

Asthma in the pediatric population: Level of perception among the parents and guardians

Abstract

Background: Asthma in the child population is one of the leading public health problems that accounts for immense hospitalization, morbidity, and mortality throughout the world with no exception of the Middle East, including Saudi Arabia. Reports in the literature emphasize on family management of this dreadful disease among the children. **Aim:** The aim of this study was to investigate the knowledge and perceptions of parents/guardians about childhood asthma. **Materials and Methods:** Likert scale questionnaire consisting of 90 questions was served to the parents/guardians of asthmatic children. The questionnaire scores were correlated with the number of emergency department (ED) visits by asthmatic children ($r = -0.239$, $P = 0.046$). **Results:** Our results showed a negative correlation between ED visits by asthmatic children and their parents/guardians' knowledge of the disease. **Conclusion:** Although there is a trend between the ED visits by asthmatic children and the level of parents/guardians' awareness, our results are not conclusive, hence; further studies with a larger sample size are recommended.

Key words: Asthmatic children, emergency department visits, parents/guardians, perception

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INTRODUCTION

There has been a considerable increase in the global Incidence of asthma during the last few decades, the Arab world including Saudi Arabia is no exception.^[1,2] Besides, enormous spread of infection, the suffering of asthma attack in children is a cause of enhanced risk of major school absenteeism, which results in future derangement of their social, psychological, and educational adjustment.^[3] Increased asthma prevalence, morbidity and mortality have intensified public health concern.^[4] Literature reports suggest that the severity of the asthma among children can be greatly controlled by management of the disease by family.^[5-7] In a recent study, Zhao,^[4] in a recent study found poor control of asthma in children is due to ignorance of the parents/guardians about the disease. Some of these lapses include exposure of the children to adverse environment, the lack of compliance with medications and visits to control asthma, which deteriorates the condition. The health care system in Saudi Arabia has established guidelines for the management and prevention of bronchial asthma, however; little is known about the views and delusions that the parents/guardians of asthmatic patients have about the disease.^[8-10] A study conducted on the knowledge of mothers of asthmatic children in Aseer (Saudi Arabia) revealed that they had no knowledge of the complications of breathing exercises during asthma attacks.^[11] The present study on the educational component of managing bronchial asthma stems from the relevance of awareness of the disease by the parents/guardians that can be an inhibitory factor in emergency department (ED) visits by asthmatic children. This study is a detailed investigation of our preliminary observation.^[12] The concept is more significant to Saudi society because of the variability in ethnic and demographic backgrounds.

MATERIALS AND METHODS

In order to assess, the level of awareness of parents/guardians of pediatric asthmatic patients, we distributed asthma awareness questionnaire consisting of 90 Likert scale questions to parents/guardians accompanying the asthmatic children to the ED of King Saud Bin Abdulaziz University. Keeping in view the ED admissions, a convenient sample size was 90 subjects. This size was selected as 90 subjects

was the maximum of patients after considering the exclusion criteria from the total number admitted to the ED. The database system in the hospital enabled us to investigate the admission of the number of the participants.

Inclusion criteria

The parents/guardians of pediatric asthmatic patients, male or female, more than 1-year-old, who were admitted to the ED due to any asthma symptoms as a chief complaint, were included in the study.

Exclusion criteria

The parents/guardians of nonasthmatic pediatric patients and pediatric asthmatics less than 1-year-old were excluded from the study.

The pediatric asthmatic patients less than 1-year-old were included in the study of demographic data analysis only and not for correlation analysis. The admission frequency reported in our analysis was taken from the first ED admission due to asthma symptoms, as reported in database system, until the end of the year 2011. To find any correlation between the ED admissions and the level of knowledge about asthma, we categorized our sample into two categories; aware and not aware. Any study subject scored equal to or less than 51 (based on the 25th quartile of the scores) was considered to be not aware, and with scored more than 51 was considered to be aware. Data were incorporated into SPSS (Statistical Package for the Social Sciences) version 20.0.1 and descriptive analysis was performed. We calculated Pearson correlation between the admission frequency and the awareness as a measure of being “aware” or “not aware.” Since, the study constituted the companions associating the patients, there was no requirement of the approval of ethical consideration by the International Review Board of the King Abdullah International Medical Research Center, (National Guards). However, patients’ confidentiality was strictly observed throughout the study by using the patients’ anonymous unique serial number for each subject.

RESULTS

Our sample included 90 parents/guardians, accompanying the asthmatic children to the ED of King Saud Bin Abdulaziz University. Out of the size of the sample, 95.3% were Saudis and 4.7% were Non-Saudis. Twenty-eight percent of the respondents were male and

72% females. The percentage of illiteracy among the respondents showed that 27.2% were high school graduates, and 30.6% were higher education graduates; 68.4% of the participants stated that they had enough information about asthma and 31% stated otherwise. For 70 participants (excluding children less than 1-year-old), we calculated Pearson correlation between parent awareness about asthma and the admission frequency and the analysis showed a negative correlation of $(-0.239, P = 0.046)$ between the two variables, which means that the higher the participants score, the less likely are their asthmatic children to have frequent emergency admissions or visits due to asthma. The highest score limit was 85/85, and the lowest was 17/85. However, the maximum score in our study was 71, and minimum was 34 with a mean score of 53 (standard deviation = 7.1).

DISCUSSION

Likert scale was followed to frame the questionnaire. The total number of questions were 17 classified into three categories as per recommendations of the original questionnaire article,^[13] the categories being the myths and beliefs regarding asthma, level of knowledge about the disease and knowledge about the associated aspects of asthma. Each category was scored separately and then the sum of all categories was calculated.

First category

First category, myths and beliefs regarding asthma, contained seven questions, each question with a score of 1-5 (total score: 35). Scores were fairly average [Table 1]. When questions were analyzed separately, it was found that most of the participants (62%) believed that it was the best to go to the ED no sooner the child gets an attack of asthma, irrespective of the magnitude of the symptoms [Figure 1]. This finding strongly correlates with the public panic in the ED even if the disease is manageable at home without a hospital visit.^[13-19]

Second category

The second category, level of knowledge about the disease, consisted of 6 questions with a total score of 30. The results showed the fact that people had knowledge about asthma components even though they lack skills for managing the disease. Most of the findings were linear with a fairly knowledgeable population [Table 2]. In general, this study showed that even among subjects with good knowledge about the disease, the tendency to ED was high.^[20-23] This can be

Table 1: Mean scores of the first category

Description	Mean	SD
Inhaler use can lead to dependence or addiction	3.39	1.319
Inhalers can have an effect on the heart or damage it	3.35	1.232
It is not good for children to use the inhaler for too long	2.69	1.315
After a child's asthma attack, once the coughing is over, use of the inhaler and medications should stop	3.12	1.387
Children with asthma should use asthma medications only when they have symptoms (coughing, congestion, or wheezing)	2.65	1.305
It is better to use inhalers directly, without a holding chamber, so the medication can go more directly to the lungs	3.63	1.361
When a child has an asthma attack it's best to go to the emergency room even if symptoms are mild	2.45	1.323

SD = Standard deviation

explained on the basis of the presence of other factors such as weather, genetic elements, family history and some other social/pathological triggers.^[12,13]

Third category

This category is about knowledge of the associated aspects of asthma. It contained 4 questions with a total score of 20. The results showed that the parents tend to limit child's social and physical activities because of asthma [Tables 3 and 4] even if it could be easily managed with a course of Bronchodilators.^[24]

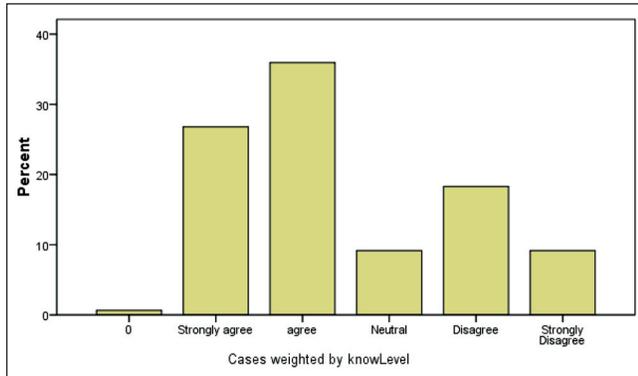


Figure 1: Trend of the parents/guardians of asthmatic children to visit emergency department at the time of asthma attack

Sum of all categories

The sum of all categories showed a total score of 85 in the questionnaire. Our result indicated that most of the participants were aware of asthma that was an unexpected observation. The reason for this observation is probably a small sample size in this study. This also indicates that our result is not conclusive in nature, but only provides a significant insight into the trends of our study population [Figure 2].

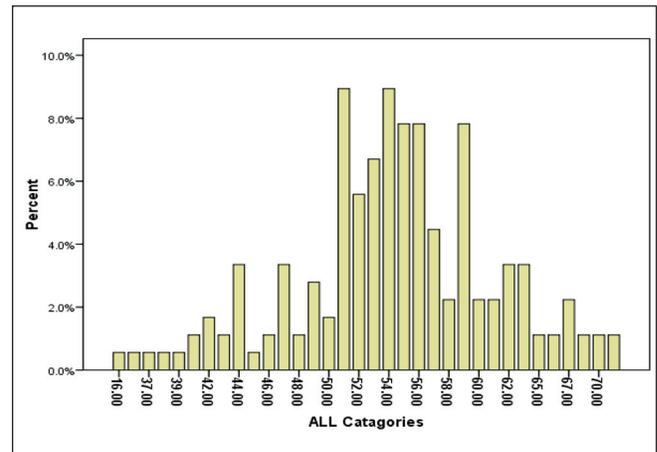


Figure 2: Distribution of questionnaire scores

Table 2: Mean scores of the second category

Description	n (valid)	Mean	SD
The main cause of asthma is airway inflammation	90	3.63	1.075
Asthma attacks can be prevented if medications are taken even when there are no symptoms-between attacks	90	3.59	1.160
Flu infections are the main causes or triggers of asthma attacks	88	3.38	1.359
If an asthmatic child gets the flu, you should apply the inhalers even if there's no coughing or wheezing	90	2.99	1.259
Asthmatic children might have attacks that are severe enough to require hospitalization in an intensive care unit or they might even die from an attack	90	4.02	1.112
Some medications for asthma do not work unless they are administered every day	90	3.56	1.133

SD = Standard deviation

Table 3: Trends of the parents/guardians of asthmatic children to limit patient's social life (third category questionnaire)

Question	Percentage of agreed	Percentage of disagreed
Parents/guardians should ask a doctor to tell the school that an asthmatic child should not exercise or participate in physical education classes	78	11
Children who have asthma should not participate in sports that make them run too much	62	24
It is best not to smoke or let anyone else smoke near a child who has asthma	96	1
If the parents/guardians of a child with asthma smoke outside the house, it won't affect the child	34	52

Table 4: Mean score of third category

Description	n	Minimum	Maximum	Sum	Mean	SD
Parents/guardians should ask a doctor to tell the school that an asthmatic child should not exercise or participate in physical education classes	179	1	5	363	2.03	1.062
Children who have asthma should not participate in sports that make them run too much	177	0	5	455	2.57	1.176
It is best not to smoke or let anyone else smoke near a child who has asthma	179	1	5	826	4.61	0.655
If the parents/guardians of a child with asthma smoke outside the house, it won't affect the child	179	1	5	476	2.66	1.465
Valid n (list wise)	177					

SD = Standard deviation

Table 5: Correlation between ED visits and questionnaire score

Statistical analysis	Correlations	
	Previous ED visits	All categories
Previous ED visits		
Pearson correlation	1	-0.239
Significant (2-tailed)		0.046
<i>n</i>		70

ED = Emergency department

Correlation of the association between parents/guardians awareness and ED visits

Calculating the 25 percentiles (25th Q) yielded a score of 51, which showed a strong negative correlation between the sum of scores of all categories and patients frequent admissions to ED ($r = -0.239$, $P = 0.046$). This frequent admission trend can also be explained on the basis of the low score of the participants [Table 5 and Figure 3].

CONCLUSION

Asthma is one of the most commonly diagnosed diseases in pediatric ED. Most of the asthmatic children brought to the ED are due to recurrent and uncontrolled asthma symptoms. The health care providers like RT, RN and physicians have a good opportunity to educate the parents/guardians of the asthmatic children and increase their level of awareness about the proper control and management of asthma exacerbation that prevents further complications and unnecessary ED admissions. In general, the scores of individual categories were fairly acceptable. Furthermore, negative association was found between the ED visits and the total score of the categories. Nevertheless, the inconclusive results obtained in this study might be related to the small sample size. We recommend further studies to be conducted on a larger sample size to prove significant correlation between the level of knowledge of parents/guardians of asthmatic children and ED visits.

RECOMMENDATION

Based on our findings, we recommend implementation of an educational program in our pulmonary rehabilitation center for better management of the disease and to lower the chance of frequent ED visits and frequent admissions. Furthermore, well-aware parents/guardians and lower ED visits/admissions would imply good Asthma control and better life quality.

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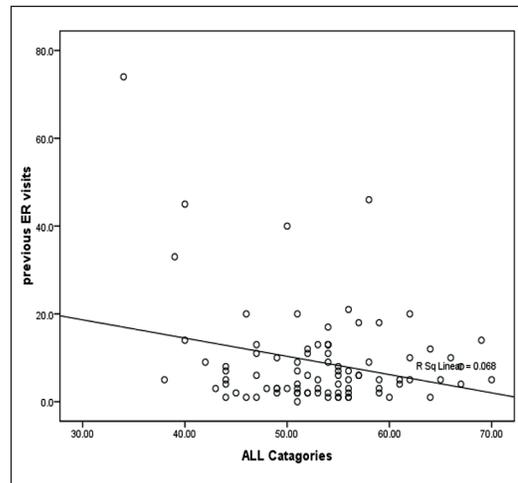


Figure 3: Correlation between previous emergency department visits and questionnaire score

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