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ORIGINAL RESEARCH

Knowledge, attitude and practices of parents of children with bronchial asthma coming to pediatrics department of Govt. Medical college / Rajindra hospital, Patiala

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ABSTRACT

Background: This study was conducted to assess the knowledge, attitude and practices of parents of children with bronchial asthma coming to department of government medical college/ Rajindra hospital, Patiala. **Material and methods**: In the present study, children of bronchial asthma attending out and in-patient services of Pediatrics department of RHP which is a tertiary care hospital were evaluated. Children with age group of 4-15 years with diagnosis of Bronchial Asthma were included in the study. Cases consisted of all the patients with diagnosis of Bronchial Asthma as defined below. Cases having other significant bronchopulmonary diseases associated with asthma, for example, tuberculosis, bronchiectasis, congenital respiratory malformations were excluded from the study. **Results**: Table 1 shows that majority of the patients i.e., 77 (51.33%) were aged between 6-10 years, followed by 39 (26%) aged between 11-15 years and 34 (22.67%) aged between 4-5 years. Mean age of the patients was 8.2±2.88 years. Table 2 shows that majority of the patients i.e.,86(57.33%) were males and 64(42.67%)patients were females. Table 3 shows that maximum number of patients i.e., 57 (38%) belonged to lower middle class, 54 (36%) belonged to upper lower class, 21 (14%) to upper middle class, 16 (10.67%) to lower class and only 2 (1.33%) belonged to upper class.Table 4 shows that majority of the patients i.e., 89 (59.33%) were from urban areas and 61 (40.67%) patients were from rural areas. **Conclusion**: The present study was conducted with the objective to access knowledge and attitude of parents towards bronchial asthma in their children, to study about practices followed by parents of children with bronchial asthma and to identify factors associated with parent knowledge, attitude and practices.

Keywords: knowledge, attitude, practices, parents, children, bronchial asthma

INTRODUCTION

Bronchial asthma is a chronic inflammatory disease of the airways characterized by bronchial hyperreactivity and a variable degree of airway obstruction.[1] The 2015 Global Strategy for Asthma Management and Prevention by the Global Initiative for Asthma (GINA) defined asthma as a heterogeneous disease characterized by chronic airway inflammation and variable remodeling that results in a range of clinical presentations, treatment responses and natural history across the life course of the patient.[2] Recurrent episodes of acute shortness of breath, typically occurring at night or in the early morning hours, are the cardinal manifestation of bronchial asthma. Further symptoms include cough, wheezing, and a feeling of tightness in the chest. Asthmatic symptoms can often arise after physical exercise.[1]

The word asthma is derived from the Greek verb, aazein, which means to pant. Hippocrates was the first to use asthma as a medical term referring to lung spasm in his teachings entitled, The Corpus Hippocraticum.[3] In ancient China, inhaled preparations of ephedrine containing plants were used to stimulate beta-adrenergic receptors within the lung, which continues to be a mainstay mechanism for the treatment of asthma.[4] In the 1860s, Dr. Henry Salter of London described the classic characteristics associated with asthma, such as airway

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hyperresponsiveness to cold and exercise, as well as environmental particulates.[5]

Asthma is the most common chronic disease among children worldwide. More than 339 million people are living with asthma. Over 80% of asthma-related deaths occur in low-and lower-middle income countries. It was estimated that more than 339 million people had Asthma globally in 2016.[6] According to WHO estimates, there were 417,918 deaths due to asthma at the global level and 24.8 million DALYs attributable to Asthma in 2016.[7]

Various studies on asthma in India reported an estimated prevalence rate of 2% up to as high as 23%. Such huge variation is not only due to difference in methodology of studies but also wide geographical and environmental variations in India.[8] A recent study has reported a current asthma prevalence of 11.8% in children aged 13 to 14 years old.[9]

Depending on the severity of bronchial asthma in the individual patient, there may be phases of partial or total freedom from symptoms, alternating with periods of variably severe illness.[1] Most common bronchial asthma symptoms are coughing, especially at night with exercise or when laughing, shortness of breathing, a chest tightness and chest wheezing that is defined as a continuous high-pitched sound, sometimes with musical quality, emitting from the chest during expiration. Wheezing can occur in several different patterns, but wheezing that occurs recurrently, during sleep, or with triggers is consistent with diagnosis of bronchial asthma. Sometimes a persistent cough is the only symptom of bronchial asthma. Bronchial Asthma symptoms often happen at night and in the morning, but they can happen at any time.[10,11] Among children aged 13-14 years, the global average for current wheeze was 14.1% and the Indian subcontinent recorded a prevalence of <5%. The mean global prevalence for current wheeze was found to be 11.5% for the age group of 6-7 years; the Indian subcontinent had a prevalence of 6.8%. Within the age categories of 13-14 years, 6.9% had severe bronchial asthma symptoms globally, and the Indian subcontinent showed the lowest prevalence: 2.5% among all the study centres. In the age group of 6-7 years, 4.9% of children had symptoms of severe bronchial asthma worldwide, while the Indian subcontinent had a prevalence of 2.5%.[12]

An atopic diathesis, i.e., a genetic predisposition towards the production of IgE antibodies in response to (for example) pollen, house dust mites, fungi, or animal-derived proteins, is the most important risk factor for bronchial asthma.[13,14] In childhood, bronchial asthma is usually due to allergies; on the other hand, in 30% to 50% of adults with asthma, no allergycan be identified, at least not with the standard techniques. Non-allergic asthma in adults can arise, for example, after a viral infection of the lower respiratory tract. Viral infections can, in turn, promote the development of an allergic sensitization.[15-17] Intrinsic asthma may reflect the simultaneous presence of sinusitis, nasal polyposis, and an intolerance to acetylsalicylic acid (ASA) or related non-steroidal anti-inflammatory drugs (NSAIDs); this is the so-called Samter's syndrome.[18]

Acute worsening of asthma (an asthma attack or exacerbation) can arise at any time without any prodromal symptoms and independently of the previous severity of the disease. Bronchial obstruction during an acute attack can progress, either slowly or rapidly, to life-threatening severity.[19] According to WHO estimates, there were 417,918 deaths due to asthma at the global level and 24.8 million DALYS attributable to Asthma in 2016.[20,7]

MATERIAL AND METHODS

The present study was a hospital based prospective and cross-sectional study conducted over a period of 1 year on 150 children with bronchial asthma in Pediatrics department, Rajindra hospital, Patiala, Punjab (both out and in-patient).

Sample size: The sample consisted of 150 children with bronchial asthma and their parents attending Pediatrics department of Govt. Medical College/Rajindra Hospital, Patiala. All the eligible children and their parents were included in the analysis of this cross-sectional study.

Methodology: In the present study, children of bronchial asthma attending out and in-patient services of Pediatrics department of RHP which is a tertiary care hospital were evaluated. Children with age group of 4-15 years with diagnosis of Bronchial Asthma were included in the study. Cases consisted of all the patients with diagnosis of Bronchial Asthma as defined below. Cases having other significant bronchopulmonary diseases associated with asthma, for example, tuberculosis, bronchiectasis, congenital respiratory malformations were excluded from the study.

Diagnostic Criteria: Diagnosis of Bronchial asthma was considered if any of the following clinical indicators were present:

1. wheezing (high pitched whistling sounds, especially in children), but bronchial asthma can occur in the absence of wheezing;
2. recurrent cough;
3. recurrent chest tightness or
4. difficulty in breathing; worsening symptoms with exercise or at night; or worsening symptoms during viral infection, exposure to furry pets, changes in weather, exposure to pollen, or environmental tobacco smoke (all known triggers of bronchial asthma). Improvement of symptoms after treatment with a bronchodilator is suggestive of bronchial asthma, but a lack of improvement does not rule out bronchial asthma.

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Inclusion criteria: Bronchial asthma patients in age group of 4-15years.

Exclusion criteria

1. Age < 4 years
2. Age > 15 years
3. Immunocompromised patients
4. Patients with other significant bronchopulmonary diseases. For example- TB, Bronchiectasis, Cystic fibrosis, etc.
5. Patients with PEM grade 3 and 4
6. Patients with Congenital Respiratory malformations.
7. Patients with Congenital Heart diseases.

An easily comprehensible questionnaire was designed in which most questions were closed, with yes or no answers. The questionnaire was designed to obtain information regarding the parents' perception of etiology, triggers, asthma symptoms, treatment modalities and to know their attitude towards the disease and to know the practices followed by them to prevent and treat frequent bronchial asthma attacks.

The results of observations of individual parents were pooled and analyzed. Statistical analysis was performed using Statistical Program for Social Sciences (SPSS) software version 20.0 Chicago, Illinois, USA. For categorical variables, chi-square test was used for analysis.

'**p' value**: A difference which would have arisen by chance is 'p' value. If it was less than 0.05, it was considered significant, 'p' value less than 0.01 was considered highly significant. If it was more than 0.05, it was considered non- significant.

RESULTS

TABLE- 1: Distribution of patients according to age

Age Range (in Years)	Number	Percentage
≤5	34	22.67
6-10	77	51.33
11-15	39	26
Total	150	100
Range	4- 15 years	
Mean± SD	8.2±2.88	

Table 1 shows that majority of the patients i.e., 77 (51.33%) were aged between 6-10 years, followed by 39 (26%) aged between 11-15 years and 34 (22.67%) aged between 4-5 years. Mean age of the patients was 8.2±2.88 years.

TABLE-2: Distribution of patients according to gender

Gender	Number	Percentage
Male	86	57.33
Female	64	42.67
Total	150	100

Table 2 shows that majority of the patients i.e., 86(57.33%) were males and 64(42.67%) patients were females.

TABLE- 3: Distribution of patients according to socio-economic status

Socio-economic Class	Number	Percentage
Upper	2	1.33
Upper Middle	21	14
Lower Middle	57	38
Upper Lower	54	36
Lower	16	10.67
Total	150	100

Table 3 shows that maximum number of patients i.e., 57 (38%) belonged to lower middle class, 54 (36%) belonged to upper lower class, 21 (14%) to upper middle class, 16 (10.67%) to lower class and only 2 (1.33%) belonged to upper class.

TABLE- 4: Distribution of patients according to place of residence

Residence	Number	Percentage
Urban	89	59.33
Rural	61	40.67
Total	150	100

Table 4 shows that majority of the patients i.e., 89 (59.33%) were from urban areas and 61 (40.67%) patients were from rural areas.

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TABLE- 5: Distribution of patients according to type of house

Type of house	Number	Percentage
Pucca	122	81.33
Kaccha	28	18.67
Total	150	100

Table 5 shows that majority of the patients i.e., 122 (81.33%) lived in pucca house while 28 (18.67%) patients lived in kaccha house.

PARENT'S RESPONSE ON THE KAP QUESTIONNAIRE

Knowledge based questions

TABLE- 6: Duration of child's asthma

Duration of asthma	Number	Percentage
<6 years	89	59.33
>6 years	40	26.67
Not known	21	14
Total	150	100

Table 6 shows that majority of the patients i.e., 89 (59.33%) had bronchial asthma of less than 6 years duration, 40 (26.67%) had bronchial asthma of more than 6 years duration and 21(14%) parents didn't know about the duration of disease in their child.

TABLE- 7: Symptoms of asthma

Symptoms	Number	Percentage
Breathlessness	66	44
Breathlessness/ Cough	28	18.67
Breathlessness/ Cough/ Wheeze	18	12
Wheeze	18	12
Cough	15	10
Breathlessness/ Wheeze	5	3.33
Total	150	100

Table 7 shows that maximum number of patients i.e., 66 (44%) had breathlessness as the only symptom of bronchial asthma, 28 (18.67%) patients had breathlessness and cough, 18 (12%) patients had breathlessness, cough and wheeze, 18 (12%) patients had wheeze only, 15 (10%) patients had cough only and 5 (3.33%) patients had breathlessness and wheeze as the symptoms of bronchial asthma.

TABLE- 8: Precipitating factors of asthma

Precipitating factors	Number	Percentage
Dust mite	62	41.33
Dust mite/ Tobacco	21	14
Dust mite/ Pollen	17	11.33
Dust mite/ Animal dander	10	6.67
Cold air	8	5.33
Pollen	7	4.67
Cold air/ Animal dander	6	4
Pollen/ Cold air	5	3.33
Pollen/ Cold air/ Animal dander	4	2.67
Dust mite/ Cold air	1`	0.67
Dust mite/ Exercise	1	0.67
No idea	8	5.33
Total	150	100

Table 8 shows that maximum number of parents i.e., 62 (41.33%) identified dust mite as the only precipitating factor for bronchial asthma, 21 (14%) recognized both dust mite and tobacco, 17 (11.33%) recognized dust mite and pollen, 10 (6.67%) recognized dust mite and animal dander, 8 (5.33%)recognized cold air, 7 (4.67%) recognized pollen, 6 (4%) recognized cold airand animal dander, 5 (3.33%) recognized pollen and cold air, 4 (2.67%) recognized pollen, cold air and animal dander, 1 (0.67%) recognized dust mite and cold air, 1 (0.67%) recognized dust mite and exercise and 8 (5.33%) parents had no idea about the precipitating factor.

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TABLE- 9: Device used in treatment for asthma

Device used	Number	Percentage
MDI Spacer	84	56
Rotahaler	20	13.33
Nebulizer	18	12
Steam	18	12
Injectable	10	6.67
Total	150	100

Table 9 shows that majority of the patients i.e., 84 (56%) used MDI Spacer as the primary modality of treatment, 20 (13.33%) patients used rotahaler, 18 (12%) used nebulizer, 18 (12%) used steam and 10 (6.67%) used injectable as the primary modality of treatment of bronchial asthma.

TABLE- 10: Relationship of asthma with sports

Relationship of asthma with sports	Number	Percentage
Relationship exists	73	48.67
No relationship	41	27.33
No idea	36	24
Total	150	100

Table 10 shows that maximum number of parents i.e., 73 (48.67%) believed there exists a relationship between sports and bronchial asthma, 41 (27.33%) parents believed there exists no relation and 36 parents (24%) had no idea about the relationship.

TABLE- 11: Is asthma preventable?

Is asthma preventable	Number	Percentage
Yes	78	52.0
No	60	40.0
No idea	12	8
Total	150	100

Table 11 shows that majority of the parents i.e., 78 (52.0%) believed that asthma is preventable, 60 (40.0%) believed that asthma is not preventable and 12 (8%) had no idea about it.

TABLE- 12: Is asthma treatable?

Is asthma treatable	Number	Percentage
Yes	84	56%
No	66	44%
Total	150	100%

Table 12 shows that majority of the parents i.e., 84 (56%) parents believed that asthma is treatable and 66 (44%) parents believed that asthma is not treatable.

DISCUSSION

Bronchial asthma is a chronic inflammatory disease of the airways characterized by bronchial hyperreactivity and a variable degree of airway obstruction. Recurrent episodes of acute shortness of breath, typically occurring at night or in the early morning hours, are the cardinal manifestation of bronchial asthma. Further symptoms include cough, wheezing, and a feeling of tightness in the chest. Asthmatic symptoms can often arise after physical exercise. Asthma having been identified as a major contributor to chronic disease, knowledge in the general population for its management is very crucial.

The present study was conducted with the objective to access knowledge and attitude of parents towards bronchial asthma in their children, to study about practices followed by parents of children with bronchial asthma and to identify factors associated with parent KAP scores. This study was a prospective and cross-sectional study and done on 150 patients who attended the out and in-patient department of pediatrics, Rajindra hospital, Patiala, Punjab. Patients of asthma attending the pediatrics department were evaluated. The parents of the patients were well informed about the study procedure and written informed consent was taken. Patients of either sex were included in the study. Parents of the patients were given a questionnaire to study their knowledge, attitude and practices of asthma.

Descriptive statistics had been applied for the analysis of data. Data was expressed in proportion and percentage form and represented in the form of tables, charts and bar diagrams.

Demographic distribution

Age distribution: In the present study, table 1 shows that mean age of presentation of patients was 8.2±2.88 years. All patients were in the age group of 4-15 years.

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The results of the present study can be compared with the study conducted by Bhagavatheeswaran et al[21] (2016) which reported average age to be 12.53±2.95 years.

Gender distribution: In the present study, table 2 shows that out of a total of 150 patients enrolled in the present study, 86 (57.33%) were male and 64 (42.67%) were female. The male: female ratio was 1.34:1. It shows a male preponderance in patients of asthma.

The results of the present study can be compared with the study conducted by Bhagavatheeswaran[21] et al (2016) which reported that 62% children were male and 38% female.

Distribution of patients according to socio-economic status: In the present study, table 3 shows that parents were divided into five classes according to the socio-economic status after applying Modified Kuppuswamy scale, taking into consideration education, income and occupation of the parents. 1.33% parents belonged to upper class, 14% belonged to upper middle class, 38% to lower middle, 36% to upper lower and 10.67% belonged to lower class.

The results of the present study can be compared to the study conducted by Lal et al[22] which reported 1.2% patients belonged to upper class, 11.8% to upper middle class, 35.3% to middle class, 31.8% to lower middle class and 20% to lower class.

Distribution of patients according to place of residence: In the present study, table 4 shows that 59.33% patients belonged to urban areas and 40.67% belonged to rural areas.

The results of the present study can be compared to the study conducted by Lal et al[22] which reported 77.6% families were from urban areas and 22.3% were from rural area.

Distribution of patients according to type of house: In the present study, table 5 shows that 81.33% patients had pucca house and 18.67% had kaccha house.

Device used in treatment of asthma In the present study, table 9 shows that MDI Spacer was the commonest device used by most parents for their children(56%), followed by Rotahaler (13.33%). Rest of the devices used were nebulizer and steam (12% each) and injectable (6.67%).

Relationship of asthma with sports: In the present study, table 10 shows that 48.67% parents reported that there is a relationship and the condition of their child's asthma worsens with sports while 27.33% reported that there is no relationship. Rest (24.0%) had no idea whether any such relation exists or not.

The results of the present study can be compared with the study conducted by Fadzil[23] et al (2002). The study reported that 41.8% children were noticed by their parents to develop acute exacerbations during exercise.

Is asthma preventable: In the present study, table 11 shows that most of parents believed that asthma is preventable (52.0%) while 40.0% parents believed that asthma is not preventable. Rest (8%) had no idea about it.

The results of the present study can be compared with the study conducted by Noureddin et al[24] (2019) in which 17% parents thought that asthma could be prevented by immunization.

Is asthma treatable: In the present study, table 12 shows that most of parents believe that asthma is treatable (56.0%) while 44.0% parents believe that asthma is not treatable.

Parent's response on the KAP questionnaire (Knowledge based questions)

Duration of Child's asthma: In the present study, table 6 shows that majority of the parents (86.0%) had knowledge about the duration of their child's asthma. Only 14% parents had no knowledge about the duration of their child's disease. Majority of the patients (59.33%) had asthma for a duration of less than 6 years while 26.67% had asthma for a duration of more than 6 years.

The results of the present study can be compared with the study conducted by Noureddin et al[24] (2019) which reported 38% of patients were diagnosed 3 months to 1 year ago, 44% were diagnosed 1 to 5 years ago and 18% diagnosed more than 5 years ago.

Symptoms of asthma: In the present study, table 7 shows that breathlessness was the most reported symptom (44%) followed by breathlessness/ cough (18.67%), breathlessness/ cough/ wheeze (12%), wheeze (12%), cough (10%) and breathlessness/wheeze (3.33%).

The results of the present study can be compared with the study conducted by Noureddin[24] et al (2019) which reported most of the parents did know about cough (85%), shortness of breath (85%), and wheeze (73%) as symptoms of asthma.

Shaheen et al[25] (2016) reported that three hundred (50%) parents reported nocturnal dyspnea, as the most common symptom of uncontrolled asthma in children, whereas 31.3% observed a repetitive cough pattern.

Precipitating factors of asthma: In the present study, table 8 shows that dust mite alone (41.33%) was identified by most of the parents as the commonest precipitating factor for their child's asthma. This was followed by dust mite/ tobacco (14%), dust mite/ pollen (11.33%), dust mite/ animal dander (6.67%), cold air(5.33%) and pollen (4.67%), cold air/ animal dander (4%), pollen / cold air (3.33%), pollen/ cold air/ animal dander (2.67%); anddust mite/ cold air and dust mite/ exercise (0.67% each). 5.33% parents had no idea about the precipitating factors.

The results of the present study can be compared with the study conducted by Albarraq et al[26] (2019). The study reported the precipitating factors for asthma to be - common dust mites (89.2%), tobacco (81.6%), animal dander (48.8%), cold air (43.2%), and cold drink (31.6%). Noureddin et al[24] (2019) reported the triggering factors as dust (89%), respiratory tract infections (65%), cold weather (56%), smell of paints

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(51%) and less commonly animal dander, exercise, drugs and smoke.

CONCLUSION

The present study was conducted with the objective to access knowledge and attitude of parents towards bronchial asthma in their children, to study about practices followed by parents of children with bronchial asthma and to identify factors associated with parent knowledge, attitude and practices.

This study was a prospective and cross-sectional study and done on

150 patients who attended out and in-patient department of pediatrics, Rajindra hospital, Patiala, Punjab. Patients of asthma attending the pediatrics department were evaluated. The parents of the patients were well informed about the study procedure and written informed consent was taken.

Descriptive statistics had been applied for the analysis of data. Data was expressed in proportion and percentage form and represented in the form of tables, charts and bar diagrams.

From the results of the present study, following conclusions were drawn:

- The mean age of the patients was 8.2±2.88 years. Maximum number of patients were in the age group of 6-10 years.
- There were 86 male patients and 64 female patients indicating a male preponderance of the disease.
- 38% patients belonged to lower middle class, 36% belonged to upper lower class, 14% to upper middle class, 10.67% to lower class and only 1.33% to upper class. Maximum patients were from lower middle and upper lower class.
- 59.33% patients were from urban areas and 41.67% patients were from rural areas.
- 81.33% patients had pucca house and 18.67% patients had kaccha house.

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