



Original Article

Effects of Knowledge, Attitude and Practices of Parents of Children with Asthma in a Tertiary Care Hospital in Bangladesh

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Abstract

Background: Asthma is a chronic condition. The exacerbation of asthma in children can be prevented by proper medicine, parental knowledge and practices. This study was conducted to assess and understand how the knowledge, attitude and practices of parents of asthmatic children affects the management of the condition. **Materials and Methods:** This cross-sectional study was conducted on parents of children with asthma from April 1st, 2016 to March 31st, 2017 at the Pediatric Pulmonology Outpatient Department of Combined Military Hospital, Dhaka. Parents were selected who had asthmatic children between 4-12 years of age. Some specific criteria were established for the study participants and if any parent/child combination met that criterion, they were approached to participate. Participants were instructed to answer 30 questions and the data was analyzed using SPSS 20. **Results:** 62% of parents were between 20-40 years of age and 61% of them were female. 68% of children were male. 88% of parents heard about inhaler therapy for asthma but 64% parents believed it should be given as a last resort. 42% of parents think inhalers are bad for their children and 58% think inhaler use could become an addiction for their children. **Conclusion:** Although parents are concerned for the wellbeing of their asthmatic children, many do not have proper and sufficient knowledge related to asthma as a disease or possible treatment options of asthma. It is important that parents get the required information about asthma and treatment from their health care providers.

Keywords: Childhood asthma, Bronchial asthma, Practices, Parents' knowledge

Received: May 29, 2021; **Accepted:** June 25, 2021

Introduction

Asthma is a chronic disease and it can be described as a recurrent airway obstruction due to chronic airway inflammation of the respiratory tract^{1,2}. Prevalence of asthma is higher among people living in urban areas and of poor socioeconomic status³. According to Centers for Disease Control and Prevention, in 2016 more than 6 million children are suffering from asthma and more than 10% of children between the ages of 13 and 14 suffer from asthma and exacerbation of asthma is one of the leading causes of frequent emergency hospital visits and the hospitalization of children^{4,5}.

According to the World Health Organization (WHO), more than forty million people die worldwide every year from the noncommunicable

diseases; asthma was recently identified as one of the primary noncommunicable diseases which causes high rates of death worldwide every year⁶.

Evidence has shown that many parents of asthmatic children have misunderstandings and false perceptions about their children's condition. Research in China showed that almost 25% of parents think the medicines that are currently used to treat asthma could produce adverse effects on their children's growth and intelligence⁷. Many parents even mistakenly believe that asthma is a contagious disease⁸. The severity of asthma symptoms can be controlled by correct treatment; thus, frequent emergency hospital visits could be reduced through improved treatment of symptoms⁹.

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For proper treatment of asthma among children; the knowledge and awareness of parents is very important in particular^{10,11}. Research establishes that parent knowledge about the triggering factors of asthma, their attitude toward treatment and correct usage of inhalers are very important factors in reducing the exacerbation of asthmatic symptoms¹². Poor parental knowledge and practices were found to be one of the leading causes of increasing morbidity and mortality of children due to asthma and its complications^{13,14,15}.

The aim of this study is to better understand the knowledge and attitudes of the parents of asthmatic children in a tertiary care hospital in Bangladesh, and to understand the impact of these factors on the health status of their children.

Materials and Methods

This cross-sectional study was conducted on parents of children with asthma from April 1st, 2016 to March 31st, 2017 at the Pediatric Pulmonology Outpatient Department of Combined Military Hospital (CMH), Dhaka. This study was carried out to assess the knowledge, attitude and practice of parents about asthma in their children. Parents of 4- to 12-year-old children with a diagnosis of bronchial asthma were included in the study. Parents of asthmatic children who came to the outpatient department of the CMH during the aforementioned time period for treatment of their child's asthma and who met the inclusion and exclusion criteria were approached to participate in the research.

Parents who agreed to participate were selected as samples for the research. A convenient sample of 100 parents of asthmatic children attending the hospital were enrolled. The maximum age of 12 was selected as this is the highest age group admitted to the CMH. The patients were evaluated and their diagnosis of bronchial asthma was confirmed through the use of patient history, examination and spirometry before and after bronchodilators inhalation.

Inclusion criteria: Parents of children between 4-12 years of age, child's asthma disease was diagnosed by a physician, asthma was diagnosed at least 12 months earlier than the beginning of the study, parents must be able to read and write Bengali.

Exclusion criteria: Children having other significant bronchopulmonary diseases associated with asthma, (for example: tuberculosis, bronchiectasis, viral infections, bronchiolitis, cystic fibrosis, non-respiratory chronic condition like nephrotic syndrome), children less than four years of age, children or parents involved in the other research studies and parents not willing to participate in the study.

Informed consent was obtained from parents. An interview was conducted by an investigator in one sitting with 30 questions. The list of questions was designed by the investigators after reviewing previous peer reviewed literatures. The questionnaire was then modified according to the social context of Bangladesh to make the questions accessible for the parents. Responses of the parents were noted. No attempt was made to correct any responses. Questions were explained if parents did not understand any question. Questions dealt with parental perceptions of asthma, the natural history of the illness to date, precipitating factors, the treatment received to date, emergency measures adopted by parents when symptoms became acute, the use of inhalers and reasons for their discontinuation or not using.

All questionnaires were completed by investigators through face-to-face interviews with parents and children both in attendance. The 30-item questionnaire was comprised of five parts: (1) demographic information about the parents of children with asthma; (2) child's conditions and asthma control in the past 12 months, (3) parental knowledge; (4) parental attitudes and beliefs, and (5) parental practices.

Demographic questions included five sections which includes age, gender, education, number of family members in the household, and family income. Child's condition and asthma control included seven sections: child's age, gender, duration of diagnosis of asthma, family history of asthma, severity of asthma on the basis of frequent hospital/emergency visits, any allergies, and treatments the child is receiving for asthma.

Parental knowledge was assessed through questions around the symptoms and triggers of asthma in their child and overall knowledge regarding the treatment of asthma in their children. Parents' attitudes and beliefs were assessed by asking questions regarding the effectiveness and side effects of asthma treatment.

To assess parental practices, questions around how they monitor their child's condition, if they use any other medicine or treatment not prescribed by the child's physician and what preventive measures they are following were asked. All questions regarding knowledge, attitude, beliefs and practices were closed-ended (yes/no).

Data was analyzed by using SPSS version 20 software. Descriptive statistics were calculated. Means and standard deviation range were calculated for qualitative variables and frequencies and percentages were calculated for qualitative variables. A p-value <0.05 was considered

statistically significant. The Chi-Square test was used to test for categorical variables association.

Results

Demographic information showed that 62% participants were between 20-40 years of age. Average age 34 years (SD= 4). 61 % of participants were female. Highest, 65% of parents had grade 6-10 level education and most of the families (52%) have 5-7 members in the family, average 5 (SD=2) [Table-I].

Table-I: The demographic information about the parents of children with asthma

Category and Variables	Numbers (percentage)
Age (years)	
<20	02 (2%)
20-40	62 (62%)
40-60	33 (33%)
60-80	03 (3%)
Gender	
Female	61 (61%)
Male	39 (39%)
Education	
Elementary School (Class 1-5)	15 (15%)
Middle and High School (Class 6-10)	65 (65%)
Intermediate Level (Class 11-12)	11 (11%)
Graduate Level	05 (5%)
Post-Graduate Level	04 (4%)
Family income per month (in Taka)	
Less than 10,000	08 (8%)
10,000-14,000	37 (37%)
15,000-20,000	48 (48%)
More than 20,000	07 (7%)
Number of family members in household	
2-4	43 (43%)
5-7	52 (52%)
8 or more	05 (5%)

The results of the questions regarding the child's condition and asthma control are documented in Table-II. According to the information gathered, 51% children suffering from asthma were between 8-10 years of age, followed by 30% children between 10-12, with an average age of 9 (SD= 3). 68% of the children included in the study were male. 51% of children were diagnosed with asthma between 2-4 years of age, followed by 33% more than 4 years earlier and 16% between 1-2 years ago. When a question was asked regarding a family history of asthma, it was found that 62% of patients have at least one member of their family who also has asthma.

In the past year, 26% of children had gone to the nearest emergency or health care center more than twice due to asthma exacerbation. 52% of the children also had some type of allergy. Parents were not asked to disclose what kind of allergy their child had but were told by the researcher that if their child suffered from any kind of allergy (such as food, dust, smoking, animals, chemicals etc.), they should indicate a positive answer. 36% of parents did not know if their child had any allergy.

When questions regarding asthma treatment were asked, 26% mentioned that their children were not taking any medicine currently, while 40% of parents mentioned that their children were receiving a tablet or liquid form of medicine and 46% of the children were using an inhaler with or without medicine.

Table-II: Child's conditions and asthma control in the past 12 months

Category and Variables	Numbers (percentage)
Age of child (years)	
4-8	19 (19%)
8-10	51 (51%)
10-12	30 (30%)
Gender of child	
Male	68 (68%)
Female	32 (32%)
Duration of asthma diagnosis (years)	
1-2	16 (16%)
2-4	51 (51%)
>4	33 (33%)
Hospital or local health care facility visits past year due to asthma exacerbation	
Never	12 (12%)
1-2	62 (62%)
More than 2	26 (26%)
Family members with a history of asthma	
Yes	62 (62%)
No	38 (38%)
History of allergy	
Yes	52 (52%)
No	12 (12%)
Don't know	36 (36%)
Current treatment for asthma	
Medicine (Tablet/Liquid)	40 (40%)
Inhaler (with or without additional medicine)	46 (46%)
Nothing	26 (26%)

To assess knowledge of parents regarding asthma of their children in the questionnaire, parents were directed to choose 'yes' or 'no/don't know' in response to statements describing the symptoms of asthma. It is noted that 72% of parents knew that coughing can be a symptom of asthma and 82% knew breathing difficulty can be a symptom. More

than half of parents believed that dust and smoke can induce asthma, 61% and 68% respectively. More than 90% of parents believed that asthma exacerbation can lead to admission to the hospital while only 44% believed that asthma exacerbation can result in the death of a child. When parents were asked questions about their attitude and beliefs, it was found that 64% parents believed inhalers are

given to a child as the last resort of asthma treatment. Many (58%) believed that inhalers can become addictive for the child. Researchers found that only 32% of parents knew how to use a spacer with an inhaler. More than half (54%) of parents visited their children's physicians regularly and most of them (92%) given to their child the medicine that physician prescribed.

Table-III: Results regarding knowledge of parents about asthma of child

Questionnaire statements	Parents' answers	Numbers (percentage)
Asthma is a contagious disease	Yes	22 (22%)
	No/Don't know	78 (78%)
Coughing can be a symptom of asthma	Yes	72 (72%)
	No/Don't know	28 (28%)
Breathing difficulty can be a symptom of asthma	Yes	82 (82%)
	No/Don't know	18 (18%)
Dust can induce an asthma attack	Yes	61 (61%)
	No/Don't know	39 (39%)
Smoking inside the house can induce an asthma attack	Yes	68 (68%)
	No/Don't know	32 (32%)
Even when children do not have asthma symptoms, they might need to take medicine regularly	Yes	34 (34%)
	No/Don't know	64 (64%)
Exacerbation of asthma can require the immediate transport to the emergency department of hospital.	Yes	90 (90%)
	No/Don't know	10 (10%)
Severe asthma can lead to death if proper treatment is not taken in time.	Yes	44 (44%)
	No/Don't know	54 (54%)

Table-IV: Results regarding parents' attitude and beliefs about asthma of child

Questionnaire statements	Parents' answers	Numbers (percentage)
Have you heard about inhaler therapy for asthma?	Yes	88 (88%)
	No	12 (12%)
Asthma medicine or inhaler use need to be stopped when asthma gets better	Yes	60 (60%)
	No/Don't know	40 (40%)
Inhalers are given as a treatment when all other medication fails	Yes	64 (64%)
	No/Don't know	36 (36%)
Inhalers can be bad for children's health	Yes	58 (58%)
	No/Don't know	42 (42%)
Inhalers can be bad for children's growth.	Yes	32 (32%)
	No/Don't know	68 (68%)
Using inhalers for a long time can become an addiction	Yes	58 (58%)
	No/Don't know	42 (42%)

Table-V: Practices of parents regarding asthma of child

Questionnaire statements	Parents' answers	Numbers (percentage)
Do you know how to use a spacer with an inhaler?	Yes	32 (32%)
	No	68 (68%)
Do you give your child asthma medication regularly as your child's physician has prescribed?	Yes	92 (92%)
	No	08 (8%)
Do you give your child any other medicine which their physician does not approve of?	Yes	46 (46%)
	No	34 (34%)
Do you regularly visit a physician to monitor your child's condition?	Yes	54 (54%)
	No	46 (46%)
Do you or anybody in your home smoke?	Yes	62 (62%)
	No	38 (38%)

Discussion

Bronchial Asthma is a chronic condition of the respiratory diseases and many times it starts during the childhood. Bronchial Asthma can be controlled by proper medicine and care of the patient. Many parents do not know how to manage their children's asthma due to insufficient knowledge about asthma and asthma treatment^{16,17}.

The majority of parents in the study were female as they came to hospital with their children while the child's father was at work. 62% of parents who participated in the survey were educated in the range of grade 6-10. Only 9% of parents had educational qualification of graduate level or above. 62% of the children who participated in this research were male. Researchers found that 62% of the children in the study have at least one family member who also has asthma, which is close to result (58%) found by the research conducted by Bhagavatheeswaran et al.¹⁸.

It is worth noticing that while 52% of parents were able to inform researchers that their child had some kind of allergy, 36% did not know if their children had any allergy. Another research found that 30% of parents were able to identify that their children had some kind of allergy¹⁹.

The data from this survey reveals that many parents have misconceptions about asthma. 22% parents thought that asthma is a communicable disease. Even when their child had a diagnosis of asthma for a year, many parents did not know that coughing (28%), breathing difficulty (18%) can be symptoms of asthma. In Zhao et al. only 24% were able to identify chronic cough as an indicator of asthma⁷.

In the current research, 32% did not know that smoking in the house can induce asthma attacks, which is higher than the result of 70% that Nouredin et al. found¹². Another discrepancy is that in the current research, researchers found that 39% parents did not know that dust can induce asthma while Nouredin et al. found this number to be 11%¹². The discrepancy could be due to the educational levels of the participants and due to differing socio-cultural conditions.

When assessing the treatment and knowledge of parents regarding treatment, it was found that 88% of parents had heard about inhalers but 64% thought inhalers are generally given to children when no other treatment works. 32% of parents thought inhalers can be bad for a child's health and 58% think their children might become addicted to inhalers if they use one regularly. According to Zhao et al. 40% of parents were concerned about the addictive effects of inhalers⁷. Mohammad et al. also found a similar result in their study²⁰. In the current research, 32% of parents knew about or had heard of

a spacer for inhalers, while in Bhagavatheeswaran et al. only 22% of parents knew about the spacer¹⁸. Gajanan et al. also found that almost half of the parents tried alternative therapy besides their family physician's treatment for asthma, which is similar (46%) to the result found in the current research¹⁹. The similarity in findings can be due to the similarity in life style, culture, customs of two neighboring countries.

It is noted in the results that 54% of parents regularly visit a physician to monitor their children's condition while 46% do not. We had to consider the socio-economic condition of Bangladesh. For parents who had low educational levels, many of them did not earn enough to visit health care professionals regularly. But it also should be noted that when parents visited physicians for their child's asthma control, 92% of parents followed the physician's prescriptions.

From the research findings, it can be said that although many children have asthma, many parents do not have proper knowledge and information regarding asthma and asthma treatment. Many of them do not have a clear understanding of how inhalers and/or spacers work. It is important that health care personnel take time to discuss these topics with parents of asthmatic children in order to reduce the frequency of bronchial asthma attacks, and to encourage the proper and effective treatment of their child.

Limitations

This research was conducted on only 100 parents. Many parents were not interested in participating due to time restraints and many parents did not wish to disclose their private family information such as income and family members. As parents answered the questions all in one sitting, recall bias may be present. Also, as a cross-sectional study, this study cannot conclude the temporal association. The researchers understand that a greater study with larger group of study participants is needed.

Conclusion

Many parents who have asthmatic children do not have adequate knowledge about asthma and asthma treatment. Parents need to be properly educated about their children's condition and treatment options. They also need to know how to help to reduce the frequency of their child's asthma attacks such as allergens and the effects of smoking and dust. All health care professionals must take the responsibility for providing this information to the parents of asthmatic children.

Conflict of Interest

The authors declare to have no conflicts of interest in this research work.

Acknowledgement

The authors acknowledged the participation of the children and parents in this research. Special thanks to pediatric pulmonology outpatient department of Combined Military Hospital, Dhaka to allow conduct this research.

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Citation of this article

Sadique Z, Sultana M, Hamid N, Rahman MM, Alam R. Effects of Knowledge, Attitude, and Practices of Parents of Children with Asthma in a Tertiary Care Hospital in Bangladesh. *Eastern Med Coll J.* 2021; 6 (2): 30-35.