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Keywords : *asthma, spirometry, spirometry.*

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Prevalence of Asthma in the Subjects Attending Multi Specialty Centre OPD, Ballimaran, Delhi

Dr. Izharul Hasan [α], Mahboob Ali [σ], Mushtaq Hussain [ρ] & Mohd Aslam [ω]

Abstract - The burden of Asthma in developing countries such as India is of sufficient magnitude to warrant its recognition as a priority in government health strategies. Particular resources need to be provided to improve the care of disadvantaged groups with high morbidity, including certain racial groups and those who are poorly educated, live in large cities, or are poor. The present study was conducted to find out current prevalence of asthma in subjects attending multi specialty centre OPD Ballimaran, Delhi. Attempts were also made to detect possible factors contributing to the prevalence. A total of 1000 subjects were included in the study using questionnaire, clinical evaluation by physician and spirometry. The current prevalence of asthma in male population of Delhi was 13.42% and in female population 12.41%, respectively. The prevalence of asthma was more (13.42%) in male population than female population (12.41%) respectively.

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I. Introduction

Asthma is a chronic inflammatory disorder of the airways characterized by recurrent episodes of wheezing, breathlessness, chest tightness and cough that is often reversible either spontaneously or with treatment (Global Initiative for Asthma 2004).

In India, an estimated that 57,000 deaths were attributed to Asthma in 2004 (WHO 2004) and it was seen as one of the leading cause of morbidity and mortality in rural India (Smith 2000). Though effective screening, evaluation, and management strategies for Asthma are well established in high-income countries, these strategies have not been fully implemented in India as evidence had previously suggested that Asthma is not to be treated independently but fitted into the general spectrum of respiratory diseases (Krishnakumar 2003). Furthermore, even though medicines that treat Asthma effectively are available at affordable costs, they rarely reach more than one per cent of those who would benefit from it (Krishnakumar 2003). According to World Health Organisation (WHO) estimates 300 million people suffer from Asthma, 255, 000 people died of Asthma in 2005 (WHO 2004) and over 80% of Asthma deaths are reported from low and lower-middle income countries (Braman 2006). Asthma creates a substantial burden on individuals and families as it is more often under-diagnosed and under-treated. (Rabe *et al* 2000; Adachi *et al* 2002)

Approximately 300 million people worldwide currently have Asthma, with estimates suggesting that Asthma prevalence increases globally by 50% every decade (Masoli *et al* 2004). With the projected increase in the proportion of the world's urban population from 45% to 59% in 2025, there is likely to be a marked increase in the number of Asthmatics worldwide over the next two decades. It is estimated that there may be an additional 100 million persons with Asthma by 2025 (Masoli *et al* 2004).

According to the recently conducted cross sectional nationally representative National Family Health Survey (NFHS)-3, the overall prevalence of asthma among adult men and women in India is similar with 1,696 and 1,627 per 100,000 respectively (IIPS and Macro International 2007).

The present study was undertaken to record the prevalence of asthma among patients attending multi specialty centre OPD, Ballimaran Delhi.

II. Methodology

This cross sectional study was carried out in multi specialty center Ballimaran OPD, the total no of subjects enrolled in this study were 1000, and Inclusion criteria are all age groups, outpatients, asthma patients. Exclusion criteria are Psychiatric patient, Asthma and allergic rhinitis co morbidity with other disease.

The patients were selected by random computerized sampling method, motivated to participate in the study. Assessment was done air flow obstruction by flow meter. The instrument used were Mini peak expiratory flow meter and stethoscope.

III. Questionnaire

The patients were requested to answer a questionnaire of following question: patients were asked, "Do you suffer with a blocked nose/stuffy nose/catarrh/sneezing/runny nose/itchy eyes/ears/roof of mouth?" "Do you suffer with asthma (wheezing/tight chest/cough/shortness of breath)?" "In the last month, have you suffered with any of these symptoms even when taking your regular medicine?" Waking in the night because of asthma, Shortness of breath, Wheezing,

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Tight chest, Cough, A blocked nose, Stuffy nose, Catarrh, Sneezing ,Runny nose, Itchy eyes , Itchy ears , Itchy roof of mouth.

IV. Core Questionnaire Wheezing

'Have you ever had wheezing or whistling in the chest at any time in the past?' 'Have you had wheezing or whistling in the chest in the last 12 months?' 'How many attacks of wheezing have you had in the last 12 months?' 'In the last 12 months, how often, on average, has your sleep been disturbed due to wheezing?' 'In the last 12 months, has wheezing ever been severe enough to limit your speech to only one or two words at a time between breaths? 'Have you ever had asthma?' 'In the last 12 months, has your chest sounded wheezy during or after exercise?' 'In the last 12 months, have you had a dry cough at night, apart from a cough associated with a cold or a chest infection?' 'Check which time of year your child has the most difficulty breathing (cough, wheeze, chest tightness), Family history of Asthma?' 'How often are breathing problems, coughing or wheezing Occurring during the DAY?' 'How often are breathing problems, coughing or wheezing Occurring during the night?' 'Does physical activity cause breathing problems wheezing or coughing?'

V. Occupation

Occupations of the subjects were recorded for assessment to socio economic status. It was recorded under following categories.

- Labour
- Student
- Unemployed
- Shop keeper
- Businessmen
- Mechanic
- Farmer
- Driver
- Tailor
- Clerk
- Teacher
- House wife

VI. Socioeconomic Status

The SES was assesses by using the Kuppuswami's SES Scale for Urban population, 1976. Due to changes in the economy to year, the classification or scale was modified accordingly.

VII. Diagnosis of Patient's

1. Diagnosed asthmatic patients
2. Presence of wheezing sounds
3. Attack of shortness of breath with wheezing in past 6 months
4. PEF<200 Lit/Min

VIII. Categorization of Severity of Asthma

	Mild	Moderate	Severe
Symptoms disturbing sleep	<once per week	>once per week	Daily
Day time symptoms	<Daily	Daily	Daily
Limitation of accustomed activity	Nil	<1 per week	>1 per week
Peak expiratory flow	Normal	60-80%	<60%

IX. Statistical Analysis

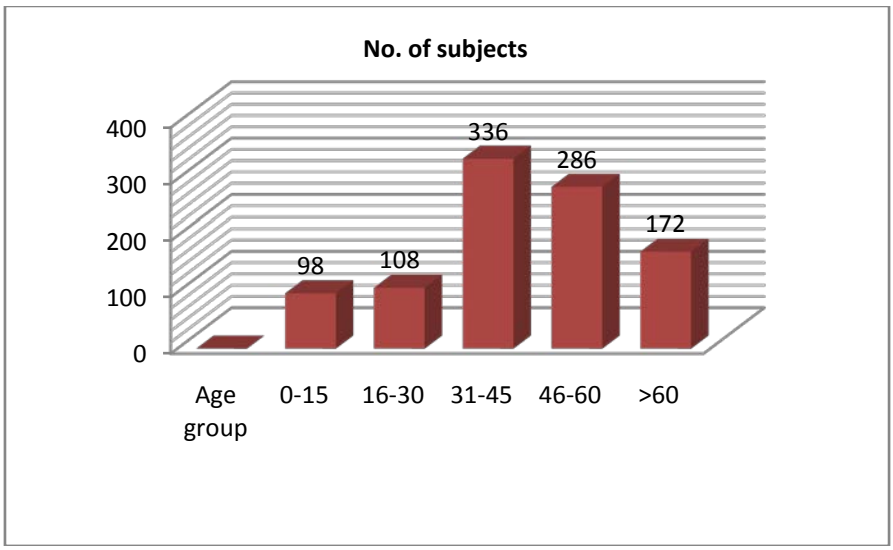
The data were analyzed on SSPS version 10.0. Chi-square test was applied to test the significance of association of prevalence with risk factors at P < = 0.05.

X. Results and Discussion

In or study as shown in Figure no. 1, out of total subjects, 9.8% were in the age group 0-15 yrs, 10.8% were in the age group of 16-30 yrs, 33.6% were in age group of 31-45 yrs, 28.6% were in age group 46-60 and 17.0% were found in the age groups of >60 yrs respectively.

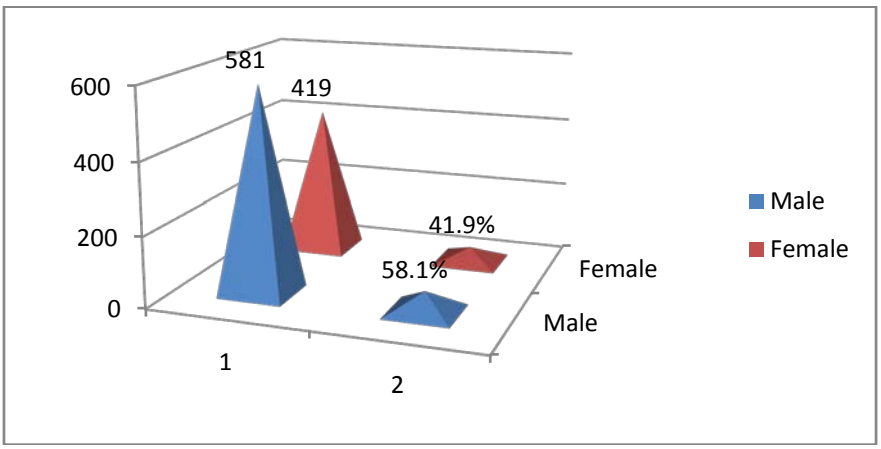
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Figure 1 : Distribution of Patients according to Age (n=1000)



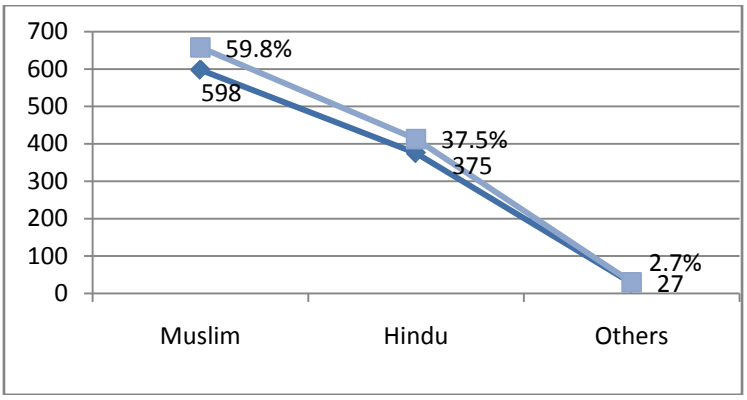
In our study population 581 (58.1%) were males and 419 (41.9%) patients were females (Figure no.2). The difference may be due to easy access and high health consciousness in male as compared to female. The prevalence of asthma among male was 13.42%, among female was 12.41%. Total prevalence was 13.0%. Our study shows that prevalence of asthma was more among males compared to females. High prevalence among males may be due to more exposure of male population to various industries, dust and overcrowded places.

Figure 2 : Distribution of the Subjects according to Sex (n=1000)



The religion wise distribution of patients shows that out of 1000 patients, 598 (59.8%) subjects were Muslims, 375(37.5%) patients were Hindus, and 27 (2.7%) were from other religions. (Figure No. 3)

Figure 3 : Distribution of Patients according to Religion (n=1000)



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In our study total prevalence of asthma was 13.0% (Table No.1) however in the study conducted by Jindal SK *et al* among population of 18 yrs and above during 1995-97 find out the prevalence was 3.94% in urban population (Jindal SK 2000). According to the recently conducted cross sectional nationally representative National Family Health Survey (NFHS)-3, the overall prevalence of asthma among adult men and women in India is similar with 1,696 and 1,627 per 100,000 respectively (IIPS and Macro International 2007).

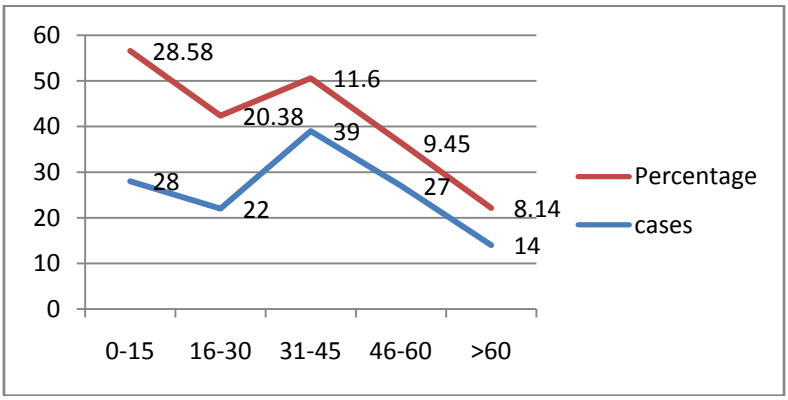
Table 1 : Prevalence of Asthma according to patient's sex

Status	Males (n=581)		Females (n=419)		Total (n=500)	
	No. of subjects	Percentage	No. of subjects	Percentage	No. of subjects	Percentage
Normal	503	86.58	367	87.59	870	87.00
Asthma	78	13.42	52	12.41	130	13.00
Total	581	100	419	100	1000	100

In our study the prevalence was higher as compared to other studies. The cause of high prevalence may be due to the participation of all age group subjects in the study. There was limited information on prevalence of asthma among all ages group. Increasing trends of prevalence rate probably was due to allergic and environmental conditions which can provoke asthma in Delhi. It is also supported by study conducted in four mega cities Bangalore, Kanpur, Delhi and chandigarh in which prevalence of asthma 3.47%, 2.07%, 1.68%, and 2.28% respectively in age groups of 15-75 years (AN Aggarwal et al 2006)

As shown in Figure no.4, the prevalence of asthma among subjects in age group 0-15 years was 28.58%, among 16-30 years was 20.38%, among 31-45 years was 11.60% among 46-60 years was 9.45%, among >60 years was 8.14%. Difference in prevalence in asthma among different age group was statistically significant and revealed the dominance of 0-15 year's age group.

Figure 4 : Prevalence of asthma according to age groups



In our study, prevalence of asthma was high in age group 0-15 years and lowest in the age group >60 years. A study conducted by Murthy KJR showed that the prevalence was higher in small age group, our study also show concordant findings (Murthy KJR 2006). Increasing prevalence of asthma could be seen in small age group due to higher vulnerability of children to allergic conditions. Our study showed high prevalence in the subjects having family history association. A study conducted by Chowgule RV *et al* that there is a strong correlation between diagnosis of asthma and the history of family disease of asthma (Chowgule RV et al 1998).

As shown in Table No. 2, In our study 190 (19%) were illiterates, 287 (28.7%) were educated upto primary school, 186(18.6%) upto middle school, 180(18%) upto High school, 67(6.7%) upto Intermediate and 90(9%) upto UG and PG.

Table 2 : Distribution and prevalence of subjects according to Education (n=1000)

Education	No. of Subjects	Percentage (%)	Prevalence Cases	Percentage
Illiterate	190	19.0	29	22.31
Primary	287	28.7	27	20.76
Junior high school	186	18.6	26	20.0
High school	180	18.0	31	23.85
Intermediate	67	6.7	12	9.24
UG + PG	90	9.0	5	3.84
Total	1000	100%	130	100%

In our study revealed out prevalence of asthma among illiterate was 22.31%, primary school educated was 20.76%, Junior high school educated was 20.0%. high school educated was 23.85%, intermediate educated was 9.24%, and UG & PG was 3.84%. The

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literacy wise prevalence 23.85% was highest among those who have completed their education upto high school as compared to illiterates 22.31%. In our study only 3.84% prevalence was found among UG & PG educated subjects. Mostly prevalence was found among illiterates, primary, upto junior, and upto high school subjects. In present study due to the problem of unemployment, limited working option, and rendering the subjects for working in high risk places.

As shown in Table No. 3, In our study subjects 132(13.2%) were in higher SES, 287(28.7%) were in middle SES, 485(48.5%) were in lower SES, and 96(9.6%) were in very lower SES.

Table 3 : Distribution and prevalence of subjects according to Education (n=1000)

SES	No. of Subjects	Percentage (%)	Prevalence Cases	Percentage
Higher SES	132	13.2	17	13.07
Middle SES	287	28.7	19	14.61
Lower SES	485	48.5	58	44.62
Very Lower SES	96	9.6	36	27.70

The prevalence of asthma among higher socio economic status was 13.07%, among middle socio economic status 14.61%, among lower socio economic status 44.62%, and among very socio economic status 27.70%. According to SES the prevalence of asthma was highest among the class III Lower SES 44.62%, next higher among the class IV Very Lower SES 27.70%. This result indicates that poverty is a risk factor for asthma occurrence.

XI. Conclusion

Asthma is a common disease worldwide with significant ethnic and regional variations. An increasing morbidity and mortality, as well as health care burden from asthma has been recognized. There has been a change in the epidemiology and clinical spectrum of asthma with an apparent increase in the overall prevalence along with a rise in the incidence of 'difficult to treat' cases. The present study concludes that prevalence of asthma is more among the subjects age group of 0-15 years, more among illiterates and education upto high school may be due to lack of education and awareness regarding asthma. So as for prevention asthma it is necessary to provide for health professional as can serve asthma educators and appropriate strategies should be initiated like continuing medical education.

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