

Knowledge of Asthma in Mothers of Children Suffering from Wheezing Disorder

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Abstract

Background: Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation

Materials and Methods: This double-blind, randomized, prospective study was performed in the mothers, 300 in number, having children aged 6 months to 18 years were enrolled as sample.

Results: Maximum number of mothers (79.3%) reported change in weather as the most important precipitating factor for their child's illness. Dust (47.3%), food/drinks (42.7%), and cold air (37.3%) were other commonly reported precipitating factors. Mothers had poor knowledge about home management of an acute attack of asthma. Only 34% of mothers give aerosol therapy during an acute attack. Although the majority of mothers knew about aerosol therapy, they were not using it because of various false beliefs like addictive nature of therapy, fear of social stigma associated with its use and its side effects.

Conclusion: In conclusion, information about asthma is inadequate among parents of asthmatic children in our setting. Misconceptions about the disease and paucity of information about current trends about management among parents are a significant finding.

Key words: Addictive, Aerosol, Asthma, Paucity

INTRODUCTION

Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness, and cough that vary over time and in intensity, together with variable expiratory airflow limitation. The GINA Science Committee crafted this definition to portray the characteristics that are typical of asthma and highlight the features that distinguish it from other lung diseases.¹

The definition means that asthma is:

Characterized by recurrent respiratory symptoms - especially wheezing, shortness of breath, chest tightness, and coughing.

- Heterogeneous - its symptoms and their intensity are different from person to person. Most people with asthma have signs of inflammation in the airways of their lungs.
- Variable - the symptoms wax and wane over time for each individual with asthma. Measurements of lung function also vary over time.

Asthma is a chronic inflammatory disorder of the airways. Chronically inflamed airways are hyper-responsive; they become obstructed and airflow is limited (by bronchoconstriction, mucus plugs, and increased inflammation) when airways are exposed to various risk factors. Asthma affects an estimated 300 million individuals worldwide. The prevalence of asthma is increasing, especially in children. Annually, the World Health Organization has estimated that 15 million disability-adjusted life years are lost and 250,000 asthma deaths are reported worldwide. The clinician should establish whether the patient has any of the following symptoms such as, wheezing, cough, cough at night or with exercise, shortness of breath, chest tightness, and sputum production.

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The clinician should determine the pattern of symptoms as perennial, seasonal or both, continuous or intermittent, daytime or nighttime, onset and duration. The clinician should ask whether any of the following precipitate and/or aggravate symptoms such as viral infections, environmental allergens, irritants (e.g., smoke exposure, chemicals, vapors, and dust), exercise, emotions, home environment (e.g., carpets, pets, and mold), stress, drugs (e.g., aspirin and beta blockers), foods, changes in weather.

MATERIALS AND METHODS

This is a prospective study. Mothers total 300 in number, having children aged 6 months to 18 years were enrolled as sample. The sampling for the study was done randomly among the mothers of children visiting the outdoor department and indoor department. The following inclusion and exclusion criteria were adopted for the purpose to study.

Inclusion Criteria

- Mothers accompanied by children aged 6 months to 18 years, having not <2 episodes of wheezing in the preceding 6 months.
- Mothers of children diagnosed as asthma.

Exclusion Criteria

- Mothers of children aged <6 months.
- Mothers of children having congenital abnormalities.
- Mothers who were not willing to give consent voluntarily.
- Mothers who could not converse in Punjabi or Hindi.
- Mothers with adopted child/children.
- Mothers belonging to medical or paramedical profession.

The method adopted for the collection for the data was of structured interview questionnaire type, after obtaining a prior written informed consent from the participating mothers. The questions translated in vernacular language from the questionnaire were asked in a face to face interaction session, and the responses were recorded in the proforma attached to the plan. Mothers were asked about their qualification. Those who could not read and write were labeled illiterate. Those who had studied up to 10th standard were labeled less than high school, and those who had studied more than 10th standard were labeled more than high school. Questions were asked regarding the type of household. To label a house overcrowded following criteria of persons per room was used:

- 1 room: 2 persons
- 2 rooms: 3 persons
- 3 rooms: 5 persons

4 rooms: 7 persons

5 or more rooms: 10 persons (additional 2 for each further room).

A baby under 12 months is not counted and children 1-10 years were counted as half a unit. Socioeconomic status was assessed by modified Kuppuswamy scale. The estimated time taken to fill one questionnaire was 20-25 min. The data collected in the study was statistically analyzed using SPSS software to reach conclusions.

RESULTS

As per the inclusion criteria mentioned in the plan to the thesis, a sample size of 300 mothers was selected for the study. They were asked questions pertaining to the study in a structured questionnaire having both open- and closed-ended responses.

Out of total number of 300 mothers, who participated in the study 54% ($n = 162$) had children within age group of 6 months - 3 years, 25% ($n = 75$) in 3-6 years, 13% ($n = 39$) in 6-10 years and 8% ($n = 24$) above 10 years (Tables 1 and 2).

Table 3 shows that of the total 300 participant mothers 81% ($n = 243$) were residing in adequately ventilated houses and rest of them, i.e., 19% ($n = 57$) were residing in inadequately ventilated houses.

Table 4 shows that of the total 300 participant mothers 46% ($n = 138$) were having smoker(s) in the house and rest

Table 1: Age group

Age	Count <i>n</i> (%)
6 months - 3 years	162 (54)
3-6 years	75 (25)
6-10 years	39 (13)
10-18 years	24 (8)
Total	300 (100)

Table 2: Sex distribution

Sex	Count <i>n</i> (%)
Male	183 (61)
Female	117 (39)
Total	300 (100)

Table 3: Ventilation

Ventilation	Count <i>n</i> (%)
Adequate	243 (81)
Not adequate	57 (19)
Total	300 (100)

of them, i.e., 54% ($n = 162$) were not having any smoker in the house.

Table 5 shows that of the total 300 participant mothers maximum, i.e., 27.7% ($n = 83$) belonged to lower middle socioeconomic status while minimum, i.e., 10.3% ($n = 31$) belonged to lower socioeconomic status.

Table 6 shows that of the total 300 children, maximum, i.e., 61% ($n = 183$) had age of onset of wheeze between 6 months and 3 years followed by 31.3% ($n = 94$) between 3 and 6 years while minimum, i.e., 1% ($n = 3$) had onset between 10 and 18 years.

Table 7 shows that of the total 300 participant mothers, 53% ($n = 159$) gave history of asthma or similar illness in family members while 47% ($n = 141$) had no such family history.

Table 8 shows that of the total 300 participant mothers 32.3% ($n = 97$) knew that their child had asthma while 67.7% ($n = 203$) denied that their child had asthma.

Table 9 shows that of the total 97 participant mothers who knew that their child has asthma, maximum, i.e., 84.5% ($n = 82$) had come to know this from medical staff.

Table 10 shows that of the total 300 participant mothers only 12.7% ($n = 38$) considered their child's illness a Hereditary disease.

Table 4: Any smoker in the house

Any smoker in the house	Count n (%)
Yes	138 (46)
No	162 (54)
Total	300 (100)

Table 5: Socioeconomic status (By Kuppaswamy scale)

Socioeconomic status	Count n (%)
Upper	38 (12.7)
Upper middle	73 (24.3)
Lower middle	83 (27.7)
Upper lower	75 (25.0)
Lower	31 (10.3)
Total	300 (100)

Table 6: Age of onset of wheeze

Age	n (%)
<6 months	12 (4)
6 months - 3 years	183 (61)
3-6 years	94 (31.3)
6-10 years	8 (2.7)
10-18 years	3 (1.0)
Total	300 (100)

Table 11 shows that of the total 300 participant mothers only 29.3% ($n = 88$) considered their child's illness a Contagious disease.

Table 12 shows that of the total 300 participant mothers, maximum, i.e., 70.3% ($n = 211$) were getting their child from medical practitioner while only 2% ($n = 6$) were getting treatment for their child from quacks.

Table 13 shows that maximum number of mothers, i.e., 79.3% ($n = 238$) reported change in weather as a precipitating factor for their child illness. Dust (47.3%), food/drinks (42.7%) and cold air (37.3%) were other common precipitating factors.

Table 14 shows that out of 300 participating mothers, maximum number of mothers, i.e., 68.3% ($n = 205$) preferred to give oral medications in case of an acute attack at home. Only 34.9% ($n = 104$) were in favor of giving aerosol therapy.

Table 15 shows that out of 300 participating mothers, maximum number of mothers, i.e., 63% ($n = 189$) were

Table 7: Family history of asthma or similar illness

Family history	Count n (%)
Siblings	49 (16.3)
Parents	56 (18.7)
Grandparents	35 (11.7)
Others	19 (6.3)
No history	141 (47.0)
Total	300 (100)

Table 8: Does your child has asthma?

Does your child has asthma?	Count n (%)
Yes	97 (32.3)
No	203 (67.7)
Total	300 (100)

Table 9: If yes, how did you come to know that your child has asthma?

How did you come to know?	Count n (%)
Medical staff	82 (84.5)
Paramedical staff	8 (8.2)
Quacks	5 (5.1)
Relatives/friends	2 (2)
Total	97 (100)

Table 10: IS asthma/your child's illness a hereditary disease?

Is asthma/your child's illness a hereditary disease?	Count n (%)
Yes	38 (12.7)
No	262 (87.3)
Total	300 (100)

having anti-Histamines at home for this illness. Only 38% ($n = 114$) had beta agonists at their home for use in their child's illness.

Table 16 shows that of the total 300 participant mothers 93.3% ($n = 280$) knew about aerosol therapy.

Table 17 shows that of the total 300 participant mothers, only 26% ($n = 78$) were regularly using aerosol therapy.

Table 11: Is asthma/your child's illness a contagious disease?

Is asthma/your child's illness a contagious disease?	Count n (%)
Yes	88 (29.3)
No	212 (70.7)
Total	300 (100)

Table 12: Who is regularly treating your child for asthma/your child's illness?

Mother's answer	Count n (%)
Medical practioner (s)	211 (70.3)
Paramedical	50 (16.7)
Homeopathic/ayurvedic	15 (5.0)
Quacks	6 (2.0)
No treatment	18 (6.0)
Total	300 (100)

Table 13: Which of these factors precipitate asthma/your child's illness?

Factors	Number of mothers (%)
Change in weather	238 (79.3)
Tobacco smoke	31 (10.3)
Dust	142 (47.3)
Animal dander	0 (0)
Cockroach	0 (0)
Strong odor/other smells	22 (7.3)
Exercise/sports	25 (8.3)
Cold air	112 (37.3)
Medicines	10 (3.3)
Swimming	6 (2)
Food/drinks	128 (42.7)
Indoor mould	0 (0)

Table 14: What will you do if your child develops acute wheezing/ breathlessness/cough at home?

Mothers answer	n (%)
Give oral medications	205 (68.3)
Steam inhalation	51 (17)
Aerosol therapy	104 (34.9)
Immediately take child to doctor without doing anything at home	30 (10)
Others	6 (2)

Table 18 shows that of the 78 participant mothers, who were regularly using aerosol therapy for their child majority 61.5% ($n = 48$) were using metered dose inhaler with spacer and only 7.6% ($n = 6$) were using Rota halers.

Table 19 shows that of the 78 participant mothers, who were using aerosol therapy for their child, maximum, i.e., 57.6% ($n = 45$) were using both beta agonists and steroids as aerosol therapy for their child. 14.1% ($n = 11$) were not aware of the nature of the drug being given to their children.

Table 20 shows that of the total 300 participant mothers, only 12.7% ($n = 38$) were giving regular oral medication to their child.

Table 21 shows that of the 38 participant mothers, who were giving regular oral medication to their children, maximum, i.e., 31.6% ($n = 12$) were using anti-Histamines.

Table 15: What medicines do you have at home for this illness?

Nature of medication (oral)	Count n (%)
Beta agonists	114 (38)
Steroids	19 (6.3)
Antihistaminics	189 (63)
Leukotriene modifiers	30 (10)
Desi medication	21 (7)
Homeopathic	16 (5.3)
Nature not known	32 (10.7)

Table 16: Do you know about aerosol therapy?

Do you know about aerosol therapy?	Count n (%)
Yes	280 (93.3)
No	20 (6.7)
Total	300 (100)

Table 17: Do you regularly use aerosol therapy for your child?

Do you regularly use aerosol therapy for your child?	Count n (%)
Yes	78 (26)
No	222 (74)
Total	300 (100)

Table 18: If yes, which one do you preferably use?

Mother' answer	Count n (%)
Nebulizer	14 (17.9)
MDI with spacer	48 (61.5)
MDI without spacer	10 (12.8)
Rotahalers	6 (7.6)
Total	78 (100)

MDI: Metered dose inhaler

Table 19: What aerosol drug is your child being given?

Nature of drug	Count n (%)
Beta agonist	12 (15.3)
Steroids	10 (12.8)
Both	45 (57.6)
Don't know	11 (14.1)
Total	78 (100)

Table 20: Is your child receiving any regular oral medication?

Mother's answer	Count n (%)
Yes	38 (12.7)
No	262 (87.3)
Total	300 (100)

Table 21: If yes, what medication?

Nature of medication	Count n (%)
Beta agonist	6 (15.8)
Steroids	5 (13.2)
Antihistaminics	12 (31.6)
Leukotriene modifiers	7 (18.4)
Desi medication	3 (7.9)
Homeopathic	3 (7.9)
Nature not known	2 (5.3)
Total	38 (100)

DISCUSSION

Out of the total 300 mothers, 54% had children in the age group 6 months - 3 years, 25% in 3-6 years, 13% in 6-10 years and 8% had children above 10 years. 61% were having male and 39% were having female wards. Of the mothers who participated in the study, only 15% were illiterate, 53.3% had studied less than high school and 31.7% more than high school.²⁻⁴

About 59% of them belonged to rural areas whereas 41% were residing in urban areas. Only 13% of them were living in kutcha houses, and 87% were residing in pucca houses. Overcrowding was present in 62.3% of houses. 67% of mothers were using liquid petroleum gas as fuel in their houses while rest was using other fuels such as firewood, cow dung, and kerosene. 39% were having pet(s) in their houses. 46% mothers reported to have smoker(s) in their houses.⁵⁻⁷

Out of the 300 mothers, 12.7% belonged to upper class, 24.3% to upper middle class, 27.7% to lower middle class, 25% to upper lower and minimum, i.e., 10.3% to lower socioeconomic class as assessed by modified Kuppaswamy scale.

Mahdi *et al.* in their study on asthmatic patients have shown that family history of asthma was present in 44.5% cases of

asthma.⁸ Zhao *et al.* in their study on parents of asthmatic children in 29 cities of China had reported family history of asthma in 29.7% cases. In our study, family history of asthma is given by 53% participating mothers.⁷

Asthma is a global problem due to ignorance or distorted information/knowledge of patients about their disease.⁹ Ignorance about the disease is not only a problem in rural areas and it is equally affecting asthma management in urban areas. Lai *et al.* in their study had found that 48.2% parents of asthmatic children hesitated in referring to their child's illness as asthma.² Shivbalan *et al.*, in their study, had shown that only 39% parents of asthmatic children accepted their child's illness as asthma. The physician was the only source of information regarding the diagnosis and disease related scientific knowledge to these parents. Out of rest of the parents 46% attributed their child's illness as wheeze, 8% as recurrent respiratory infections, 3% as eosinophilia, 2% as primary complex, 1% as allergy, and 1% as respiratory distress.⁶ In this study, 32.3% mothers accepted their child's illness as asthma. Of the mothers who accepted their child as suffering from asthma, 84.5% had come to know this from their physician. Out of 110 parents who refused their child's disease as Asthma, 43% attributed it to allergies, 17.3% to recurrent respiratory tract infections and 0.006% to pulmonary tuberculosis. There were 0.06% mothers who had no opinion about their child's illness.

Lai *et al.* in their study showed that 34.1% of parents had believed asthma to be contagious.² Rodríguez *et al.* in their study have shown that 53.1% of parents considered asthma an emotional illness and 52.5% believed that the way that parents raised their children caused asthma.³ Mavale-Manuel *et al.* in their study had found that 11% of parents considered asthma to be contagious.⁵ Prasad *et al.* in their study had found that 11.1% ascribed heredity as the underlying cause of asthma. About 50% patients believed this disease to be infectious, 12.6% due to curse of god and 5.2% to be associated with TB.⁴ Shivbalan *et al.* in their study found that 35% of parents believed asthma as hereditary and 26% as contagious.⁶ In our study, 12.7% mothers believed it to be hereditary and 29.3% as contagious.

Our study found that the majority of participating mothers (70.3%) were getting their child treated from a Registered Medical Practitioner.

As found in other chronic ailments, parents of asthmatic children also have a tendency to seek alternative systems of medicine for treatment of their child's illness. Lai *et al.* found that 65% parents in their study had attempted other systems of medicine. Homeopathy was the most common alternative.² Prasad in their study concluded that alternative

modes of treatment were sought by 46.7% participating patients.⁴ In this study, 18% mothers had sought alternative modes of treatment. Desi medication was the most common alternative attempted.

Parents have diverse views regarding the prognosis and treatment of asthma. Lai *et al.* in their study found that only 30.6% parents believed that treatment from the hospital would cure their child.² In the study by Shivbalan *et al.*, 34% parents thought that disease would wane off with increasing age. 19% of them were not aware of the prognosis.⁹ In a study by Mavel-Manuel *et al.*, 50% parents answered that asthma is curable.⁵ In this study, 26% mothers thought it to be curable and a large number (54%) was unaware about the prognosis of their child's illness.

CONCLUSIONS

Asthma management programs are incomplete without good parents' and patients' education program. Such programs would augment awareness, eliminate social stigma and misconceptions in the community regarding asthma. Knowledge about the prevailing perception about asthma

in the community would be the first step in achieving it. This study is a step toward it.

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