums of Dhaka city and data were collected by interviewing and checklist. The study period was from January 2018 to June 2018. **Results:** Out of 201 patients the age of respondents were ranged from 10 to 17 years with mean age of 13.5years. About 62% respondents were male and 38% were female. About 77% of the respondents were illiterate. The monthly family income of the respondents was 2000tk - 9200tk with a mean income of 4422.39±1662.00tk. About 44% were suffering from bronchial asthma for a period of 1-4 years, 40.8% for a period of 4-7 years and rest 14.9% for >7years. Regarding family history of bronchial asthma it was seen that out of 82 respondents with family history, father was sufferer in case of 43 (52.4%), mother for 36(43.9%), brother for 2(2.4%) and in case of one (1.2%) respondent sister was the sufferer. 40.8% have a positive family history of bronchial asthma and rest 59.2% had no positive family history. About 47% had a positive previous working history in the factory and about 53% had no such type of working experience. **Conclusion:** In summary, our study suggests that bronchial asthma can affect any age of children including race and socio-economic class in urban slums.

Keywords: Body mass index, Bronchial asthma.

Received: 08.05.2023, **Accepted:** 18.05.2023.

Ad-din Sakina Women's Medical College Journal. 2023; 4 (2) : 29-33

Introduction

Bronchial asthma is a common chronic disease affecting any age, race and socio- economic class globally and its prevalence is changing upwards worldwide.¹ The prevalence of asthma in the developing as well as developed world has increased over the recent decade. The increase in prevalence may be due to changes in life style, rapid industrialization and increase in air pollution. The surveys in adults show the high prevalence of

asthma symptoms and reduced lung function in lower socio-economic group.²⁻⁵

Bronchial asthma is a chronic relapsing inflammatory disorder with increased responsiveness of tracheobronchial tree to various stimuli, resulting in paroxysmal contraction of bronchial airways. It refers to a condition of subjects with widespread narrowing of the bronchial airways which changes in severity over short periods of time, either spontaneously or under treatment, and is not due to cardiovascular disease.⁶

As an example, asthma may be defined as a chronic inflammatory disorder of the airways in which many cell types play a role, in particular mast cells, eosinophils, and T lymphocytes.⁷ In susceptible individuals, this inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness, and cough particularly at night and/or in the early morning. The inflammation also causes an associated increase in airway responsiveness to a variety of stimuli.⁸ "Reactive airways dysfunction syndrome (RADS)" refers to

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the non-immunologic provocation of prolonged bronchial hyper responsiveness and airflow obstruction by exposure to an inhaled irritant.⁹ Seven million people are suffering from bronchial asthma in Bangladesh. But scanty data is available to explain the risk factors for asthma in Bangladesh.¹⁰ The prevalence of asthma symptoms exhibits large geographic variations, even among genetically similar groups, which suggests that differences may reflect variation in environmental factors.¹¹ Epidemiologic studies have demonstrated associations between asthma and exposure to household allergens, pets, tobacco smoke and environmental pollution, as well as sex, obesity, number of siblings and birth order and maternal education.¹²⁻¹⁸

Materials and Methods

This study was a cross-sectional descriptive study and conduction period was January 2021 to June 2021. Data from 201 bronchial asthma patients were collected and the study subjects were selected by purposive random sampling from the slums of Komolapur and Karail of Dhaka city. The respondents interested to participate with bronchial asthma were selected at the age range from 10 to 17 years according to the definition of adolescent of World Health Organization (WHO). Unwilling subjects and known cases of chronic bronchitis and bronchiectasis were excluded from the study.

Results

Table I: Age group of the respondents (n=201)

Age group of the respondents	Frequency	Percentage
10-12 years	59	29.4
13-15 years	104	51.7
16-17 years	38	28.9
Total	201	100.0

Table II: Occupation of the respondents (n=201)

Type of occupation	Frequency	Percentage
Rickshaw puller	31	15.4
Factory worker	90	44.8
Day labors	54	26.9
House wife	15	7.5
Student	11	5.5
Total	201	100.0

Table III: Period of suffering from bronchial asthma (n=201)

Period of suffering from bronchial asthma	Frequency	Percentage
1-4 years	89	44.3
>4-7 years	82	40.8
>7 years	30	14.9
Total	201	100.0

Table IV: Family history of bronchial asthma (n=201)

Family history of bronchial asthma	Frequency	Percentage
Yes	82	40.8
No	119	59.2
Total	258	100.0

Table V: Distribution of the respondents by type of factory in which they worked (n=94)

Type of factory	Frequency	Percentage%
Garments	54	57.45
Tannery	36	38.30
Brick field	4	4.25
Total	94	100.0

Table VI: Family history of bronchial asthma

Family history of bronchial asthma	Frequency	Percentage%
Yes	82	40.8
No	119	59.2
Total	258	100.0

Table VII: Distribution of the respondents working in any factory (n=201)

Working in any factory	Frequency	Percentage
Yes	94	46.8
No	107	53.2
Total	201	100.0

A total 201 respondents with complete data were included for the study. The respondents were ranged from 10-19 years with the mean age of 13.5 years and $SD \pm 2.06$ which included 124(62%) male and 77(38%) female. Major occupation of the respondents was working in the factory (44.8%) followed by day labors (26.9%). Majority of the respondents had a family of 5-8 members (73.1%) followed by 23.9% have 1-4 members. About 44% were suffering from bronchial asthma for a period of 1-4 years, 40.8% (82 in number) for a period of 4 -7 years and rest 14.9% (30 in numbers) for >7years. About 40.8% (82 in number) have a positive family history of bronchial asthma and rest 59.2% has no family history of bronchial asthma. Out of 82 respondents with family history, father was sufferer in case of 43 (52.4%), mother for 36 (43.9%), brother for 2 (2.4%) and in case of one (1.2%) respondent sister was the sufferer. 40.8% (82 in number) have a positive family history of bronchial asthma and rest 59.2% (119 in numbers) had no positive family history. About 46.8% (94 in number) had a positive previous working history in the factory and 53.2% (107 in numbers) had no such type of working experience.

Discussion

The aim of this study is to find out the pattern of bronchial asthma in the slum adolescents of Dhaka city. Bronchial asthma is a chronic disease and causes lots of sufferings in terms of time, money and physical fitness. The age of the respondents were ranged from 10 to 19 years with the mean age of 13.5 years $SD \pm 2.06$. About 52% respondents were aged between 13-15 years followed by 10-12 years (29.4%) and 16-19 years (28.9%) respondents. Prevalence of asthma and its association with environmental tobacco smoke (ETS) exposure were examined among adolescent school children in Chandigarh, India. Using a previously standardized questionnaire, data from 9090 students in the 9 to 20 year age range were analyzed. There were 4367 (48%) boys, in whom the observed prevalence of asthma was 2.6%. Among 4723 (52%) girls, asthma was present in 90 (1.9%) students.¹⁹ In this study, 62% of the respondents were male (124 in number) and 38% were female (77 in number). In another study, S. Agarwal et al. the prevalence of asthma among man was 1.8% and 1.9% in women with higher rates in rural than urban areas.²⁰ So, this study shows quite similarity with our study. Seventy seven percentages of the respondents were illiterate 155 in number out of 201. Most of the slum adolescents were Muslims (191 in number) and 10 were Hindus. So, our study shows that illiterate and Muslim people are affected in asthma. S. Agarwal et al. showed that illiterate men (2.6%,95%CI 2.1-3.1) and women (2.1%,95%CI 1.9-2.3) had a much higher prevalence of asthma than those with middle school and higher education, while Muslim people are more likely to report asthma than Hindu. So, our study shows similarity with the study of S. Agarwal et al. As our study conducted in urban slums major occupation of respondents were working in the factory (44.8%) followed by day laborer (26.9%). rickshaw puller (15.4%),

housewife (7.5%) and students (5.5%). M.A Tageldin et al. showed that as regards to occupation 46% cases were housewives and 15% were employee who are mostly exposed to indoor and outdoor pollution may affect by asthma.²¹ Our study shows more than half of the respondents were unmarried (64.7%) followed by 23.4% married adolescents and 11.9% separated. But S. Agarwal study shows that who were widowed/divorced/separated/deserted were more likely to report asthma. So, our study shows partial similarity to S. Agarwal study. As, unmarried women condition as stressful, there is potential role of emotional stress in asthma development.²² Our study shows that 40.8% of the studied cases had positive family history of bronchial asthma which shows quite similarity with the study of M.A.Tageldin et al.²² Out of 94, 54 were working in the garments, 36 in the tannery and 4 in the brick field. Epidemiologic studies have demonstrated associations between asthma and exposure to household allergens¹², Pets¹³, environmental tobacco smoke¹⁴ and environmental pollution¹⁵, as well as sex¹⁶, obesity¹⁷, number of siblings and birth order¹⁸, and maternal education.²³

Conclusion

In conclusion, we can say that bronchial asthma is a common chronic illness affecting any age of children including their race and socio-economic class globally and its prevalence is changing upwards worldwide.

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