

# Study of parents' knowledge of asthma in Saudi Arabia

Fadhel Mohammed Alfayez , Khaled Sadeq Al-Shaibari, Abdullah SaadAlalyani, Mohammad ali Ahmad Alaslani, Abdullah Saeed Alqarni, Hanan Saleh Aloqbi , Awad Salem Alrashdi

## Abstract

### Background:

Asthma is a chronic inflammatory disorder of the airways which results in mucus production, mucosal edema and hyper responsiveness in the airway. It causes recurrent symptoms of asthma symptoms such as wheezing, dyspnea and cough. Children are the most affected with asthma, the cure of this disease remains to be discovered. Parents are responsible for their children and management of asthma requires good knowledge about it, so it is very important for parents who have children with asthma to be aware of asthma to avoid severe outcomes of asthma for their children and for good control.

### Aim:

To find out the parents' knowledge of bronchial asthma in Saudi Arabia regarding the principle of asthma, its triggering factors and its managements.

### **Methods:**

This is a cross sectional study which included parents of children with asthma in Saudi Arabia. A questionnaire was used to collect data and information from participants. The questionnaire included 19 questions as well as questions about demographics.

IJSER

### **Results:**

The mean score of knowledge for parents who had children with asthma was  $46.76 \pm 21.37$  and it was present in 44.7% of parents. Association was found between the mean score of knowledge and gender ( $P\text{-value}=0.001$ ), education

level of parents (P-value=0.0001), field of work (P-value=0.0001), income (P-value=0.0001), Marital status (P-value=0.036), having asthmatic children (P-value=0.001), parents'asthma (P-value=0.005) and smoking status(P-value=0.004).

### **Conclusion:**

There was a poor knowledge about children asthma among parents, educational programs are recommended.

**Keywords: Children Asthma, Parents, Asthma, Asthma knowledge.**

### **Introduction:**

Asthma is a chronic illness that affects the lungs'airway[1], it is the most common chronic pediatric disease [2]. Asthma can result in breathlessness, chest tightness, repeated episodes of wheezing and early morning or nighttime coughing[2].The global prevalence of asthma has been increased in the last 3 decades [3,4].In

many industrialized countries, it was found that asthma and allergy were affecting almost one-third of children [5]. The prevalence of asthma was related to several factors including sex, age, genetics and exposure to indoor and outdoor pollutions and economic status [6,7]. Asthma of children is a great concern around the world as it can impede the social activities and the academic development of the children [8]. Children who suffer from asthma are susceptible for serious complications including respiratory failure, chronic airway remodeling, status asthmaticus, disturbed family functions and bacterial and viral respiratory infection [2]. Asthma prevalence among children with age of 13-14 years in Middle East was found to be 7.57% [8]. In Saudi Arabia, asthma is considered as one of the most common chronic illness [9], it was found that the prevalence of children asthma ranges from 4.9% to 19.6% depending on the region of study [10-12]. Another study in Saudi Arabia from Riyadh [13] showed higher prevalence, where 59.3% of children who attended a pediatric clinic for routinely scheduled follow-up visits had uncontrolled asthma, also the study revealed that knowledge about asthma affected significantly

asthma control in these children. Management of asthma can be achieved by enough knowledge [1]. Parents play a critical role in adjustment of children disease, especially in those who suffer from asthma [2], also they are the best to judge the severity of asthma as they can recognize their child's particular asthma pattern by careful observation as well as identify the symptoms [14]. Knowledge of parents is crucial to improve the outcome of asthma in children, it was shown that parents of children with asthma had considerable misperceptions of the disease [15]. It was demonstrated that parents tended to overestimate the degree of asthma control and underestimate the severity of their child's asthma [16,17]. Poor knowledge about asthma may result in delaying in receiving therapy, which in turn leads to increase in morbidity and mortality [18]. The present study was conducted to assess parents' knowledge of bronchial asthma in Saudi Arabia.

## **Subjects and methods:**

### **Subjects and study design:**

The present study is cross-sectional study which carried out between the period 23<sup>rd</sup> September 2017 to 2<sup>nd</sup> December 2017 on parents of children with asthma in KSA. Non-probability convenience sample technique was used to collect the predetermined response rate. Informed consent was obtained from participants, the author granted the security of information of participants.

IJSER

### **The questionnaire and scoring system:**

The data and required information were collected by using a questionnaire either by social media or in health facilities hospital in Saudi Arabia. The questionnaire used was a modified version of the Asthma knowledge questionnaire. The modified questionnaire consists of 19 questions; two questions from literature review and 17 questions from the established Asthma knowledge questionnaire. The questionnaire also included the demographic characteristics (age, educational

level, number of children, income and, profession). Correct answer was assigned

as 1 score, while incorrect or I do not know answer were assigned a score of '0'.

Total score of each participant with its percentage calculated, where those who got

score of 50% or more of the correct answers assigned of having adequate

knowledge of asthma, and those who get less than 50% were considered as

having inadequate knowledge Asthma.

#### **Data entry and Statistical analysis:**

IJSER

Data were collected in Microsoft Excel first then transferred to SPSS software

version 23. Descriptive statistics using frequency to calculate count and

percentage were computed, chi-square test used to compute associations among

variables, P-value of  $<0.05$  was considered as statistical significant.

#### **Results:**

The present study included 756 parents whose age range from 19 to 85 years old with a mean  $\pm$  SD of  $34.4 \pm 9.43$ . Males were more dominant 484 (64%) than females 272 (36%), the large majority of parents were Saudi 640 (84.7%) whereas 116 (15.3%) only were non Saudi. There were 427 (56.5%) had university education, 179 (23.7%) had either intermediate or high education, 20(2.6%) and 130(17.2%) were illiterate and postgraduate respectively. The large majority were working in non-medical field 542 (71.7%), while 214(28.3%) were working in medical field. Regarding income; there were 29(3.8%) had no income, 347 (45.9%), 270(35.7%) and 110 (14.6%) had <10000 SR, 10000-20000 SR and >20000 SR respectively. 608(80.4%) of parents were married, while 148 (19.6%) were non-married either divorced or widow, the range of number of children was 0 to 15 children with a mean  $\pm$  SD of  $3.2 \pm 2.14$ . 328(43.4%) confirmed having children with asthma, there were 7(3%) had 4 children with asthma, while 17 (7.2%), 57(24.3%) and 154(65.5%) had 3,2 and 1 asthmatic



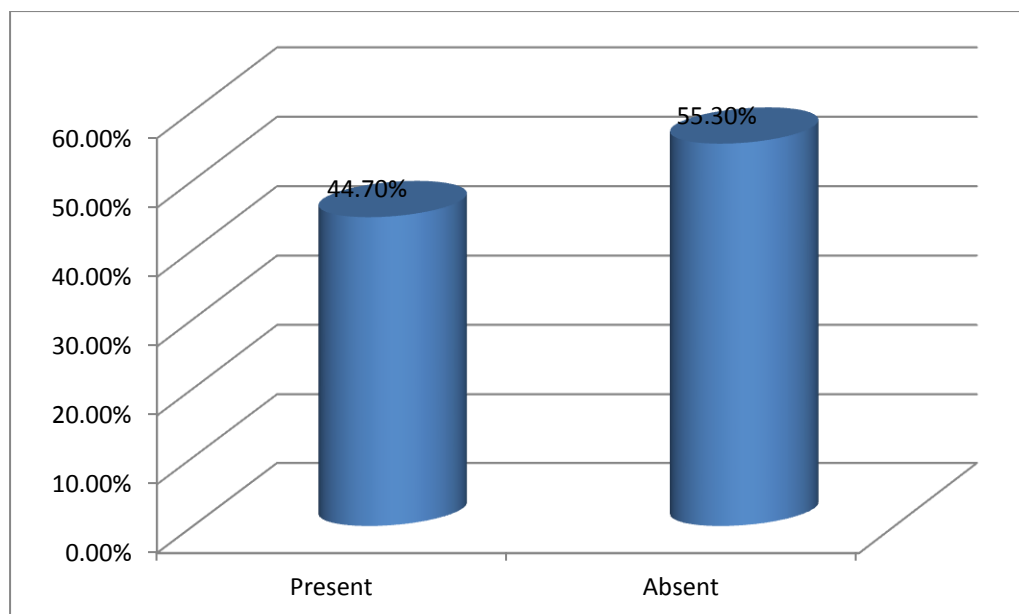
children respectively. 213 (28.2%) of parents confirmed having asthma and 299(39.6%) were smoking, table1.

**Table1:Demographics and characteristics of patients.**

<b>Socio-demographic</b>	<b>No (756)</b>	<b>%</b>
<b>Gender</b>		
<b>Male</b>	<b>484</b>	<b>64.0</b>
<b>Female</b>	<b>272</b>	<b>36.0</b>
<b>Nationality</b>		
<b>Saudi</b>	<b>640</b>	<b>84.7</b>
<b>Non-Saudi</b>	<b>116</b>	<b>15.3</b>
<b>Education</b>		
<b>Illiterate /Primary</b>	<b>20</b>	<b>2.6</b>
<b>Intermediate/High</b>	<b>179</b>	<b>23.7</b>
<b>University</b>	<b>427</b>	<b>56.5</b>
<b>Postgraduate</b>	<b>130</b>	<b>17.2</b>
<b>Field of work</b>		
<b>Medical</b>	<b>214</b>	<b>28.3</b>
<b>Non-Medical</b>	<b>542</b>	<b>71.7</b>
<b>Income</b>		
<b>Non</b>	<b>29</b>	<b>3.8</b>
<b>&lt;10000 SR</b>	<b>347</b>	<b>45.9</b>
<b>10000-20000SR</b>	<b>270</b>	<b>35.7</b>
<b>&gt;20000</b>	<b>110</b>	<b>14.6</b>
<b>Marital Status</b>		
<b>Married</b>	<b>608</b>	<b>80.4</b>

<b>Non-Married</b>	148	19.6
<b>Do you have Children with asthma</b>		
<b>No</b>	328	42.4
<b>Yes</b>	235	31.1
<b>If Yes, No of children with asthma</b>		
<b>1</b>	154	65.5
<b>2</b>	57	24.3
<b>3</b>	17	7.2
<b>4</b>	7	3
<b>Do you have asthma</b>		
<b>No</b>	543	71.8
<b>Yes</b>	213	28.2
<b>Smoking</b>		
<b>No</b>	457	60.4
<b>Yes</b>	299	39.6

The range of knowledge score was 0-100 with a mean  $\pm$ SD of  $46.76 \pm 21.37$ , there were 44.7% of parents had knowledge, whereas 55.3% were lacking knowledge, figure 1.



**Fig1: Prevalence of Knowledge among parents with and without asthmatic children**

IJSER

The correlation between socio-demographics and characteristics with score of knowledge is shown in table2. Regarding gender, there was a significant difference (P-value=0.001) between the mean score of knowledge between males and females, where females had more knowledge than males. Nationality didn't affected the knowledge of parents (P-value=0.3), while education level significantly (P-value=0.000) affected the score of knowledge, the score of knowledge increased with increasing level of education, also the score of

knowledge increased with increasing income of parents (P-value=0.000). Parents who were working in medical field significantly (P-value=0.000) had higher mean score than those who were working in non-medical field, the married parents had more knowledge than those who are not married (P-value=0.036). The mean score of knowledge was higher among parents with asthmatic children than those who have children without asthma (P-value=0.001).The knowledge's score didn't differ regarding number of children the parents had (P-value=0.2). Asthma knowledge score was significantly associated with parents'asthma (P-value=0.005) and non-smoking (P-value=0.004).

**Table2: Correlation between demographics and score of knowledge of parents**

Socio-demographic	Score of Knowledge Mean±SD	P-value
<b>Gender</b>		
Male	44.75±22.77	0.001*
Female	50.33±18.13	
<b>Nationality</b>		
Saudi	46.45±21.13	0.352
Non-Saudi	48.46±22.71	

<b>Education</b>		
Illiterate /Primary	38.95±19.05	0.000*
Intermediate/High	40.14±19.88	
University	46.68±20.60	
Postgraduate	57.33±22.17	
<b>Field of work</b>		
Medical	61.17±20.13	0.000*
Non-Medical	41.07±19.06	
<b>Income</b>		
Non	36.66±24.34	0.000*
<10000 SR	43.82±19.60	
10000-20000SR	48.93±21.34	
>20000	53.35±23.64	
<b>Marital Status</b>		
Married	47.56±20.88	0.036*
Non-Married	43.46±23.09	
<b>Do you have Children with asthma</b>		
No	45.59±21.30	0.001*
Yes	51.58±19.17	
<b>Number of children</b>		
1	49.97±19.72	0.241
2	53.28±17.20	
3	58.51±20.71	
4	56.39±16.00	
<b>Do you have asthma</b>		
No	45.40±21.75	0.005*
Yes	50.21±20.01	

Family Smoking		
No	48.55±19.99	0.004*
Yes	44.01±23.10	

### Discussion:

In the present study the mean score of asthma knowledge among parents was 46.76 and knowledge was present in 44.7% reflecting poor knowledge. The number of asthmatic children of parents didn't affect the score of parents' knowledge (P-value=0.2). In one study [2] it was found that 93% of parents had poor knowledge and the mean score of knowledge was 1.359. A previous study from Taif, Saudi Arabia [19] demonstrated that the mean score of knowledge was 68.94 and there were 5.8% only had good knowledge, while 82.7% and 11.5% had fair and poor knowledge respectively, the participants had high mean score of knowledge, however they had deficiencies in their knowledge and this can be noted by percent of knowledge. Another study [18] showed that caregivers had

inadequate awareness about asthma. A study on mothers of asthmatic children revealed that most of mothers had poor knowledge about asthma [20]. A study from china on KAP of asthma showed poor KAP score among parents [21]. A study from India also reported inadequate knowledge of parents about asthma [22].

Another study from Malaysia reported that the mean score of asthma knowledge of parents was 15.5 reflecting low level of knowledge [23]. It seems that all studies about asthma knowledge of parents reported poor knowledge, this may explain the increase in the prevalence of asthma. This low knowledge will affect negatively on children and severe outcome may occur including mortality. Educational programs are required to increase the level of knowledge among parents all over the world.

It was reported by **Amin et al** and **Ramesh et al** [20,24] that socio-demographic and characteristics of parents had no significant relation with the level of their knowledge. Another study on mothers showed that there was no significant correlation between socio-demographic characteristics of mothers and their knowledge [20]. However, Chinese study [21] showed that education of parents

was significantly related to KAP of asthma. A study from Malaysia reported a positive significant correlation between asthma knowledge of parents and socio-economic status as well as level of education, while gender and staying with smoker person were insignificantly related to parental knowledge [23]. In the current study, we found that gender was significantly associated with asthma knowledge (P-value=0.001), the opposite was reported in one study [2] where there was no significant association between gender and knowledge of parents.

The mean score of knowledge among parents of this study increased significantly with increasing the education level (P-value=0.000) and income of parents (P-value=0.000), where parents with primary education or who were illiterate had mean knowledge score of 38.95, while those who were postgraduate had mean score of 57.33. Also, parents with the highest income (>20000SR) had higher mean score of knowledge (53.35) than parents with lower income. In the contrast to our results, it was reported that no significance was found regarding education of mothers or fathers and family income didn't affect the level of



parents' knowledge [2]. Nationality didn't affect the score of knowledge in the current study, whereas medical field of work of parents was significantly (P-value=0.0001) associated with score of knowledge, parents who were working in medical field had mean score 61.17, while those who were working in non-medical field had mean score 41.07. Marital status was related to the score of knowledge in the present study (P-value=0.036), Married parents had higher mean score 47.56 than parents who were non-married; either divorced or widow. The current study revealed that parents who suffered asthma significantly had more knowledge (50.21) than those who were healthy, suffering asthma was significantly (P-value=0.005) associated with higher knowledge. Parents who didn't smoke were more aware of children asthma than smoker parents, the mean score of knowledge for non-smoker parents was 48.55, while it was 44.01 for smoker parents (P-value=0.004).

## **Conclusion:**

There was a poor level of knowledge among parents about children asthma. It is very recommended to increase the knowledge of parents about this disease for early treatment and avoiding severe outcomes such as mortality. There were several factors associated with increasing knowledge between parents including higher education level, medical field of work, high income, being married, suffering asthma and smoking free.

**References:**

IJSER

1-BinSaeed AA. Caregiver knowledge and its relationship to asthma control among children in Saudi Arabia, Journal of Asthma;2014: 51:8, 870-875

2-AI-Tameemi HMA. KNOWLEDGE REGARDING ASTHMA AMONG PARENTS OF ASTHMATIC CHILDREN IN AL-NAJAF AL-ASHRAF CITY. GSJ;2017:5(12):193-201.

3-Upton MN, McConnachie A, McSharry C, Hart CL, Smith GD, Gillis CR, et al.

Intergenerational 20 year trends in the prevalence of asthma and hay fever in

adults: the Midspan family study surveys of parents and offspring. *Bmj* 2000;

321(7253):88-92.

4-Yunginger JW, Reed CE, O'Connell EJ, Melton LJ, O'Fallon WM, Silverstein

MD. A community-based study of the epidemiology of asthma: incidence rates,

1964–1983. *American journal of respiratory and critical care medicine* 1992;

146(4):888-94.

5-Committee IS. Worldwide variations in the prevalence of asthma symptoms: the

International Study of Asthma and Allergies in Childhood (ISAAC). *The European*

*respiratory journal: official journal of the European Society for Clinical Respiratory*

*Physiology* 1998;12(2):315-35.

6-Lee SI, Shin MH, Lee HB, Lee JS, Son BK, Koh YY, et al. Prevalences of symptoms of asthma and other allergic diseases in Korean children: a nationwide questionnaire survey. *Journal of Korean medical science* 2001;16(2):155-64.

7-Kim YK, Kim SH, Tak YJ, Jee YK, Lee BJ, Park HW, et al. High prevalence of current asthma and active smoking effect among the elderly. *Clinical & Experimental Allergy* 2002;32(12):1706-12.

8-Mirzaei M, Karimi M, Beheshti S and Mohammed M. Prevalence of asthma among Middle Eastern children: A systematic review. *MJIRI*; 2017:31-9

9- Sobki SH and Zakzouk SM. Point prevalence of allergic rhinitis among Saudi children. *Rhinology*;2004: 42( 3): 137– 140.

10-Al Ghobain MO, Al-Hajjaj MS, Al Moamary MS. Asthma prevalence among 16- to 18-year-old adolescents in Saudi Arabia using the ISAAC questionnaire. BMC Public Health 2012;12: 1471–2458.

11-Hijazi N, Abalkhail B, Seaton A. Asthma and respiratory symptoms in urban and rural Saudi Arabia. EurRespir J 1998;12:41–44.

12-Al-Dawood KM. Epidemiology of bronchial asthma among school boys in Al-Khobar city, Saudi Arabia. Saudi Med J 2001;22:61–66.

13-Binsaeed AA, Torchyan AA, Alsadhan AA, Almidani GM, Alsubaie AA, Aldakhail AA, Alrashed AA, et al. Determinants of asthma control among children in Saudi Arabia. J Asthma 2013;17: 17.

14- Ostergaard MS. Childhood asthma: parents' perspective—a qualitative interview study. *Family Practice*;1998: 15( 2): 153–157.

15- Zaraket R, Al-Tannir MA, Bin Abdulhak AA, Shatila A and Lababidi H. Parental perceptions and beliefs about childhood asthma: a cross-sectional study. *Croatian Medical Journal*;2011: 52( 5): 637–643.

16-Khadadah M, Mahboub B, Al-Busaidi NH, Sliman N, SorianoJB, and Bahous J. Asthma insights and reality in the Gulf and the Near East. *International Journal of Tuberculosis and Lung Disease*;2009: 13( 8): 1015–1022.

17- Lenney W, Wells NEJ, and O'Neill BA. The burden of paediatric asthma. *European Respiratory Review*;1994: 4: 49– 62.

18-Awan AS and Munir SS. ASTHMATIC CHILDREN; KNOWLEDGE, ATTITUDE AND PRACTICES AMONG CAREGIVERS. Professional Med J 2015;22(1): 130-136.

19-Helmy FF, Alsulaimani AA, Mahmoud S, Al-Malki A and Maroof Y. Knowledge and Attitude of Care-Givers about Their Children S Bronchial Asthma in Taif Region KSA. IJSR ;2017:6(2):358-362.

20-Amin GM, Elsamman GA and HUSSEIN HA. Knowledge of Mothers of Children with Bronchial Asthma. Med. J. Cairo Univ ;2014:82(2):63-70.

21-Zhao J, Shen K, Xiang L, Zhang G, Xie M, Bai J, et al. The knowledge, attitudes and practices of parents of children with asthma in 29 cities of China: a multi-center study. BMC Pediatrics; 2013: 13:20.

22-Gajanan G, Padbidri VS and Chaudhury A. Assessment of Knowledge and Attitude of Parents Towards the Allergy and Bronchial Asthma in Their Children.

Int J Med. Public Health. 2016; 6(3): 121-125.

23-Fadzil A and Norzila MZ. Parental Asthma Knowledge. Med J

Malaysia;2002;57(4):474-481.

24-Ramesh N. Nisha C and Jose SK. Knowledge Regarding Childhood Asthma

among Mothers of Asthmatic Children Presenting to a Selected Hospital ,

Bangalore , South India. National Journal of Research in Community

Medicine;2014: 3(3), 224-229.