



Original Research Article

Parental beliefs and practices in childhood asthma – A hospital based cross-sectional study

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ABSTRACT

Introduction: Childhood asthma represents a significant burden, not only in terms of morbidity and reduced quality of life but also in terms of healthcare costs, as reflected by the high rates of unscheduled emergency department visits, hospitalization, and school absenteeism. Parents play a key link in asthma management and adherence to treatment regimen in the early years of childhood before children can manage their asthma independently. However, some parents have misconceptions regarding asthma and its medication, which could in turn influence children's control of asthma.

Objective: To find out the effect of parental beliefs and practices with respect to their knowledge about etiology, folk beliefs, home remedies, alternative therapies, etiology and pharmacotherapy in childhood asthma influence the pharmacotherapy and outcome of asthma management.

Materials and Methods: The hospital based cross sectional study was carried out on a convenience sample of 82 parents of children, 5-14 years of age and clinically diagnosed with asthma of any form in the Department of Pediatrics, F.M. Medical College & Hospital, a tertiary care teaching hospital in Balasore town in the eastern part of India. The parents' beliefs and practices were captured with the help of a pre-designed and validated questionnaire. Descriptive analytical statistics was used to analyse the demographic data. Chi square test was used to find out the association of beliefs, use of home remedies, folk beliefs and alternative therapies and the use of prescribed asthma medications as per standard reference. GraphPad Prism free trial version 7.0 was used for statistical analysis. Statistical significance was taken at a level of $p \leq 0.05$.

Results: Majority of the children were in the age group of 10-14 years with a male predominance. Most of the primary care givers less than 40 years age and literate, 30 (36.6%) having more than two children and a family history of asthma. The common beliefs were that asthma was chest allergy, of hereditary origin. Exposure to dust, indoor smoke believed to be a significant potential triggering factor for asthma attack. The participants (68.2%) believed that inhaled steroids had more side effects lead to dependency also believed using inhaler only when serious. Domiciliary treatment was preferred. β -agonist were the commonest medications.

Conclusion: Parental beliefs and practices have a predominant role in the management of asthma in children. In order to enhance the level of perceptions among caregivers, education should include knowledge about asthma and its management, as there might be misperceptions about the use of inhalers and the safety of inhaled corticosteroids.

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1. Introduction

Asthma has emerged as one of the most common chronic illnesses that affect millions of children worldwide.¹ In

India its prevalence is 2.5 to 7.5% in children under 14 years of age. Globally every 10th patient of asthma is from India. It accounts for 23.7 millions² Disability Adjusted Life Years (DALYs) globally and visits to pediatricians. It is an important cause of pediatric hospitalization.³ The prevalence of asthma is steadily increasing attributable to rapid industrialization, lifestyle changes owing to the modernization, the accompanying changes in dietary habits and increasing exposure to environmental factors such as indoor allergens, dust, sand storms, and tobacco.⁴ Childhood asthma represents a significant burden, not only in terms of morbidity and reduced quality of life but also in terms of healthcare costs, as reflected by the high rates of unscheduled emergency department visits, hospitalization, and school absenteeism.⁵ Medications typically are the foundation of asthma control and patients with asthma rely on caregivers to administer asthma care at home. Parents play a key link in asthma management and adherence to treatment regimen in the early years of childhood before children can manage their asthma independently. However, some parents have misconceptions regarding asthma and its medication, which could in turn influence children's control of asthma. Parents are the best judges of the severity of asthma because they can identify the symptoms as well as recognize their child's particular asthma pattern by careful, frequent observation. Moreover, they are also familiar with the triggering factors, such as tobacco smoke and diet. Parental perceptions and practices are crucial for improving the asthma outcomes in children indeed. Reports in the literature & evidences show that parents of asthmatic children harbor considerable misperceptions of the disease, so we have fallen short of reaching the goals of optimal asthma management. It is found that parents practically underestimate the severity of their child's asthma and overestimate the degree of asthma control. Moreover, it is affected by several factors, such as parent's knowledge and attitude toward asthma, cultural beliefs, level of education, income, access to health care, and medications. Consequently, instead of following critical and long-term aspects of standard therapies for asthma, they often resort to folk and home remedies and alternate therapies that are logically consistent with their culturally supported beliefs about asthma. Hence all asthma management guidelines intensify the importance of the role of the family in managing childhood asthma.^{5,6}

Moreover, there is a dearth of studies on parental perceptions and practices toward asthma reported in this part of eastern Odisha. Hence, further research is required to increase awareness among parents to their perceptions and practices of asthma management. With this background the study was carried out with the primary objective to find out parental beliefs and practices with respect to their knowledge about etiology, folk beliefs, home remedies, alternative therapies, etiology and pharmacotherapy in

childhood asthma. The results of this study will provide information that allows healthcare professionals, such as family physicians and asthma counselors, to focus the caregiver during asthma education programmes.

2. Materials and Methods

This cross sectional study was carried out on a convenience sample of patients attending the pediatric department of F.M. Medical College & Hospital, a tertiary care teaching hospital in Balasore town in the eastern part of India, in the state of Odisha, during the period from November 2019 to February 2020 to find out the various parental beliefs and practices associated with childhood asthma. Being the only tertiary care centre in this part of the state, the hospital has a catchment area from Balasore town, its outskirts and adjoining rural areas thereby making the study population widely representative.

The present study was approved by the Institutional Ethics Committee of F.M. Medical College & Hospital, Balasore (Approval No.18, Dated 07-11-19). The study involved finding the parents' beliefs and practices through a questionnaire; hence informed consent was obtained from the participating parents. The study subjects were ensured about the confidentiality of the identifying information of the study participants. They were explained about the relevance of the study. All the parents of children of either gender, between 5-14 years of age and clinically diagnosed with asthma of any form, in the out-patient or admitted to the in-patient were eligible to participate in the study, subject to the exclusion criteria that had a co-existing morbidity or were unwilling to participate. Initial screening of the patients and their consent to participate was done during their visit to the OPD or admission in the hospital in-patient. To avoid selection bias, this was done for two weeks on consecutive days to ensure representativeness in terms of urban and rural, near to and away from the hospital and balancing of socio-economic parameters. Those who consented to participate, their details including home address, telephone number was noted down. Screening of the data obtained from consenting patients was carried out, enlisted and was used to select the study participants.

Assuming the prevalence of an impact of parents' knowledge about various medications, home remedies, folk beliefs and alternative therapies to be about 25%⁷ on the use of prescribed medical regimens in the management of asthma in children, at a significance level of 95% the sample size was calculated to be 72 at a precision of 10%. Taking a response rate of 85% finally 82 subjects were included in the study. Sample size was calculated using nMasters software developed by Dept. of Biostatistics, CMC, Vellore, India.

The investigators themselves collected the data in of the consenting participants in the OPD. To avoid recall bias, the parents will be encouraged to talk openly about their

children's asthma in an informal semi-structured interview during which a pre-tested questionnaire was administered in vernacular language. The questionnaire was validated by a team of experts for its content and usability. It had three parts. Part A was used to record the clinic-demographic data of the study participant i.e. the children as well as their parents. Part B collected information related to the beliefs about asthma like the cause, symptoms, triggers and beliefs about prescribed medical regimens, where as Part C collected information regarding the kind of treatment for asthma they have adopted i.e. prescribed medical regimens or any home remedies, folk beliefs and alternative therapies.

All demographic data were presented as proportions. Chi square test was used to find out the association of beliefs, use of home remedies, folk beliefs and alternative therapies and the use of prescribed asthma medications as per standard reference. GraphPad Prism free trial version 7.0 was used for statistical analysis. Statistical significance was taken at a level of $p \leq 0.05$.

3. Results

The present study was carried out on 82 patients of childhood asthma. Parents' of the study participants had reported that their children had asthma, dyspnea, or chest allergy (recurrent wheezing or coughing) and were diagnosed with asthma by a physician earlier. Majority of the children, 45 (54.9%) were in the age group of 10-14 years and 53 (64.6%) were males. 62 (75%) of the included patients were from an urban residential setting, among primary care givers 54 (65.9%) were of less than 40 years age, 67 (81.7 %) parents were literate, 30 (36.6%) were having more than two children and 45 (55 %) had a family history of asthma. [Table 1]

Analysis of the parental beliefs and practices in uncontrolled asthma revealed that 38 (46.3 %) parents reportedly believed that nocturnal dyspnea, as the most common symptom of uncontrolled asthma in children, whereas 27(32.9 %) followed by 32(39.1) and 20(24.3%) believed that it is significantly associated ($p \leq 0.05$) with a repetitive cough pattern and dyspnoea on exercise or at rest. There was a significant belief in majority of parents 55(67.1%) that asthma was a chest allergy and 31(37.8%) regarded asthma as a disease entity by itself. Though, 53.6% parents considered a hereditary origin of disease but this was statistically not significant. There was a significant belief by 12 (14.7%) that could be acquired and 26 (31.7%) parents attributed causes unknown as the aetiology. [Table 2]

Exposure to dust, indoor smoke from any source and staying near domesticated animals was believed to be a significant potential triggering factor for asthma attack in 78.1%, 31.7% and 10.9% of participants. Though, 47.5% and 40.2% believed that bad food and viral infection trigger asthma, this association was not significant statistically. The present study also revealed the concerns of the parents

about medication used in asthma and dependency. Most of the participants (68.2%) believed that inhaled steroids had more side effects where as 42.7% believed that medications lead to dependency. 56.1% considered inhaler use as a bad modality of treatment and 60.9% believed of using inhaler only when serious. This was statistically significant. 64.6% participants considered that children should avoid sports class to cure asthma whereas 38 (46.3%) parents considered asthma as a disability. [Table 2]

The observation of parental belief led practices in childhood asthma revealed that a significant 52 (63.4%) study participants were preferred domiciliary treatment ($p \leq 0.05$). About 61% participants used vapor or steam inhalation to treat their children whereas 42.6% used asthma medications. Herbal and food modifications were relied upon in few 15(18.3%) participants as a treatment modality.

It was observed that a significant number of participants took precautions like avoiding bath 59 (71.9%), controlling indoor smoke 52(63.4%), adhering to prescribed medications 32 (39.0%). About 57% of parents prevented physical activity in their children as a precaution. Almost 82% of parents had visited a pediatric emergency department during an asthma attack during the past one year, whereas 36(43.9%) regularly visited a physician for treatment. [Table 3]

Hospitalization for treatment and disturbed sleep was significantly associated with uncontrolled asthma in 67 (81.7%) and 50(60.9%) of study participants respectively. The majority, 67 (81.7 %), of asthmatic children were using a β -agonist, where as only 22 (26.8%) were using inhaled steroid and 6(7.3%) used combined inhalational drugs. [Table 4]

4. Discussion

Parents and caregivers play a crucial role in efficient management of Asthma attacks in their children. Initiation of treatment at home can limit hospital visits and influence outcome. Parents decide whether they will follow prescribed medical advise or not. Parent's decision is largely based on their perceptions and various practices adopted, sometime follow "trial and error" methods. It took long time before parents really follow prescribed medications. In our study most of caregivers were of more than 40 years old which has a significant correlation that they follow old practices of asthma management and not adhere to updates and changes in effective control measures. Parents' literacy level also had a positive correlation in effective asthma control practices.^{7,8} Asthma diagnosis in children should be based on a careful recognition of symptoms and thorough clinical assessment. In our study, 67% parents could recognise recurrent wheezing and coughing in their child and 38% reported that their children had asthma.⁵⁻⁸ The significance of this study is that majority of respondents believed about the presence of asthma, dyspnoea and recurrent wheezing.

Table 1: Clinico-demographic characteristics in childhood asthma

Parameter	N=82 n (%)	p value
Age of the child (years)		
5-9	37(45.1)	0.207
10-14	45(54.9)	
Gender of the child		
Male	53(64.6)	0.002
Female	29(35.4)	
Age of the primary care giver		
<40 years	54(65.9)	0.001
>40 years	28(34.1)	
Area of residency		
Urban	62(75.6)	0.001
Rural	20(24.4)	
Parent educational level		
Illiterate		0.001
Literate (Secondary/	15(18.3)	
Higher /University)	67(81.7)	
Family income in rupees(monthly)		
<10000	42(51.2)	0.759
>10000	40(48.8)	
No. of children in family		
2	52(63.4)	0.006
>2	30(36.6)	
Family history of Asthma	45(55)	0.207

Only 38% identified it as asthma which showed that the perceptions of participants were adversely affected by social stigma.⁸⁻¹⁰ Moreover, the term chest allergy was preferred over asthma. Another important observation was that only 53.6% of parents believed the hereditary nature of the disease, but 78% reported dust as a potent trigger factor. Thus, perception of asthma aetiology is probably related to the educational level, also awareness and information provided by the treating Physician or healthcare system. Significant numbers of parents believed indoor smoking as triggering factor.⁷⁻¹²

Role of inhalers is well recognised in asthma management. Misconception about the use of inhalers and the safety of inhaled corticosteroids was reported in our study. More than 60% parents worried about use of inhalers and expressed their concern. They used inhalers only when chill became serious. 68% parents concerned about side effects of steroid inhalers. Furthermore, parental concern regarding medication dependency was reported in 42.7% which was reflected as poor adherence to inhaled corticosteroid which are mainstay of treatment of asthma.¹³⁻¹⁵ It is well recognised that cultivating adherence to inhaled corticosteroids in children is perhaps the most effective way to lessen uncontrolled asthma burden and frequent hospitalization. However, unfortunately majority of parents (64.6%) had a misconception regarding child's participation in physical activity and sports in school. They

Table 2: Parental beliefs in childhood asthma

Belief	N=82 n (%)	P value
Symptoms		
Nocturnal dyspnoea (>1 night/week)	38(46.3)	0.502
Repetitive cough (daily)	27(32.9)	0.002
Exercise dyspnoea	32(39.1)	0.048
Dyspnoea at rest	20(24.3)	0.001
Causes		
Chest allergy (recurrent wheezing/coughing)	55(67.1)	0.002
Dyspnoea	39(47.5)	0.650
Asthma as a disease entity by itself	31(37.8)	0.027
Inheritance		
Hereditary	44(53.6)	0.514
Acquired	12(14.7)	0.001
Other/does not know	26(31.7)	0.001
Triggers		
Dust	64(78.1)	0.001
Bad food	39(47.5)	0.650
Indoor smoking	26(31.7)	0.009
Virus	33(40.2)	0.075
Domesticated animal	9(10.9)	0.001
Medications		
Inhalers are bad treatments	46(56.1)	0.269
Dependency	35(42.7)	0.186
Inhalers used only when serious	50(60.9)	0.048
Steroid inhaler side effect	56(68.2)	0.001
Disease condition		
Asthma is a disability	38(46.3)	0.502
Child should avoid physical education class/sports in school	53(64.6)	0.008

Table 3: Parental belief led practices in childhood asthma

Belief led practices	N=82 n (%)	P value
Treating asthma at home	52(63.4)	0.015
Treatment used		
Vapor	50(60.9)	0.048
Herbal and food remedies	15(18.3)	0.001
Asthma medicines	35(42.6)	0.182
Massage	18(21.9)	0.001
Precautions used		
Avoid bathing	59(71.9)	0.001
Avoid indoor smoking	52(63.4)	0.015
Avoid cold weather	47(57.3)	0.186
Avoid certain food	42(51.2)	0.828
Avoid physical exercise	47(57.3)	0.186
Regular use of medicines	32(39.0)	0.046
Routine physicians follow up	36(43.9)	0.269
Visit to pediatric emergency in past year	67(81.7)	0.001

Table 4: Consequences and prescription medications used by parents in childhood asthma

Parameter	n (%)	P value
Consequences		
Disturbed sleeping (once/month)	50(60.9)	0.048
School absenteeism(once/month)	47(57.3)	0.186
Hospitalization	67(81.7)	0.001
Medications used		
Inhaled β -agonist	67(81.7)	0.001
Inhaled corticosteroid	22(26.8)	0.001
Leukotriene antagonist	5(6.1)	0.001
Oxygen	14(17.1)	0.001
Antihistamine	31(37.8)	0.027
Oral steroid	13(15.8)	0.001
Combined inhalation	6(7.3)	0.001

restricted child's taking active part in games, sports in school, which may be related to lack of knowledge about asthma, inappropriate expectations and cultural variances.

Regarding parental believes and practices of identifying consequences of uncontrolled asthma, 46% of parents recognised nocturnal symptoms as presenting symptoms and disturbed sleep. Repetitive cough daily was appreciated as a consequence of uncontrolled asthma in 32.9% and 39% significantly correlated exercise induced dyspnoea as an indication of asthma exacerbation.¹⁴ Parents often expressed concern (24%) about dyspnoea at rest as failure of asthma control. Parents (57%) practiced school absenteeism at least once in a month as a consequence. These concerns may likely prompt children to miss the class. Another important observation was that almost 81.7% of parents hospitalized their children for uncontrolled asthma. Improved understanding about the regular use of medications could positively bring better outcomes and lesser hospital visits.^{15,16}

It was observed that parental practices toward asthma control, 60.9% parents practiced traditional vapor treatment and similarly avoided bathing in those days. Another important observation was higher numbers of parents (81.7%) visited paediatric emergency department for an acute attack rather than regular and timely follow-up by a Physician. This leads to undue disease burden during emergency hours and endangering child's life. Consistent with other studies,^{7,10,11,17} this also indicates poor quality of life in asthmatic children. In our study we found 81.7% of parents offered inhaled beta-agonist and only 26.8% treated with inhaled corticosteroids, which does not meet the GINA guideline and is an inappropriate treatment for good asthma control.^{1,2,11,17} It is well recognised that practicing control of asthma by adherence to inhaled corticosteroids and bronchodilators in asthmatic children is perhaps the most effective way of disease control and can lessen burden of uncontrolled asthma. This is need of the hour to change belief and practices of parents who are primary care givers

for asthmatic children.

5. Conclusion

The current study provides a valuable understanding of perception and practices of managing asthma. In order to enhance the level of perceptions among caregivers, education should include knowledge about asthma and its management, as there might be misperceptions about the use of inhalers and the safety of inhaled corticosteroids (ICS). We further suggest that, to improve asthma care and compliance proper guideline-based treatment algorithm to follow by parents. Regular awareness campaigns involving healthcare providers and parents must be planned to help child adhere to prescribed and updated management of asthma. This in turn will increase quality of life in children with asthma facilitating them to lead a normal progressive life.

6. Conflict of Interest

None.

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