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ASTHMA;
AWARENESS OF PARENTS/ GUARDIANS OF ASTHMATIC CHILDREN ABOUT ASTHMA AND ITS CONTROL

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ABSTRACT… Introduction: The prevalence of childhood asthma is increasing globally. Asthma is one of the main causes of hospitalization and frequent emergency department visits of children. The parents having awareness about asthma can comply with the treatment, avoidance from triggers and subsequently, they can control asthma symptoms in their children. **Study Design:** Cross- sectional analytical study. **Setting:** The Children's Hospital and the Institute of Child Health, Lahore and Shaikh Zayed Hospital, Lahore in collaboration with University of Health Sciences Lahore. The Shaikh Zayed Hospital, Lahore is a tertiary care and an academic hospital as it is attached with Shaikh Khalifa Bin Zayed Al-Nahyan Medical and Dental College (Shaikh Zayed Hospital updates). The Children's Hospital and Institute of Child Health, Lahore provides services of tertiary health care as well as allied facilities. **Period:** 12 months from 01-08-2013 to 01-07-2014. **Methods:** To assess the knowledge of parents of asthmatic children about the disease and to determine any association between asthma knowledge and the level of asthma control in their children. Subjects were parents with their asthmatic children ages between 4 to 12 years attending two exclusive pediatric hospitals at Lahore. A tool was constructed to assess parent's knowledge about asthma, and a pre-validated asthma control tool was administered to determine asthma symptoms control in children. Data was represented in the form of figures, tables and chi square test was used to determine the association of knowledge about asthma, demographic information, and environmental information with different group of asthma control. **Results:** One hundred and ninety-six parents with their asthmatic children participated in this study. There was no association between asthma knowledge and the level of asthma control. There were 108 parents who had adequate knowledge about asthma, out of them only 45 (41.7%) children had asthma control. There were 88 parents who had inadequate knowledge about asthma. Out of them 36 (40.9%) children were with asthma control (p=.915). **Conclusions:** The findings of the study concluded that more than 50% (108/ 196) of the parents/ guardians have adequate knowledge about asthma and there was no association found between asthma knowledge and the level of asthma control. However, we need to empower Pakistani community via a national asthma awareness program, smoking cessation campaign and also empower the health care team with up-to-date knowledge about asthma management.

Key words: Asthma knowledge, asthma control, asthma knowledge and asthma control association, parents/ guardians of asthmatic children.

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INTRODUCTION

Despite effective treatments and evidence-based clinical guidelines, a high proportion of children with asthma do not achieve disease control.[1] Asthma control has been associated with several medical and psychosocial factors.[2] Asthma is a reversible obstructive lung disease caused by reaction of the airways to a variety of stimuli. It is one of the most common chronic disorders in childhood. According to the Centres for Disease Control and Prevention (CDC), this chronic inflammatory condition involving acute exacerbations currently affects nearly 7 million children under 18 years. In 2010, over 640,000 emergency room visits were due to asthma in those under 15 years. Asthma exacerbations lead to work and school absenteeism and are one of the leading causes of missed days of school. The burden of childhood asthma on the health care system, as well as on children and their families, is significant. In fact, according to data from the CDC National Asthma Control Program, annual

healthcare costs for asthma management were US$56 billion, with the average yearly cost of care for a child with asthma being approximately US$1,039 in 2009.[3] Early recognition of asthma symptoms pattern in children, parent's correct knowledge regarding aerosol therapy, prompt use of medications to relieve altered symptoms, follow a treatment plan integrated with preventive actions (prevention of triggers factors), and compliance with medications contribute to attain long- term asthma symptoms control.[4] Improved parent knowledge regarding disease had shown to significantly decline asthma morbidity and decrease number of hospitalization and emergency room visits and low level of knowledge is considered as a risk associated with uncontrolled asthma.[4,5] The knowledge about asthma & its management includes early recognition of warning sign and symptoms, intervening with prescribed therapy, avoiding or controlling of triggers as well as prompt asthma attack management protocol.[4,6] Unfortunately, in Pakistan there is lack of awareness about asthma disease. A study conducted at Karachi exhibited that only small percentage (16.7%) of the parents had satisfactory knowledge and good practices about asthma management.[7] There are some misconceptions about this disease and parents sometimes perceive that their child's asthma is fatal even when it is mild and majority of the parents blame about many nutritious foods e.g., rice, banana, oily foods for exacerbations of asthma in their children.[8,9] Due to these misconceptions and false beliefs many asthmatic children remain untreated, consequently bearing poor quality of life.[10] Inadequate knowledge regarding asthma, noncompliance to therapy and certain misconception about the disease may result in child's absenteeism from school as well as parent's absenteeism from their work with overutilization of emergency room visits and more frequent hospitalization for the child.[4]

METHODOLOGY

A Cross- sectional study was conducted at The Children's Hospital and the Institute of Child Health, Lahore and Shaikh Zayed Hospital, Lahore in collaboration with University of Health Sciences Lahore. The Shaikh Zayed Hospital, Lahore is a tertiary care and an academic hospital as it is attached with Shaikh Khalifa Bin Zayed Al-Nahyan Medical and Dental College (Shaikh Zayed Hospital updates). The Children's Hospital and Institute of Child Health, Lahore provides services of tertiary health care as well as allied facilities. The duration of this study was 12 months from 01-08-2013 to 01-07-2014. One hundred ninety-six parents with their asthmatic children from the selected hospitals were included in this study.

The asthmatic children ages between 4 to 12 years who attended the asthma clinic for a follow-up visit. No newly diagnosed asthmatic children were included in this study. Non-probability purposive sampling technique was used for data collection. Inclusion criteria includes, the parents having a child age 4- 12 year (school age children) with recurrent episodes of wheezing (> 3 times), and at least two episodes in the previous 6 months which responded to bronchodilators. The parents whose children are on aerosol therapy and whose child has been at least two emergency room visits and one hospitalization in the preceding 6 months. The educational level of guardians/ parents was up to Matric. Exclusion criteria includes, children with chronic illness such as tuberculosis, bronchiectasis, cystic fibrosis and cardiac diseases. Majority of sample size collected from The Children's Hospital and the Institute of Child Health, Lahore. The investigator develops rapport with the participants, informed them about the study and enquired their willingness to be a valuable part of this study. Eligibility of the participants was assessed by the investigator according to the inclusion and exclusion criteria. Eligible parents/ guardians who had been informed about the study and who had given written informed consent, the investigator started interview session and questionnaire completed by investigator to prevent any biases by the parents responses.

Any explanations of questions were made in a simplest way or in a similar fashion for the best understanding to all the participants. Parents received the questionnaire tool in their language like in "Urdu" language. A quiet comfortable

seating arrangement was provided and there was no any disturbance, or distraction. Afterwards, the questionnaire was inspected to confirm if the participants answered all the different subsections of the questionnaire. Two questionnaires were used to assess the knowledge and control of asthma. One is Asthma knowledge questionnaire formulated by the help of different literatures[11,12] and tested in parents /guardians of asthmatic children, the first eight statements about asthma were answered as multiple choices with three options and statements nine to twenty needed a simple yes or no response. These twenty questions tested factual knowledge and determined parent's attitudes, and perceptions about asthma. Second questionnaire was Childhood asthma control questionnaire (C-ACT) was developed and validated to measure asthma control in asthmatic children ages 4-11 years by.[13] This instrument comprised of seven questions. The investigator completed first four questions by the asthmatic child (how do you feel about your asthma today, does asthma a problem when you exercise or play sports, do you cough because of asthma, and do you wake up at night because of asthma) and further three questions by the parents/ guardians (four weeks asthma control observed by daytime asthma symptoms, wheezing, night time awakening because of asthma). Questions are scored on a three-point scale where zero means very bad and three very good. Total scores range from 0-27. A cut off point (≤19) indicates uncontrolled asthma and score >19indicate controlled asthma.[14]

Data was entered and analyzed by using the Statistical Package for the Social Sciences (SPSS) version 20.0 was used for data analysis and findings. Descriptive statistics was used to compute frequencies, percentages and graph for qualitative variables, and mean ± SD calculated for quantitative variables. The mean percentage was calculated from the asthma knowledge questionnaire as well as asthma control questionnaire. Chi square test was applied to determine the association of knowledge about asthma, demographic information, and environmental information with different group of asthma control. An association was drawn to compare the asthma knowledge and the asthma control. The parent's educational level was also assessed in conjunction with the asthma knowledge and asthma control. A p-value ≤ 0.05 was considered statistically significant.

RESULTS

Out of 196 participants, majority of children participants 119(60.7%) were male, and 77 (39.3%) were female. The age of the child participants ranged from 4 years to 12 years. The mean age of children was 8.94 years with ± 2.48 standard deviation. The mean age at the time of diagnosis of asthma was 5.77 years with ± 2.59 standard deviation. Nearly one fourth 47(24.0%) child participants had a history of allergic rhinitis, 179 (91.3%) had also seasonal allergy during weather changing especially in the winter season and, a very high proportion 190 (96.9%) had a history of food allergy. More than half of the children 108(55.1%) had a greater incidence of ED/Asthma clinic visits < 7 in the past six months, but 80(40.8%) children had 7-8 visits in the past six months and only 8(4.1%) children had visit > 8 in the past six months. 25(12.8%) children had a history of 1-2 hospitalization in the past six months. Nearly a half 90 (45.9%) participants had a family history of asthma, majority were Grandparents 62 (31.6%), 14 (7.1%) were close relatives (cousins/uncle/aunt), 9(4.6%) were parents and, sibling involvement was 5(2.6%). Majority of parent's participants 143 (73%) were female, and 53 (27%) were male.

Results on Parent's Asthma Knowledge

Regarding knowledge of parents about asthma control, there were 20 questions asked to assess the knowledge level. Majority of parents 158(80.6%) given correct answer that asthma is a disease of lungs and indicated that coughing, wheezing, shortness of breath, chest congestion are important warning signs of asthma. Another statement about asthma trigger factors, 184(93.9%) parents responded that "Dust, cigarette smoke, pollen are examples of Triggers" that initiate asthma in their children. A statement was related to aerosol therapy, 106(54.1%) parents identified correct answer that "The spacer is used with an inhaler make

the inhaler use easier and more efficient. A statement to check the knowledge of parents that "how parents manage, if their child develops an asthmatic attack at the middle of the night at home" 158(80.6%) parents answered correctly "Administration of medications via nebulizer, inhaler with or without spacer device". Majority of parents 144 (73.5%) responded, "Yes" asthma is an inheritance disease". A statement "Is asthma a contagious disease?" only 65 (33.2%) parents knew that asthma is not a contagious disease. A statement was "Do you think that asthma is curable?" 57 (29.1%) parents were agreed that asthma can't be cured. A statement was related to aerosol therapy, 194 (99.0%) parents were aware about aerosol therapy, they have clear concept about nebulizer, inhaler, spacer and mask. When asked another statement "Do you think aerosol therapy is harmful for your child?" 151 (77%) parents indicated that they were satisfied about aerosol therapy, its use was beneficial for their children, helpful in relieving asthma symptoms, and had not any bad effects on their children health. In response to a statement 154(78.6%) parents reported yes asthma was a common reason for school absenteeism.

In a statement 189 (96.4%) parents responded that "Cigarette smoke (Tobacco smoke) and dust may be the cause of an asthmatic attack in their children. Another statement was "Do exercise and sports in changing weather become fatal for an asthmatic child?" 149 (76.0%) parents indicated that exercise and sports in changing weather can be the cause of an asthmatic attack. So, overall among 196 parents 108 had sufficient knowledge about asthma. A relationship was not found between parents (gender) and the level of knowledge (p=.300). Only 108(55.1%) parents/ guardians had adequate knowledge about asthma. Generally, the percentage of female parents/ guardians was higher as compared to male parent's, but the difference was not statistical significant.

Parent's Knowledge and Asthma Control

The questionnaire to assess the relationship between knowledge and control of asthma consists of 7 questions. The first four questions of asthma control filled by the asthmatic children, the first question was "how your asthma is today" The response to this individual question determined that 72 (36.7%) children agreed on option 3(very good). The sum of 2 & 3 (good & very good) options depicted that 151(77%) of the children had good asthma control. A statement was "is asthma a problem when you run, exercise or play sports" 73 (37.2%) children indicated option 0(It's a big problem), 47 (24.0%) children indicated option 1(It's a problem and I don't like it). The sum of options 0 & 1 showed that more than half 120(61.2%) asthmatic children had problem while playing or exercise. Another statement was "do you cough because of asthma" which presented that majority 192 (98%) of the children suffered with cough because of asthma.

A statement was related to nocturnal awakening "do you wake up at night because of your asthma" that presented a huge percentage 182 (92.8%) of asthmatic children wake up at night because of asthma. The next three statements also likert scale items which filled by the parents. These statements discussed 4 weeks asthma control of asthmatic children. The first statement determined that "how many days in the past four weeks your child had any daytime asthma symptoms". 47 (24.0%) parents answered option 3(4-10 days/month), 50 (25.5%) parents answered option 4(1-3 days/month) and, 61 (31.1%) parents answered option 5(Not at all). Another statement determined the "frequency in the past four weeks of wheezing during the day in their asthmatic children". Results depicted that 38(19.4%) parents answered option 3(4-10 days/ month), 50 (25.5%) parents answered option 4(1-3 days/month) and, 79(40.3%) parents answered option 5(Not at all). The last statement illustrated "frequency in the past four weeks of night time awakening in their child". Results showed that 29(14.8%) parents answered option 3(4-10 days/ month), 64 (32.7%) parents answered option 4(1-3 days/month) and, 86(43.9%) parents answered option 5(Not at all).

Sr. No	Statements	Correct N (%)	Incorrect N (%)
1	Asthma is a disease of lungs.	158 (80.6)	38 (19.4)
2	Coughing, wheezing, shortness of breath, chest congestion are important asthma warning signs.	158 (80.6)	38 (19.4)
3	Dust, cigarette smoke, pollen are examples of triggers that start asthma attack.	184 (93.9)	12 (6.1)
4	The most important room in your house that should be "safe" from triggers for your child with asthma is the room where your child sleep.	180 (91.8)	16 (8.2)
5	Which of the following symptoms indicate that your child with asthma should stay home from school? Wheezing or coughing that does not go away after giving medicine.	173 (88.3)	23 (11.7)
6	If your child needs to take quick –relief medicine every day to stop asthma attacks, then you should. Call your doctor and ask for a long term control medicine.	186 (94.9)	10 (5.1)
7	The spacer is used with an inhaler. To make using an inhaler easier and more efficient.	106 (54.1)	90 (46)
8	What will you do, if your child develops asthmatic symptoms such as acute wheezing/ breathlessness with cough, at the middle of the night at home? Administration of medications via nebulizer, inhaler with or without spacer device.	158 (80.6)	38 (19.4)
9	Is asthma a heredity disease?	144 (73.5)	52 (26.5)
10	Is asthma a contagious disease?	65 (33.2)	131(66.8)
11	Do you think that asthma is curable?	57 (29.1)	139(70.9)
12	Do you know about aerosol therapy?	194 (99.0)	2 (1.0)
13	Do you think aerosol therapy is harmful for your child?	151 (77)	45 (23.0)
14	Does asthma a common reason for many school absences?	154 (78.6)	42 (21.4)
15	Can asthma be initiated by more than one cause?	187 (95.4)	9 (4.6)
16	Can asthma occur in all ages?	167 (85.2)	29 (14.8)
17	Is asthma more common in adults than in children?	105 (53.6)	91 (46.4)
18	Can asthma become a serious health problem, if it is not treated early?	196 (100)	0
19	Do cigarette smoke (Tobacco smoke) and dust lead to an asthmatic attack?	189 (96.4)	7 (3.6)
20	Do exercise and sports in changing weather become fatal for an asthmatic child?	149 (76.0)	47 (24.0)

Table-I
Parent's responses to Asthma Knowledge Questionnaire

	Parent/ Guardians Knowledge about Asthma			
		Knowledge		Total
		Inadequate	Adequate	
Parents / Guardians	Male	27	26	53
	Percent	50.9%	49.1%	100.0%
	Female	61	82	143
	Percent	42.7%	57.3%	100.0%
	Total	88	108	
	Percent	44.9%	55.1%	**196**
P- value 0.300				

Table-II
Parent's/Guardians' Knowledge about Asthma by sex

Sr. No	Questions (Completed by Child)	Asthma Control Summary				N= 196
		0 N (%)	1 N (%)	2 N (%)	3 N (%)	
1	How is your asthma today?	18 (9.2)	27 (13.8)	79 (40.3)	72 (36.7)	196
2	How much of a problem is your asthma when you run, exercise or play sports?/ Impaired activities	73 (37.2)	47 (24.0)	58 (29.6)	18 (9.2)	196
3	Do you cough because of your asthma?	75 (38.3)	9 (4.6)	108 (55.1)	4 (2.0)	196
4	Do you wake up during the night because of your asthma?/ Nocturnal awakening.	82 (41.8)	8 (4.1)	92 (46.9)	14 (7.2)	196

Table-III
Summary of Asthma Control

Sr. No	Questions (Completed by Guardian)	Asthma Control Summary						N= 196
		0 N (%)	1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)	
5	During the last 4 weeks, on average, how many days per month did your child have any daytime asthma symptoms?	2 (1.0)	13 (6.6)	23 (11.7)	47 (24.0)	50 (25.5)	61 (31.1)	196
6	During the last 4 weeks, on average, how many days per month did your child wheeze during the day because of asthma?	5 (2.6)	5 (2.6)	19 (9.7)	38 (19.4)	50 (25.5)	79 (40.3)	196
7	During the last 4 weeks, on average, how many days per month did your child wake up during the night because of asthma?	3 (1.5)	2 (1.0)	12 (6.1)	29 (14.8)	64 (32.7)	86 (43.9)	196

Table-IV
Summary of Asthma Control

DISCUSSION

Asthma is one of the most chronic pediatric disorders universally and a common health problem among children in Pakistan. Despite advancement in medical field, its incidence is rising all over the world including Pakistan. Several studies have suggested that morbidity and mortality from asthma have risen, however, there is little awareness about asthma in most of the developing countries and Pakistan is no exception.[15]

Both genetic and environmental factors interact with each other and give rise to asthma in children with recurrent episodes of wheezing, breathlessness and chest tightness as known asthma symptoms.[16] Optimal management of asthma can be achieved by educating patients and their parents about asthma, to make life-style changes, avoidance of potential asthma triggers[17] and compliance to medicine therapy even when patient is asymptomatic.[18] In current study 158 (80.6%) parents noticed that asthma is a disease of lungs and similar percentage 158 (80.6%) of parents indicated that coughing, wheezing, shortness of breath and, chest congestion are important warning signs of asthma. 84(42.90%) asthmatic children had mostly cough because of asthma. In current study 173 (88.3%) parents responded that their children should stay at home rather than going to school as asthma symptoms (wheezing & coughing) remain static despite medication and our study also found a positive association (.035*) of parent's guardians knowledge about asthma with education.

As education level increases knowledge about asthma also increases. In a study in China only 23.74% (590/2485) parents noticed that a chronic cough may indicate asthma in their children and only 20.97% (521/2485) parents perceived that recurrent exhausting cough, chest congestion, wheezing or dry cough after exercise or sleeping are alerts of an asthma attack. Thus, parents exhibited lack of awareness of clinical manifestations of asthma which is considered as warning sign of an asthma attack in their children. They also found that parent's educational level had a positive association (p 0.000*****) with asthma knowledge. Higher educated parents had more asthma knowledge and can better manage their asthmatic children. Educational level has a significant impact on parent's ability to acquire more asthma knowledge. Thus, improved asthma knowledge encourages the parents to correctly monitor their child's asthma symptoms, prompt asthma symptoms management and also adhere to their medication therapy.[19] In our study 186 (94.9%) parents reported that if their child needs to take quick –relief medicine every day to stop asthma attacks, then they will call their attending physician and will ask for a long-term control medicine. 158 (80.6%) parents also reported that their foremost priority is the administration of rescue medications via nebulizer, inhaler with or without spacer device whenever their child develops an asthmatic attack in the midnight at home. 196 (100%) parents reported that asthma can become a serious health problem, if it is not treated early and 90(45.9%) children suffered with nocturnal awakening at night because of asthma.

They all were 194 (99%) also well aware about aerosol therapy and different devices used for inhalation of their children (devices e.g. nebulizer, inhaler, spacer, mask etc.) and 151 (77%) parents reported that aerosol therapy is not harmful at all rather it is helpful in the treatment of asthma in their children.

All 196 children participants were on aerosol therapy and majority of participant's 111(56.6%) had been using aerosol therapy for months rather than years. A study conducted in neighboring India found that (61.2%) parents reported that bronchodilators should be started at home to their children in case of an acute asthmatic attack before approaching a physician. Majority of the parents (n=81, 95.3%) responded that even a mild asthmatic attack should be treated and parents (n=66, 77.6%) responded that even neglecting cases can lead to their child death during an acute asthmatic attack. For the optimum asthma control it is vital for the parents that acute attack be recognized and treated at the onset. These study findings are similar to our study (Lai et al., 1994). Another study was conducted in Islamabad where, parents had inadequate asthma awareness but 82% parents reported that inhalation therapy was effective in controlling asthma symptoms. The knowing about the effectiveness of inhalation therapy may be because most of the parents (98%) consulted the doctor for treatment rather than Hakims and homoeopaths (Hazir et al., 2002). The findings of our study showed that there was no association between asthma knowledge and the level of asthma control. Results also indicated that no relationship was found between parent's gender and asthma knowledge. Similarly, there was no significant association found between parent's gender and the level of asthma control.

There were 108 parents who had adequate knowledge about asthma, out of them 45(41.7%) children had asthma control. There were 88 parents who had inadequate knowledge about asthma, out of them 36(40.9%) children had asthma control. A study was conducted in China (2013) illustrated that (51.34%) of the parents had poor knowledge regarding asthma but knowledge and attitudes were positively associated with regular physician visits, children asthma control questionnaire and avoidance of asthma triggers ($p \leq 0.05$). Improving parent's knowledge and attitudes may encourage better practices in controlling asthma in their children.[19] So, overall majority of parents have adequate knowledge regarding asthma, but this knowledge is not linked with asthma control. This good asthma knowledge may be because of many reasons. Firstly, frequent asthma clinic visits by the parents with their asthmatic child, discussing child condition with the physician and solving their queries regarding asthma and following the physician advices. Secondly, when they visit asthma clinic and meet with other patients they discuss their child disease with each other and in this way, they also can get more information regarding asthma. Thirdly, Media also plays a role in enhancing parent knowledge regarding asthma. Fourthly, a valuable role of an asthma clinic nurse, who not only assists the patient in aerosol therapy but also educates them regarding asthma.

CONCLUSION

Results of this study suggests that more than 50% (108/ 196) of the parents/ guardians have adequate knowledge about asthma and there was no association found between asthma knowledge and the level of asthma control. However, we need to empower Pakistani community via a national asthma awareness program, smoking cessation campaign and empower the health care team with up-to-date knowledge about asthma management.

REFERENCES

1. Peters SP, Jones CA, Haselkorn T, Mink DR, Valacer DJ, Weiss ST. **Real-world evaluation of asthma control and treatment (REACT): Findings from a national web-based survey.** J Allergy Clin Immunol. 2007; 119: 1454–61.

2. Andrea R, Carolina S, Juan C, Celedón, Oslando PS, Klaus P, et al. **Caregiver's depressive symptoms and asthma control in children from an underserved community.** J Asthma. 2017. Available from: DOI: 10.1080/02770903.2017.1292281.

3. Susan P, Susan M, April LS. **Perceptions of asthma quality of life in children and parent dyads in two rural counties in west virginia.** J. Sch. Nurs. 2015.

4. Silva CM, Barros L. **Asthma knowledge, subjective assessment of severity and symptom perception in parents of children with asthma.** J Asthma. 2013; 50(9):1002–1009.

5. Kampe M, Lisspers K, Stallberg B. et al. **Determinants of uncontrolled asthma in a Swedish asthma population: Cross-sectional observational study.** Eur Clin Respir J. 2014.1-9.

6. Lani S, Bartholomew K, Boehm B. **Managing asthma a guide for schools, National asthma education and prevention program.** National Institutes of Health National Heart, Lung, and Blood Institute. 2001.

7. Rais H, Arif F, Santosh, S. **Asthmatic children; Knowledge and practices in the parent.** Professional Medical Journal. 2014; 21(4): 739-744.

8. Hazir T, Das C, Piracha, F, et al. **Carers' perception of childhood asthma and its management in a selected Pakistani community.** Arch Dis Child. 2002; 87:287–290.

9. Butz A, Pham L, Lewis C, et al. **Rural children with asthma: Impact of a parent and child asthma education program.** J Asthma. 2005; 42(10): 813–821.

10. Zaho J, Shen K, Xiang L, et al. (2013). **The knowledge, attitudes and practices of parents of children with asthma in 29 cities of China: A multi-center study.** BMC Pediatrics.2013; 1-6.

11. Stephens T, Yuelin L, **Community asthma education program for parents of urban asthmatic children.** J Natl Med Assoc. 2004; 96(7):954- 960.

12. Shivbalan S, Balasubramanian S, Anandnathan K, **What Do Parents of wectvyuk90-erwqghjAsthmatic Children Know About Asthma? An Indian Perspective.** Indian J Chest Dis Allied Sci. 2004; **47:** 81-87.

13. Somple B, Honors Research Thesis. **Congruence of perception of asthma control between parents, children, and clinicians.** The Ohio State University College of Nursing. 2007.

14. Alain L, Christophe M, Sarah H, Bernadette BM, Daniel D, **Patients' perception of asthma severity.** Respir Med. 2007; 101:2145–2152.

15. Waseem S, Jamal S, Naz F, et al. **Management of acute asthma in children using metered dose inhaler and small volume nebulizer.** JPMA. 2006; 56(12): 595.

16. Anwar M, Khan M, Muhmmad S, et al. **Prevalence of allergy and asthma in school children of Islamabad, Pakistan.** World Appl. Sci. J. 2009; 6 (3): 426-432.

17. Hawkins A, Painter L, Richter S, **Managing childhood asthma in the school environment.** 2011; 12(1): 33-39.

18. Zaraket R, Tannir M, Abdulhak A, et al. **Parental perceptions and beliefs about childhood asthma: A cross-sectional study.** Croat Med J. 2011; 52: 637-43.

19. Zaho 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 Pediatrics. 2013; 1-6.

AUTHORSHIP AND CONTRIBUTION DECLARATION

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1	Razia Sultana	Conception of idea, Data collection, Thesis writing and compilation.	
2	Mansoor Ghani	Assistence in writing up thesis, Guidance, Proof reading, Data analysis.	
3	Tahira Yasmeen	References writing.	
4	Shazia Ashraf	Proof reading, Discussion.	