

# A study of clinical profile and factors associated with bronchial asthma at tertiary health care centre

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## Abstract

**Background:** Bronchial asthma is a major cause of chronic morbidity. Recognition of such associated factors will be useful for taking specific interventional measures at community level. **Aim:** To identify the clinical profile and various associated factors in patients with bronchial asthma at a tertiary health care centre. **Material and Methods:** A total of 120 patients with diagnosed bronchial asthma were studied. Detailed clinical history was taken regarding associated risk factors such as occupation, tobacco smoke, exercise etc. **Results:** Majority of the patients were in the age group of 16-30 years. Maximum cases (59.2%) belonged to the middle class in society. Cough was most common symptom (94.4%), followed by wheeze (89.2%) and breathlessness (81.6%). Family history of asthma and aggravating with exercise were significantly associated with asthma in patients. **Conclusion:** The study gives valuable information on certain associated risk factors, which can be utilized for preventive measures to be taken in future.

**Keywords:** Bronchial asthma, cough, family history, exercise, smoking.

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over time in their occurrence, frequency and intensity. Various associated factors that may trigger or worsen asthma symptoms include viral infections, domestic or occupational allergens (e.g. house dust mite, pollens, and cockroach), tobacco smoke, exercise and stress.<sup>6</sup> Risk factors may be different in different geographical locations and no studies had been conducted with regard to this in this area. Recognition of such associated factors will be useful for taking specific interventional measures at community level. This study was done to identify the clinical profile and various associated factors in patients with bronchial asthma at a tertiary health care centre.

## INTRODUCTION

Bronchial asthma is a major cause of chronic morbidity affecting about 300 million people worldwide<sup>1</sup> and number could increase further by another 100 million by year 2025.<sup>2</sup> Prevalence of asthma among developed countries is more (2.7-20%)<sup>3,4</sup> than reported from India.<sup>5</sup> People of all ages, and all ethnic backgrounds, suffer from asthma and the burden of this disease to health care systems, families, and patients is increasing worldwide. Asthma causes symptoms such as wheezing, shortness of breath, chest tightness and cough that vary

## MATERIAL AND METHODS

The present study was conducted over a period of one year and included 120 patients diagnosed with bronchial asthma. The study was approved by Institutional Ethical Committee.

### Inclusion criteria

1. Patients over 15 years of age and both sexes.
2. Patients diagnosed with bronchial asthma.
3. Patients with informed written consent.

**Exclusion criteria**

1. Patients below 15 years of age.
2. Those presenting with emphysema, acute ischemic heart disease, left ventricular failure, myocardial infarction, and bleeding disorders.
3. Patients not willing to participate in the study.

All the included patients were evaluated in OPD of the department and details of the demographic profile was recorded. Detailed clinical history was taken regarding associated risk factors such as occupation, tobacco smoke, exercise etc. Complete blood investigations, X-ray of chest, paranasal sinuses, and spirometry were done in each case. Spirometry was performed and baseline forced expiratory volume in 1<sup>st</sup>second (FEV<sub>1s</sub>) was determined. FEV<sub>1s</sub> value was taken as a measure of severity of asthma. Grading of asthma severity was done using GINA guideline.<sup>2</sup> Two puffs of levosalbutamol (100µg) were administered and after an interval of 15 min, spirometry was repeated to determine reversibility. Diagnosis of asthma was accepted on increase in FEV<sub>1s</sub> by >12% and 200 ml in comparison to the baseline value, as laid by GINA earlier and also same in GINA 2014.<sup>2</sup>

**Statistical analysis**

The collected data was entered and analyzed by using SPSS (Statistical Package for Social Sciences) version 11.0 for windows. The findings were expressed in terms of proportions or percentages.

**RESULTS**

Among the included 120 cases, majority were male 88 (73.3%) and 75.8% cases of bronchial asthma were in the age group of 16-30 years. Maximum cases (59.2%) belonged to the middle class in society [Table 1].

**Table 1: Demographic profile of the study population**

Demographic data	No. of patients	Percentage
<b>Age groups (years)</b>		
16-20	57	47.5%
21-30	34	28.3%
31-40	16	13.3%
41-50	08	6.6%
>50	05	4.2%
<b>Sex</b>		
Male	88	73.3%
Female	32	26.6%
<b>Socioeconomic status</b>		
Lower	52	43.3%
Middle	71	59.2%
Upper	17	14.2%

Among respiratory symptoms, cough was most common symptom (94.4%), followed by wheeze (89.2%), breathlessness (81.6%), chest tightness (66.8%), nocturnal awakening (58.5%), expectoration (38.1%), and

chest pain (16.6%). Maximum patients had symptoms at early morning (83.4%) and nocturnal (64.6%).

**Table 2: Associated factors of bronchial asthma among study population**

Associated factors	No. of patients	Percentage
<b>Family history</b>		
Present	94	78.3%
Absent	46	38.3%
<b>Smoking status</b>		
Smoker	22	18.3%
Non smoker	98	81.6%
<b>Pet animals</b>		
Yes	76	63.3%
No	64	53.3%
<b>Exercise induced</b>		
Yes	48	40%
No	92	76.6%
<b>Fuel used</b>		
Firewood	30	25%
Gas	102	85%
Electricity	08	6.6%

It was found that family history of asthma and aggravating with exercise were significantly associated with asthma in patients (Table 2). Majority of the patients were non-smokers (81.6%) and gas was the main fuel used in most of the houses (85%). 63.3% patients have pet animals at their house.

**DISCUSSION**

Bronchial asthma is a chronic inflammatory disease of airways, prevalent worldwide with variable geographical and seasonal pattern. In the present study majority of the patients were males which are also reported by Aggarwal *et al* and Vijaykumar *et al*.<sup>5,7</sup> In our study, 75.8% cases of bronchial asthma were in the age group of 16-30 years. Vijaykumar *et al* also found more prevalence of asthma in these age group patients.<sup>7</sup> Maximum cases (59.2%) belonged to the middle class in society as most of the patients coming from urban areas. In a study by Singh *et al*,<sup>8</sup> half of the patients were belonged to middle class while Olufemi *et al*<sup>9</sup> and Eisner *et al*<sup>10</sup> reported maximum cases belonging to lower socioeconomic group. Our study showed cough as most common respiratory symptom, also reported by others.<sup>5,9</sup>

Among associated risk factors, family history of asthma and aggravating with exercise were significantly associated with asthma in patients. Awasthi *et al* also found exercise as one of the important trigger factor for asthma.<sup>6</sup> We could not find any association with tobacco smoking in contrast to another study.<sup>11</sup> Study has shown that interactions between genotypes at specific loci or genome regions and environmental tobacco smoke exposure with risk for development of asthma.<sup>12</sup> We also could not find strong association of asthma with pets at

home. Pokharel *et al* found that factors associated with presence of symptoms of asthma were passive smoking, pets at home in contrast to our study.<sup>13</sup> This difference may be due to non-quantification of types of pets and pattern of smoking behavior. In conclusion, bronchial asthma is a disease of young age with cough and breathlessness as most common associated co-morbidity. The study gives valuable information on certain associated risk factors, which can be utilised for preventive measures to be taken in future. Although, the study findings may not be generalised because of different sociodemographic characteristics and associated risk factors in different settings.

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