



Parental Knowledge about Bronchial Asthma and Its Impact on the Quality of Life of Their Children

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ABSTRACT

Background

Parents and carers of asthma patients have been the subject of little study, however there is a dearth of information from studies undertaken in India. As a result, we intended to determine if parents' asthma knowledge influences the quality of life and symptom management of their children with asthma.

Methods: This was Observational Cross-sectional study conducted among 99 patients with diagnosis of bronchial asthma at the Department of Paediatrics, in Base Hospital, New Delhi, during the period from January 1, 2021 to December 31, 2021 after obtaining clearance from the Institutional Ethics Committee before commencement.

Results: Observed that among those with satisfactory parental knowledge, 53.7% had well controlled asthma, 22% had partially controlled asthma and 24.4% had uncontrolled asthma. These proportions are similar to that in parents with not satisfactory knowledge levels. In this group, 55.2% had well controlled asthma, 20.7% had partially controlled asthma and 24.1% had uncontrolled asthma. Thus, we observed that parental knowledge was not significantly associated with GINA asthma control levels (p value = 0.98).

Conclusion: The score for symptom management was greater among parents with a sufficient degree of knowledge, however this difference was not statistically significant. There was no significant association between parental knowledge and GINA asthma control levels in our study.

Keywords: Bronchial Asthma, Children, Respiratory Infections, Asthmatic Symptoms.

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INTRODUCTION

Asthma is a chronic inflammatory illness of the airways marked by recurring bouts of airflow blockage caused by edema, bronchospasm, and increased mucus production. The atopic trio consists of these three disorders, which are often connected with seasonal allergies (allergic rhinitis) and eczema (atopic dermatitis). Asthma's precise cause remains

unknown and seems to be complex. It seems that both hereditary and environmental variables are involved. A family history of asthma is a risk factor, although it is not required nor sufficient for the disease's development.¹ Multiple prenatal and childhood environmental exposures are connected with the development of asthma. One of the most



well investigated prenatal risk factors is mother smoking, which seems to raise the likelihood of childhood wheeze and probably also the risk of developing asthma.ⁱⁱ Other hypothesised prenatal risk factors include maternal food and nutrition, stress, the use of antibiotics, and birth by Cesarean section; however, research on these aspects has been less definitive. Numerous childhood exposures have also been investigated. Exposure to tobacco smoke seems to raise the likelihood of developing asthma and is also a recognised trigger for asthma exacerbations in those already afflicted. In addition to animal, mite, mould, and other allergies, significant risk factors include air pollution.

Numerous additional putative risk variables remain unknown, and research are often conflicting or inconclusive. Controversy surrounds the effect of nursing and the avoidance of allergies during breastfeeding. Family size and composition has been suggested as a risk factor; an increase in family size may be protective, although birth order is less likely to be a role. There are links between low socioeconomic position and greater morbidity, however the increased incidence is debatable. Viral lower respiratory infections and the use of antibiotics have been linked to wheezing in young children, but their involvement in the development of chronic asthma is unclear. There is a correlation between Respiratory syncytial virus (RSV) and asthma, but not a causal relationship. Viruses of the respiratory system are known to aggravate asthma.ⁱⁱⁱ

Asthma is characterised by coughing, wheezing, chest tightness, and shortness of breath. Symptoms are often episodic and may be induced by a variety of reasons, including as upper respiratory tract infections, exertion, allergen exposure, and airway irritants such as cigarette smoke.^{iv} They may be harsher at night as well. As previously mentioned, a traditional trifecta of asthma, eczema, and allergies occurs, and it is important to have a personal or family history of these conditions in young children who may not have a formal diagnosis. RAD (reactive airway disease) or repeated WARIs (wheezing-associated

respiratory infections) may precede a formal diagnosis of asthma in youngsters.

Asthma management is crucial to the treatment of asthma and is described as the degree to which daily therapies reduce asthmatic symptoms, such as requiring daily reliever medicine to complete daily activities or waking up during the night with asthmatic symptoms. For children with uncontrolled asthma, the long-term hazards include asthma episodes, decreased lung development, a loss in lung function, and therapeutic side effects. Although there are effective therapies for treating asthmatic symptoms, a significant number of youngsters do not have their asthma adequately under control and are limited in their daily activities. The objective of asthma therapy for children is for parents to regulate symptoms, limit future hazards for the kid, and have little impact on the child's everyday activities. However, parents of children with asthma often lack understanding about asthma and the necessary preventive steps to reduce asthma exacerbations. The strategies used by parents to manage their child's asthma might differ depending on their degree of knowledge, perceptions, fears, and health beliefs.^v A lack of parental asthma understanding might result in inadequate care for a kid with asthma. Health care practitioners employ asthma action plans and asthma education to educate children and parents how to spot the early warning signs of asthma exacerbations and how to successfully treat and manage the chronic condition. When parents have enough understanding about asthma, they offer better care for their asthmatic kid.^{vi} A thorough understanding of asthma requires awareness of symptoms, causes, and potential therapies. However, not all parents possess the expertise necessary to properly manage asthma symptoms.^{vii}

There is a correlation between parental asthma knowledge and parents' feelings of preparedness, confidence, and competence in managing their child's asthma.^{viii} Fewer emergency department visits, fewer hospitalizations, and better asthma management are reported by parents with asthma awareness.^{ix} Poor parent asthma awareness has been associated with inefficient

asthma control practices that often result in inadequate asthma treatment for children. Additionally, parents of children with asthma endure elevated levels of stress, which may negatively impact their overall quality of life (QoL). Adjusting to the new job of caring for a kid with a chronic condition, such as asthma, may be distressing, particularly when symptoms are not adequately managed. Parents of children with chronic diseases have a worse quality of life than parents of healthy children, according to research.^x Parent asthma awareness is associated with parental control of their child's asthma, and parental control of their child's asthma is associated with parent quality of life.^{xi} These results revealed that parental management of their child's asthma moderated the association between parental asthma awareness and parental quality of life. However, no studies has examined this correlation.

AIMS AND OBJECTIVES

Aim

Assessment of Parental knowledge about Bronchial Asthma and its correlation with the level of Asthma control and the quality of life of their children.

Objectives

- To assess parents' knowledge about asthma using 'Newcastle Asthma Knowledge Questionnaire'.
- To assess the quality of life of asthmatic children using 'Mini-Pediatric Asthma Quality of Life Questionnaire'
- To assess the impact of parents' knowledge about asthma on the quality of life of their children.
- To assess the impact of parents' knowledge and level of control of the disease using GINA guidelines.

MATERIAL AND METHODS

The Observational cross-sectional study was in the period of January 1, 2021 till December 31, 2021 (1 year) Department of Paediatrics, Base Hospital, New Delhi. The study protocol conforms to the Declaration of Helsinki and was approved by the Institutional Ethics Committee before commencement. Assent is

defined as a child's affirmative agreement to participate in research. Oral assent was obtained in presence of parents for children 7 to 11 years. Written assent was obtained from children aged 12 to 15 years. The patients were not subjected to any extra cost because of the study.

INCLUSION CRITERIA

Children aged 7 to 15 years with diagnosis of bronchial asthma for at least 6 months attending outpatient clinic of our department. Either parent available for interview.

EXCLUSION CRITERIA

Children with cognitive and motor limitations. Children with any other lung conditions. Illiterate parents.

Sample size was calculated determined using the following formula:

$$N = (Z_{\alpha/2})^2 * (PQ) / E^2$$

N = Sample size

$Z_{\alpha/2}$ = Z value at confidence level of 95% (1.96)

P = Taken as 41.9% (Roncadaet *a/Error! Bookmark not defined.* found that 41.9% of the parents of asthmatic children had acceptable levels of knowledge about asthma)

Q = 1-P

E = Allowable error taken as 10%

$$N = \frac{(1.96)^2 * (0.419 * 0.581)}{(0.1)^2}$$

N = 93.5.

So, a minimum of 95 children fulfilling the study criteria will be included in the study.

STATISTICAL ANALYSIS

The analysis included profiling of patients on different demographic, laboratory and clinical parameters. Descriptive analysis of quantitative parameters was expressed as means and standard deviation. Ordinal data were expressed as absolute number and percentage. Cross tables were generated and chi square test was used for testing of associations Student t test was used for comparison of quantitative parameters. P-value < 0.05 is considered statistically significant. All analysis were done using SPSS software, version 24.0.



RESULTS: As tabulated below

Patient Profile		
<i>According to their age</i>		
Age groups (years)	Frequency	Percent
7 to 10	58	58.6
11 to 15	41	41.4
Total	99	100
<i>According to their gender</i>		
Sex	Frequency	Percent
Female	42	42.4
Male	57	57.6
Total	99	100
<i>According to the age at onset of asthmatic symptoms</i>		
Age (years)	Frequency	Percent
4	10	10.1
5	31	31.3
6	35	35.4
7	23	23.2
Total	99	100
<i>According to the family history of asthma</i>		
Family historyAsthma	Frequency	Percent
No	74	74.7
Yes	25	25.3
Total	99	100
<i>According to the severity of asthma</i>		
Asthma Severity	Frequency	Percent
Step 1	33	33.3
Step 2	66	66.7
Total	99	100
<i>According to the current treatment</i>		
Treatment	Frequency	Percent
As-needed low-dose Foracort inhaler (Budecort + formoterol)	33	33.3
Daily low-dose Budacort plus as-needed Asthalin or as-needed low-dose Foracort	66	66.7
Total	99	100

Treatment profile		
According to the current treatment		
Treatment	Frequency	Percent
As-needed low-dose Foracort inhaler (Budecort + formoterol)	33	33.3
Daily low-dose Budacort plus as-needed Asthalin or as-needed low-dose Foracort	66	66.7
Total	99	100
According to treatment compliance		
Treatment Compliance	Frequency	Percent
No	15	15.2
Yes	84	84.8
Total	99	100

Assessment Profile				
According to asthma control level according to GINA guidelines				
Characteristic assessed for last 4 weeks	Frequency	Percent		
Daytime Asthma symptoms more than twice per week?	25	25.3		
Any night waking due to asthma?	30	30.3		
Reliever (Asthalin) needed for symptoms more than twice per week?	26	26.3		
Any activity limitation due to asthma?	31	31.3		
GINA Asthma control level				
Well controlled	54	54.5		
Partially controlled	21	21.2		
Uncontrolled	24	24.2		
Total	99	100		
Parents according to knowledge levels according to NAKQ				
NAKQ level	Frequency	Percent		
Not satisfactory (< 21)	58	58.6		
Satisfactory (≥ 21)	41	41.4		
Total	99	100		
Scores of various subscales of Mini-PAQLQ among patients.				
Mini-PAQLQ	Mean	Std. Deviation	Minimum	Maximum
Symptom control score	4.40	1.40	2.17	7.00
Emotional score	5.37	1.64	1.75	7.00
Activity limitation score	5.40	1.29	3.67	7.00



Association Parameters										
Association of quality of life scores of patients with parental knowledge levels										
		NAKQ level								
		Satisfactory (n=41)		Unsatisfactory (n=58)				p value*		
Mini-PAQLQ		Mean	SD	Mean	SD	Mean	SD			
Symptom control score		4.61	1.47	4.25	1.35	4.25	1.35	0.22		
Emotional score		5.10	2.09	5.56	1.21	5.56	1.21	0.16		
Activity limitation score		5.92	1.14	5.90	0.81	5.90	0.81	0.91		
*analysed using student's t test										
GINA Asthma control level										
		Well controlled (n=54)		Partially controlled (n=21)		Uncontrolled (n=24)		Total		p value*
Mini-PAQLQ		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Symptom control score		4.68	1.50	4.24	1.36	3.90	1.06	4.40	1.40	< 0.05
Emotional score		5.57	1.50	5.06	1.80	5.20	1.82	5.37	1.64	0.41
Activity limitation score		5.53	1.38	5.35	1.23	5.17	1.14	5.40	1.29	0.51
*analyzed using one-way ANOVA test										
Association of GINA asthma control level with parental knowledge level										
		NAKQ level				Total				
GINA Asthma control level		Satisfactory (n=41)		Not satisfactory (n=58)						
Well controlled		N	22	32	54					
		%	53.70%	55.20%	54.50%					
Partially controlled		N	9	12	21					
		%	22.00%	20.70%	21.20%					
Uncontrolled		N	10	14	24					
		%	24.40%	24.10%	24.20%					
Total		N	41	58	99					
		p value* = 0.98								
*analysed using chi-square test										

DISCUSSION

In this observational cross-sectional study, children aged 7 to 15 years with diagnosis of bronchial asthma for at least 6 months attending outpatient clinic of our department were included. Quality of life of the patients was assessed using Mini-PAQLQ scale, which has three subscales, symptom control score, emotional score

and activity limitation score. Patients were assessed to know their level of control according to GINA guidelines. Furthermore, parental knowledge about asthma was assessed using NAKQ. Parents with a knowledge score of ≥ 21 were considered as adequate knowledge. In this study, we aimed to assess the association of parental



knowledge with quality of life of children and their control. The results of our study are discussed as follows.

Demographic profile

In the current research, there were 99 participants. The average age of the patients was 10.08 ± 2.29 years, with a range between 7 and 15 years. 58.6% of the patients were between the ages of 7 and 10 years old. Gender wise, 42.4% of the patients were females and 57.6% males. While 31.3 % had asthma at 5 years of age and 35.4 % at 6 years of age.

In Rocanda *et al.*'s study the mean age of Asthma Group patients was 10.22 ± 3.12 years, and 33 (53.22 %) of them were female. Cabello *et al.* had an average age of 84 years, with 203 males (59 %) and 141 girls (41 %) among the patients. Albarraq *et al.*'s study comprised both men (47.2%) and females (52.8%) (58.8 %) with a mean age of 7.9 years and 2.3% standard deviation.^{xii} In the research of Amorha *et al.*, about a quarter ($n = 13$, or 25.5%) had asthmatic relatives. Seventy-six % ($n = 39$) of the asthmatic children of the carers were between 6 and 14 years old. The majority of these children were initially diagnosed with asthma between the ages of 3 and 8 ($n = 25$, 49.0 %). In the research conducted by Venugopal *et al.*, the average age of asthmatic children was 5.36 years 1.8%.^{xiii} There were 53.80% men ($n = 163$) and 46.80% females ($n = 140$) in the sample. In Zhao *et al* research^{xiv} there were 1660 male children (66.8 %) and 825 female children (33.2%). The average duration of their illness was 2.81 ± 2.09 years, and their average age was 7.20 ± 3.09 years. In separate research by Fontan *et al.*, 63 boys (62,4 %) with a mean age of 10.11.9 years were included. Verma *et al.* had children aged 7 to 15 with asthma. 55 (64.7%) of the 85 patients enrolled for their research were men, whereas 30 (35.3%) were women. Seventy-six instances (76.5%) were between 7 and 10 years old, while twenty (23.5%) were between 11 and 15 years old.

Clinical information

In our research sample, 25.3% had asthma in their family tree. Step 1 asthma severity was reported in 33.3% of patients, whereas step 2 asthma severity in 66.7% of patients. 33.3 % participants in this trial were using low-dose Budecort and formoterol inhaler as required, and the remaining patients received low-dose Budecort daily in addition to as-needed Asthalin or as-needed low-dose Foracort. 84.8 % of patients were complying with recommended medicine, as observed. 54.5 % of participants had well-controlled asthma, 21.2% had partially controlled asthma, and 24.2% had uncontrolled asthma.

Albarraq *et al.* showed that the frequencies of asthmatic episodes were statistically significant (p value < 0.05) both during the day and at night (43.2 % of children) and that the prevalence of asthma among siblings was 41.2%. Most asthmatics were moderate in character (70.4%; p value < 0.05), whereas 29.6% of children were severe asthmatics. Rocanda *et al.* found that 23 (37.1%) of the children had mild persistent asthma, 24 (38.7%) had moderate persistent asthma, and 15 (24.2%) had severe persistent asthma. In another research, Venugopal *et al.* found that 29.70% ($n = 90$) of the patients in the study group had a positive family history of asthma and 41.91% ($n = 127$) of the children had asthma under control, whereas 58.09 % ($n = 176$) did not. In the research by Fontan *et al.*, 43 patients (42.6%) had managed asthma, 32 (31.7%) had partially controlled asthma, and 26 (25.7%) had uncontrolled asthma.

Quality of life of patients

The Mini-PAQLQ scale consists of three subscales: symptom management, emotional, and activity restriction. The mean score for symptom management was 4.4 ± 1.4 , ranging from 2.17 to 7. The average emotional score was 5.37 ± 1.64 , with a range of 1.75 to 7. And the mean score for activity restriction was 5.4 ± 1.29 , with a range of 3.67 to 7. In addition, 4.68

± 1.50 vs. 4.24 ± 1.36 and 3.90 ± 1.06 , $p < 0.05$; mean symptom control score was substantially higher in patients with well-controlled asthma compared to children with moderately managed and uncontrolled asthma, respectively.

In a comparable research conducted by Verma *et al.*, the scores for Symptoms, Emotions, and Activity Limitation were 4.71 ± 1.65 , 3.74 ± 0.86 , and 4.67 ± 1.63 respectively. Total mean QOL 3.59 ± 0.93 . Total QOL was 4.18 ± 0.99 for younger children (7-10 years) and 4.32 ± 1.01 for older children (11-15 years). Well-controlled asthmatics scored higher in all three QOL areas and overall than those whose asthma was only partially managed. Amorha *et al.* reported that the total PACQLQ score indicated a low quality of life. The carers were both physically and emotionally disadvantaged. The total PACQLQ score was 3.91 ± 0.98 , indicating a low quality of life. Activity (3.95 ± 1.07) and emotional function (3.89 ± 1.08) were deteriorated. Lower QoL among carers of children with poorly managed asthma has been linked to higher levels of life stress, increased asthma caregiving stress, and worse asthma control over time.^{xv} Caregivers of children with uncontrolled asthma have increased job and activity impairment, resulting in worse QoL for emotional, time-related, and family-related activities.^{xvi}

In a separate research, Banhos *et al.* found that comparing findings by asthma control group revealed statistically significant differences for the variables chest tightness ($p = 0.02$) and wheezing or shortness of breath at rest ($p = 0.02$).

Fontan and colleagues found a correlation between asthma control and severity and total and domain PAQLQ scores. Patients with moderate to severe QOL impairment were more likely to have moderate/severe asthma (odds ratio [OR] = 2.03; 95% confidence interval [CI] = 1.03–3.93; $p = 0.04$) and to have partially controlled/uncontrolled illness (OR = 2.39; 95% CI = 1.17–4.9; $p = 0.01$).

Noushadali *et al.* found that individuals with intermittent asthma had higher mean quality of life ratings in all areas compared to those with mild and moderate asthma at the first, second, and third visits. In a comparable research, Wander *et al.* evaluated the patients' quality of life using the Pediatric Asthma Quality of Life Questionnaire (Standardized), PAQLQ(S). The mean overall score was highest in the intermittent category (mean overall score = 5.58, mean activity limitations = 5.77, mean symptoms = 5.41, mean emotional function = 4.95) and lowest in the moderate persistent category (mean overall score = 3.87, mean activity limitations = 4.20, mean symptoms = 3.73). Among all severity categories, emotional function was the most affected domain ($p = 0.011$), followed by symptoms ($p = 0.017$), and activity limits was the least impaired ($p = 0.007$). In addition, the mean overall score and individual domain scores were highest in the controlled category, followed by the partly controlled category, and the least in the uncontrolled category (mean overall score $p = 0.001$, activity limitations $p = 0.001$, symptoms $p = 0.005$, emotional function $p = 0.003$).

Parental knowledge of asthma

On the basis of the NAKQ, we determined that 41.4% of respondents had good knowledge, while the remainder had poor knowledge. We found that none of the Mini-PAQLQ subscales were substantially correlated with NAKQ knowledge levels. The mean score for symptom management was greater among those with adequate parental understanding; however, the difference was not statistically significant (4.61 ± 1.47 vs. 4.25 ± 1.35 , $p = 0.20$). Similarly, neither the mean emotional score (5.10 ± 2.09 vs. 5.56 ± 1.21 , $p = 0.16$) nor the mean activity restriction score (5.92 ± 1.14 vs. 5.90 ± 0.91 , $p = 0.91$) were significantly linked with adequate parental awareness. In addition, parental knowledge was not significantly linked with asthma control levels as measured by GINA ($p = 0.98$).

In the research by Rocanda, the overall mean of the sample was 18.06 ± 4.11 points out of a maximum of 31 points specified by NAKQ; when evaluated by group, the overall averages of correct responses were 17.21 ± 4.03 points for the Control Group and 19.32 ± 3.92 points for the Asthma Group, ($p=0.001$). Only 47 (30.5%) of parents demonstrated appropriate levels of asthma knowledge (21 points). The comparison of the subgroups' mean scores revealed statistically significant differences only between healthy participants and those with moderate asthma and asthmas in remission and those with moderate asthma ($p=0.02$).

In a recent research conducted in India, Divechas *et al.* found that just 32.14 % of parents had appropriate asthma knowledge.^{xvii} One of the researchers gave the "Patient Education Module" to the parent/guardian in small groups of five to seven as an intervention. The educational intervention resulted to a considerable change in parental knowledge and attitudes, as shown by the authors. Despite the fact that the intervention resulted in a reduction in asthma severity, the difference was not statistically significant.

48.18 % (146/303) of the parents successfully answered >60 % (at least 7 right answers out of 11) of the knowledge questions (mean = 6.57 ± 2.06), according to Venugopal *et al.* Eighty-eight % ($n = 245$) of parents were aware that asthma is a lung illness, but 29.04 % ($n = 88$) were unaware that asthma may produce recurring symptoms. 50.7 % ($n = 74$) of the 146 children whose parents had knowledge levels over 60 % had managed asthma, whereas 49.3 % ($n = 72$) had uncontrolled asthma. 33.8 % ($n = 53$) of the 157 children whose parents had knowledge levels below 60 % had managed asthma, whereas 66.2 % ($n = 104$) had uncontrolled asthma. A substantial correlation was established between parental knowledge and their children's asthma management.

A research done in the Canary Islands, Spain, including 95 parents of asthmatic children evaluated at an emergency facility

revealed that about 80% of these parents were unable to identify the primary asthma exacerbation triggers.^{xviii} In a research conducted at Santander, Spain, among 344 parents of asthmatic children in a hospital, the average number of correct responses to the NAKQ questionnaire was 18.5 points, indicating an unacceptable level of knowledge.^{xix}

Amorha *et al.* discovered that a quarter of the carers ($n = 14$, 27.5%) were aware of the three most common asthma symptoms. The majority ($n = 46$, 90.2%) was aware that asthma attacks may be caused by constriction of the airway walls in the lungs. After classifying the overall knowledge score with a median score of 14, fewer than half of the caregivers ($n = 24$, 47.1%) had strong understanding of asthma. More than half of the caregivers selected dust ($n = 35$, 68.6%) and smoke ($n = 31$, 60.8%) as the most prevalent asthma causes in their children.

Using a KAP questionnaire Zhao *et al.* assessed parental asthma knowledge. The questionnaire's knowledge section had 13 items. The mean score was 5.69 ± 2.10 , and 18.31% of parents scored at or above 8. In this analysis of the asthma-related knowledge, attitudes, and practises (KAP) of Chinese parents of children with asthma, a large gap was found between suggested and actual behaviours, and their total asthma-related knowledge was inadequate. In addition, asthma-related knowledge was connected with care process problems. They also discovered a correlation between parental education and asthma treatment and preventative activities.

The average NAKQ score in the research by Cabello *et al.* was 18.5 points. In terms of general asthma knowledge, 80.2% of respondents were aware of the prevalence of paediatric asthma, 76.2% were aware that children with asthma had unusually sensitive pulmonary airways, and 60% believed that asthma was not hazardous to the heart. When it comes to acute asthma attacks, only 4.4% of individuals were able to identify the three primary triggers (colds, allergens, and exercise). 63.1% of

respondents were aware antibiotics are not a substantial element of asthma maintenance therapy, whereas 86.9% were aware that allergy injections do not cure asthma.

Albarraq *et al.* found that the majority of parents were unfamiliar about the pathophysiology (causes) of childhood asthma, but were aware of the triggering variables. In addition, a substantial association between caregivers' awareness of paediatric asthma and their management practices was shown.

Banhos *et al.* indicated weak theoretical understanding of the procedures, with no significant differences across groups ($p = 0.08$). However, the proportion of parents with good practical knowledge of inhalation procedures was substantially greater in the completely controlled asthma group compared to the other groups ($p 0.01$). Parents of children with better asthma control had a stronger awareness of the prescription literacy and comprehension of prescription instructions and kind of therapy. There were no statistically significant differences between asthma control groups in terms of health literacy. In contrast, the group with partially managed asthma had poorer asthma knowledge scores than the other groups ($p = 0.04$).

CONCLUSION

The mean symptom control score on the Mini-PAQLQ ranged from 2.17 to 7, the mean emotional score ranged from 1.75 to 7, and the mean activity restriction score ranged from 3.67 to 7. Although none of the Mini-PAQLQ subscales were substantially linked with knowledge levels according to the NAKQ. In kids with well-controlled asthma, the mean score for symptom control was considerably higher than in children with partly managed or uncontrolled asthma.

CONFLICT OF INTEREST: None

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