

Knowledge, Attitudes, and Practices of Parents of Asthmatic Children in an Asthma Clinic in Baghdad

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ABSTRACT:

BACKGROUND:

Asthma is becoming increasingly prevalent among children in Iraq. Poor parent knowledge and attitudes often contribute to inappropriate management practices.

OBJECTIVE:

The study aimed to document the knowledge, attitudes, and practices (KAP) of parents of children with asthma and analyze how knowledge and attitudes relate to practices. The second objective was to study the effect of educational interventions with parents of asthmatic children on the future use of asthma controller medications and control status.

SUBJECTS AND METHODS:

A cross-sectional survey of knowledge, attitudes, and practices and educational intervention was conducted on 130 parents of children with asthma attending an asthma clinic in Baghdad. KAP scores were divided according to (Bloom's cut off point 60-80%), and control scores were measured according to Global Initiative for Asthma (GINA) guidelines.

RESULTS:

There were 36 (27.7%) male participants and 94 (72.3%) females. The knowledge scores were high level in 83.1%, moderate level in 13.8% and low level in 3.1%. The attitudes scores were moderate level in 43.1% and low level in 56.9%, and the practices scores were moderate level in 9.2% and low level in 90.8%. One fifth of participants adhered to corticosteroid inhalers. There was no significant association between knowledge score and practice, and there was a significant association between attitudes score and practice. Use of controllers increased and asthma control scores increased significantly after the educational intervention.

CONCLUSION:

Negative attitudes towards steroids use especially inhalational preparations played an important role and resulted in the unsuitable practice of asthma control. Educational intervention may increase the use of asthma controllers and asthma control scores.

KEYWORDS: parents, KAP, asthma, children, baghdad

INTRODUCTION:

Asthma is a common and potentially serious chronic disease that imposes a substantial burden on patients and their families and the community⁽¹⁾. Medical professionals are trained to manage asthma exacerbations in hospital-based settings. However, the prevailing environmental triggers along with no adherence to medical advice are major challenges in preventing exacerbations⁽²⁾. Asthma is becoming increasingly prevalent among children in Iraq. In 2016, the prevalence rate of asthma including exercise-induced asthma in Iraqi children aged 4-15 years was 31.0%.⁽³⁾ Poor parent knowledge and attitudes often contribute to inappropriate

management practices, leading to deficiencies in the care process⁽⁴⁾. Asthma management refers to the monitoring and control of symptoms and the prevention of exacerbations. It aims to improve long-term control and reduce the need for emergency treatment⁽⁵⁾. A wide gap exists between recommended and actual practice, owing to educational barriers and a lack of adequate asthma-related knowledge⁽⁶⁾. According to childhood asthma guidelines, parent training to improve their asthma-related knowledge, attitudes, and practices (KAP) should be included in routine clinical care⁽¹⁾. Asthma-related knowledge includes an understanding of pathological mechanisms, medications, and prevention⁽⁷⁾. A good attitude is reflected by confidence and positive relationships with physicians⁽⁸⁾. Good practices refer to timely

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intervention and active management with appropriate care⁽⁹⁾.

The study aimed to document the demographic characteristics, knowledge, attitudes, and practices (KAP) of parents of asthmatic children, and the association between each of them with practices. The second objective was to measure the difference in control status and use of asthma controller medications after the educational interventions.

SUBJECTS AND METHODS:

A cross-sectional survey of knowledge, attitudes, practices and educational interventions was conducted on 130 parents of children with asthma aged 2-15 years diagnosed by consultant pediatrician attending asthma clinic in Children Welfare Teaching Hospital (CWTH) / Medical city / Baghdad during the period from 1st Oct. 2015 to 1st June 2016. Parents KAP scores were measured by the three domains of an asthma Knowledge, attitudes, and practices questionnaire. The questionnaire was based on the methodology of KAP studies conducted in other countries and asthma control status was based on the Global Initiative for Asthma guidelines (GINA) 2015.^(1, 4, 10) The Medical Ethics Committee of Children Welfare Teaching Hospital and Medical City Directorate approved the study and verbal consents were taken from each respondent to participate in the study.

The validity of questionnaire contents was approved by asthma experts. All questionnaires were completed by the investigator through face-to-face interviews with parents to ensure validity. The questionnaire comprised five parts: (1) general information about each asthmatic child and the parent who cares for his/her illness; (2) parent knowledge (3) parent attitudes (4) parent practices and (5) asthma control in the past 12 months. The questionnaires were scored on 29 items (10 for each of parental knowledge and attitude and 9 for parental practice), with one point for every correct response and (0) for the wrong answer. The scores were classified into 3 levels based on (Bloom's cut off point 60-80%); Scores < 60% = Low levels, 60-80% = Moderate levels, and >80-100% = High levels.⁽⁴⁾ After completion of questionnaires, educational interventions were conducted by explaining and demonstrating the correct knowledge, proper attitudes and suitable practices needed to every parent enrolled in the study. Six months later follow-ups were done with parents and based on the use and adherence to asthma control measures and the current state of control.

Asthma control scoring was based on the Global Initiative for Asthma (GINA) 2015 as follows: In the past 4 weeks, has the patient had: Daytime asthma symptoms more than twice/week? Is any night waking due to asthma? Did reliever need for symptoms more than twice/week? Any activity limitation due to asthma? None of these (0) = well controlled, 1-2 of these = partly controlled, 3-4 of these = Uncontrolled⁽¹⁾.

Data were categorized and analyzed using Statistical Package for Social Sciences version 20. Chi-squared and Fisher exact tests were used for analysis of qualitative variables and T test for quantitative variables. A p -value ≤ 0.05 was considered statistically significant.

RESULTS:

There were 36 (27.7%) male participants and 94 (72.3%) females. The mean parental age was 34.57 ± 6.71 years and ranged from 22-53 years. About one-third (32.3%) of them were of a higher study of education. The family history of asthma was reported positive in 75.4% of children. According to Bloom's cut off point 60-80%; the knowledge scores were high level in 83.1%, moderate level in 13.8% and low level in 3.1%. The attitudes scores were moderate level in 43.1% and low level in 56.9%, and the practices scores were moderate level in 9.2% and low level in 90.8% as shown in Figure -1.

The majority of parents (84.6%) knew that asthma is an allergic, non-contagious disease, while 92.3% knew that asthma is a hereditary disease, wheezing more than three times suggest asthma, chronic cough (more than a month suggest asthma), and strong emotional stimulation precipitates asthma. Most of the parents (96.9%) knew that chest tightness suggests asthma and, exposure to allergens precipitates asthma, while 90.8% knew that a dry cough after sleep suggests asthma and catching cold precipitates asthma as shown in Table-1.

In attitude questionnaire; 95.4% of parents preferred to communicate with the physician, 80 % believed that asthma is controllable with regular medications, 66.2% believed that steroid has a negative effect on growth. Half of the parents (50.8%) preferred inhalational therapy for asthma attacks and 33.8% preferred inhalational therapy for asthma control. Almost half of parents (49.25%) believed that the child can participate in the sport if asthma is controlled and 41.5% allowed the child to participate in minor sports only. About one-fourth of parents (24.65%) believed that steroid causes

drug dependence, and 52.3% believed that steroid has potential harm to child intelligence. The majority (84.6%) believed that oral salbutamol is the preferred for asthma control as shown in Table-2.

In Practice questionnaires; 95.4% of parents took the child to visit the physician every 1-3 months. About two-thirds (64.6%) of parents avoided their child being exposed to tobacco smoke, while 47.7% avoided plush toys. More than half (58.5%) of parents adhered to leukotriene receptor modifiers, and 52.3% adhered to salbutamol inhaler. Only one fifth of parents (20%) adhered to corticosteroid inhalers and 13.8% adhered to nebulized steroids. Unsuitably, 96.9% of parents used antibiotics as a supplementary therapy as shown in Table-3.

Based on Global Initiative for Asthma guidelines, children who had daytime asthma symptoms were 92 (70.8%), night waking 88(67.7%), relievers needed 92(70.8%) and activity limitation 82 (63.1%). Therefore 36(27.7%) were well controlled (0) control score, 4(3.1%) were partly controlled (1-2) control scores and 90 (69.2%) were uncontrolled (3-4) control scores.

There was no significant association between knowledge score and practice, P: 0.26 and there

was a significant association between attitudes score and practice, P: 0.003 as shown in Table-4.

The results showed a significant association between parental age, education, and practice, P: 0.027, 0.037 respectively. Gender, family history of disease and disease duration showed no significant association with practice, as shown in Table-5.

Six months after the initial interview and educational intervention, 112/130 (86.2%) of parents were re-interviewed and 12/130(13.8%) of them were lost to follow up. Parents who were reported as using asthma controllers for their children before the educational intervention were 84/112 (75.0%). The second interview revealed 102/112 (91.0%) parents were using controller medication after the educational intervention, with an increase of 18 (16.0 %).

The mean asthma control score of asthmatic children before educational intervention with their parents was 2.6964 ± 1.8001 and the mean after the educational intervention was 0.4732 ± 0.8049 . There was a highly significant difference between asthma control scores before and after the educational intervention using Paired Samples T-Test analysis, P: 0.001 as shown in Table-6.

Table 1: Response to knowledge statements about asthma of 130 parents of asthmatic Children in Baghdad.

Knowledge statements	Expected response	Correct		Incorrect	
		No.	%	No.	%
K1 Asthma is a contagious disease	No	110	84.6	20	15.4
K2 Asthma is an allergic disease	Yes	110	84.6	20	15.4
K3 Asthma is hereditary disease	Yes	120	92.3	10	7.7
K4 Wheezing more than three times suggests asthma	Yes	120	92.3	10	7.7
K5 Chronic cough more than one month suggests asthma	Yes	120	92.3	10	7.7
K6 Chest tightness suggests asthma	Yes	126	96.9	4	3.1
K7 Dry cough after sleep suggests asthma	Yes	118	90.8	12	9.2
K8 Catching cold precipitates asthma	Yes	118	90.8	12	9.2
K9 Exposure to allergens precipitate asthma	Yes	126	96.9	4	3.1
K10 Strong emotional stimulation precipitate asthma	Yes	120	92.3	10	7.7

Table 2: Response to attitude statements towards asthma management of 130 parents of asthmatic children in Baghdad.

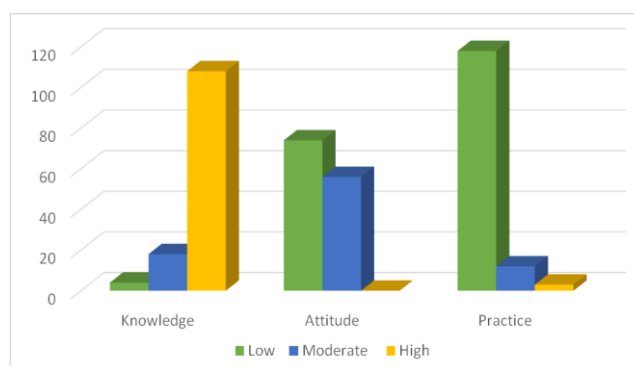
Attitude statements	Expected response	Proper		Improper	
		No.	%	No.	%
A1 Believe that asthma is controllable with regular medication	Yes	104	80	26	20
A2 Believe that child can participate in sport if asthma is controlled	Yes	64	49.2	66	50.8
A3 Allow the child to participate in minor sports only	No	54	41.5	76	58.5
A4 Steroid has negative effect on growth	Yes	86	66.2	44	33.8
A5 Steroid has potential harm to child intelligence	No	62	47.7	68	52.3
A6 Steroid causes drug dependence	No	32	24.6	98	75.4
A7 Parent prefers to communicate with physician	Yes	124	95.4	6	4.6
A8 Inhalational therapy is preferred for asthma attacks	Yes	66	50.8	64	49.2
A9 Inhalational therapy is preferred for asthma control	Yes	44	33.8	86	66.2
A10 Oral salbutamol is the preferred for Asthma control	No	20	15.4	110	84.6

Table 3: Response to practice statements about asthma management of 130 parents of asthmatic children in Baghdad.

Practice statements	Expected response	Suitable		Unsuitable	
		No.	%	No.	%
P1 Undergo allergen test	Yes	2	1.5	128	98.5
P2 Avoid plush toys	Yes	62	47.7	68	52.3
P3 Avoid child being exposed to tobacco smoke	Yes	84	64.6	46	35.4
P4 Regularly take child to visit physician every 1-3 months	Yes	124	95.4	6	4.6
P5 Adhere to salbutamol inhaler	Yes	68	52.3	62	47.7
P6 Adhere to corticosteroid inhaler	Yes	26	20	104	80
P7 Adhere to leukotriene receptor modifiers	Yes	76	58.5	54	41.5
P8 Adhere to nebulized steroid	Yes	18	13.8	112	86.2
P9 Use supplementary antibiotics	No	4	3.1	126	96.9

Table 4: Associations between knowledge and attitudes scores and practice scores of 130 parents of asthmatic children in Baghdad.

		Practice Score		Total	P value
		Low level	Moderate level		
Knowledge Score	Low level	4 (100%)	0	4 (100%)	0.26
	Moderate level	18 (100%)	0	18(100%)	
	High level	96(88.9%)	12(11.1%)	108(100%)	
	Total	118(90.8%)	12(9.2%)	130 (100%)	
Attitudes Score	Low level	72 (97.3%)	2(2.7%)	74 (100%)	0.003
	Moderate level	46 (82.1%)	10(17.9%)	56(100%)	
	Total	118(90.8%)	12(9.2%)	130 (100%)	

**Figure 1: Frequency of KAP scores in 130 parents of asthmatic children in Baghdad.****Table 5: Association between demographic characteristics and practice scores of 130 parents of asthmatic children in Baghdad.**

Characteristics		Practice Score		Total	P value
		Low level	Moderate level		
Age	< 30 years	26(100.0%)	0	26 (100.0%)	0.027
	30-39 years	72 (85.7%)	12(14.3%)	84(100.0%)	
	>40 years	20(100%)	0	20(100.0%)	
Gender	Male	34(94.4%)	2(5.6%)	36(100%)	0.370
	Female	84(89.4%)	10(10.6%)	94(100%)	
Education	Illiterate	2(100.0%)	0	2(100.0%)	0.037
	Read & write	2(50.0%)	2(50.0%)	4(100.0%)	
	Primary	42(87.5%)	6(12.5%)	48(100.0%)	
	Secondary	32(94.1%)	2(5.9%)	34(100.0%)	
	Higher study	40(95.2%)	2(4.8%)	42(100.0%)	
Family history of asthma	Positive	88(89.8%)	10(10.2%)	98(100.0%)	0.394
	Negative	30(93.8%)	2(6.2%)	32(100.0%)	
Disease duration	< 5 years	90(93.8%)	6(6.2%)	96(100.0%)	0.062
	5 - < 10 years	24(80.0%)	6(20.0%)	30(100.0%)	
	> 10 years	4(100.0%)	0	4(100.0%)	

Table 6: The difference between means of control scores of asthma before and after the educational intervention of 112 parents of asthmatic children in Baghdad.

Asthma control score	Mean score	No of patients	Std. Deviation	Std. Error Mean
Before intervention	2.6964	112	+1.80010	0.17009
After intervention	0.4732	112	+0.80494	0.07606

Paired Samples T test; P: 0.001

DISCUSSION:

Asthma can occur at any age but its onset is predominantly observed in children and adolescents. The parents of such children are one of the important factors in the prevention and management of asthma exacerbations. Adequate knowledge of asthma management in a parent is essential for the prevention of asthma exacerbations in his/her child ⁽¹¹⁾.

Asthma-related knowledge includes an understanding of pathological mechanisms, medications, and prevention ⁽⁷⁾. In this study; the majority (83%) of the participants had high-level knowledge score about asthma and its triggers. Therefore parents exhibited a high level of asthma-related knowledge, with a better understanding of the nature of asthma, and high awareness of clinical manifestations of the disease and the indicators of acute attacks. Another study in China had shown that two-third of the participants were aware of the nature of asthma ⁽⁴⁾.

<http://www.atmph.org/article.asp?issn=1755-6783;year=2016;volume=9;issue=1;spage=23;epage=30;aulast=Bhagavatheeswaran-ref8> Only 13.4% of parents stated that asthma is a communicable disease. This might be expected since the study was conducted in a hospital-based setting and almost all children enrolled presented with acute exacerbation of asthma, many of them had tens of visits to pediatricians and many hospitalizations and even Respiratory Care Unit admissions. This might also have raised parent's awareness about the nature of asthma and its triggers.

A proper attitude is reflected by confidence and positive relationships with physicians ⁽⁸⁾. However, parent's attitudes toward asthma control measures were quite low if compared to their knowledge as all parents scored either moderate or low attitudes scores. This might be attributed to the fact that identification of pediatric asthma or other chronic illnesses may have implications for parents beyond the diagnosis and immediate health concerns associated with the illness. When a child is diagnosed with a chronic illness the diagnosis represents a turning point for the family, where parents may no longer view their family as healthy.

⁽¹²⁾ The initial diagnosis of a child with asthma may generate an emotional crisis for parents. Parental coping behavior will be determined in large part by how parents react to the diagnosis, which in turn has the potential to impact asthma management. Unjustified fear of steroids use especially inhalational preparations played an important role in and resulted in the unsuitable practice of asthma control. This is in agreement with other authors who stated that misconceptions about controller medication time to onset, efficacy, and safety often underlie poor adherence and can be addressed by asking about such concerns at each visit ⁽¹³⁾. Although 80% of parents believed that asthma is controllable with regular medications, only one-third of them do prefer inhalational therapy for asthma control and half of them believed that steroid has potential harm on child intelligence! Good practices refer to timely intervention and active management with appropriate care ⁽⁸⁾.

In this study of the KAP of Iraqi parents of children with asthma, a wide gap was observed between recommended and actual practices as the practices scores were moderate level in 9.2% and low level in 90.8%. Although 95% of participants regularly took their asthmatic children to visit physician every 1-3 months but only 58.5% of them adhered to leukotriene receptor modifiers and 20% adhered to corticosteroid inhalers. Unsuitable practice may be related in part to improper attitudes toward the use of asthma controllers scored by enrolled parents in this study, as improper attitudes toward asthma were noted as a convincing predictor of insufficient adherence to asthma controllers in pediatrics and adults. ^(14,15,16) Rhee et al. have shown that negative attitudes make patients more susceptible to perceptive barriers such as forgetfulness or weakness in following treatment regimens, which lead to reduced adherence and affect individuals mental abilities and subsequently lead to failure of management. ⁽¹⁷⁾ This study showed a significant association between attitude and practice among participants. Another study conducted in New York to verify whether there was a relationship between knowledge, attitudes, and practice found significant

correlations between attitude and practice.⁽¹⁸⁾ only two of them had done allergen tests for their asthmatic children and all participants had not received any written action plan for preventing asthma exacerbations which contain instructions on when to increase treatment, how to increase treatment, the duration of the treatment increase; and when to cease self-management and seek medical help.⁽¹⁹⁾ The vast majority (97%) of parents use supplementary antibiotics in the treatment of their asthmatic children, which reflects an increasingly prevalent antibiotics abuse. Although parental age, education showed a significant association with practice, parental gender, family history of disease and disease duration showed no significant association with practice. This was also reported by other studies and may be attributed to the major role of attitudes in the decision of controller medication used and suitable practice.⁽¹⁸⁾

As a second objective of this study; the researcher conducted educational interventions about proper measures needed to control asthma with the demonstration of types of controller medications and devices and the importance of their regular use to reduce the frequency of future exacerbations and to be followed up six months later. However, in spite of the difficulties observed during the follow-up, the collaboration and interest of those parents were reassuring and motivating. Most of the parents were reached again and the use of controllers increased by 16% scoring a statistically significant difference in the mean control scores based on GINA guidelines before and after educational interventions. This is in agreement with the fact that every visit presents an important opportunity to educate the child and family, allowing them to become knowledgeable partners in asthma management⁽²⁰⁾.

CONCLUSIONS AND RECOMMENDATIONS:

The study showed an association between parental attitudes and practice, yet significant association between knowledge and practice was not achieved. Unjustified improper attitudes towards steroids use especially inhalational preparations played an important role and resulted in unsuitable practices of asthma control. Parents of children with asthma need to be informed that antibiotics should only be taken for symptoms associated with bacterial infections. Doctors and nurses working at asthma clinics should take every opportunity to perform educational sessions with parents including a demonstration of asthma medications and devices

used for asthma control as this may significantly help in increased frequency of controllers use and ultimately in better asthma control in the future. There is an urgent need for the preparation of parental guidelines (asthma action plan) for preventing asthma exacerbations

REFERENCES:

1. The Global Initiative for Asthma. Pocket guide for asthma management and prevention, Global Initiative for Asthma (GINA) 2015. http://ginasthma.org/wp-content/uploads/2016/01/GINA_Pocket_2015.pdf
2. Cleveland KK. Evidence-based asthma education for parents. *J Spec Pediatr Nurs* 2013;18:25-32.
3. Aya R, Mohammed S. Comparison of the prevalence rates of asthma and allergies between UAE and Iraqi school children. *EJPMR*, 2016;3:15-22.
4. Zhao J, Shen K, Xiang L, *et al*. The knowledge, attitudes, and practices of parents of children with asthma in 29 cities of China: A multi-center study. *BMC Pediatr* 2013;13:20.
5. Pinnock H, Fletcher M, Holmes S, *et al*: Setting the standard for routine asthma consultations: a discussion of the aims, process, and outcomes of reviewing people with asthma in primary care. *Prim Care Respir J*. 2010;19:75-83.
6. Clatworthy J, Price D, Ryan D, Haughney J, Horne R: The value of self-report assessment of adherence, rhinitis, and smoking in relation to asthma control. *Prim Care Respir J*. 2009;18:300-5.
7. Zahradnik A: Asthma education information source preferences and their relationship to asthma knowledge. *J Health Hum Serv Adm*. 2011;34:325-51.
8. Yilmaz O, Eroglu N, Ozalp D, Yuksel H: Beliefs about medications in asthmatic children presenting to the emergency department and their parents. *J Asthma*. 2012;49:282-87.
9. McArthur R: A practical approach to managing asthma and rhinitis. *Prim Care Respir J*. 2012;21: 230-32.
10. Rabe KF, Vermeire PA, Soriano JB, *et al*: Clinical management of asthma in 1999: the Asthma Insight and Reality in Europe (AIRE) study. *Eur Respir J*. 2000;16: 802-7.
11. Zhao J: Relationship of allergic asthma and allergic rhinitis. *J Appl Clin Pediatrics*. 2004;19:1020-22.

12. Trollvik A, Severinsson E. Parents' experiences of asthma: Process from chaos to coping. *Nursing & Health Sciences*. 2004;6:93–99.
13. Kaushik S, Jyoti B, Awnish K, Surapaneni K, Ashish J. Asthma-related knowledge, attitudes, practices (KAP) of parents of children with bronchial asthma: A hospital-based study. *Annals of Tropical Medicine and Public Health* 2016; 9:23-30.
14. Cohen R, Franco K, Motlow F, Reznik M, Ozuah PO. Perceptions and attitudes of adolescents with asthma. *J Asthma*. 2003; 40:207– 11.
15. Yoos HL, Kitzman H, McMullen A. Barriers to anti-inflammatory medication use in childhood asthma. *Ambul Pediatr*. 2003; 3: 181 – 190.
16. Williams LK, Joseph CL, Peterson EL, et al. Patients with asthma who do not fill their inhaled corticosteroids: a study of primary nonadherence. *J Allergy Clin Immunol*. 2007;120:1153-59.
17. Jones CA, Bender BG, Haselkorn T, et al. Predicting asthma control using patient attitudes toward medical care: the REACT score. *Ann Allergy Asthma Immunol*. 2009;102:385-92.
18. Scherer YK, Bruce S. Knowledge, attitudes, and self-efficacy and compliance with medical regimen, the number of emergency department visits, and hospitalizations in adults with asthma. *Heart Lung*. 2001;30:250- 57.
19. Susan M. Pollart, M, Rebekah M, et al. Management of asthma exacerbation. *Am Fam Physician*. 2011; 84:40-47.
20. Andrew H, Ronina A, Joseph D, Scott H. Childhood asthma. In Kliegman, Stanton, Geme, & Schor editors. *Nelson text book of pediatrics*, 20th edition. Elsevier. Philadelphia. 2016:1102.

