Assessment of Misconceptions and Management of Parents of Asthmatic Children in Saudi Arabia: A Cross-Sectional Study

Jood Alzohari[1], Rewa Alsharif[2], Roaa alharbi[3], Randa Alsweed[4], Thikra Atafi[5], Raghad Rayes[6], Shatha Alharthi[7], Nouf Alballaa[8], Ali Alnajim[9], Abdulrahman Alnaim[10], Mohammed Albarqi[11], Mohammed-Elfatih Twfieg[12], Khalid Al Noaim[10]*.

1 MBBS, collage of medicine Jeddah university ,Saudi Arabia
2 College of Medicine, King Saud Bin Abdulaziz University For Health Sciences, Jeddah, Saudi Arabia
3 Collage of Nursing, King Abdulaziz University, Jeddah , Saudi Arabia
4 MBBS, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia
5 MBBS, College of Medicine, Jazan University , Saudi Arabia
6 College of medicine, King Abdulaziz University Jeddah ,Saudi Arabia
7 MBBS, Faculty of Medicine, Taif University, Taif, Saudi Arabia
8 Medicine Program, Batterjee Medical College, Jeddah 21442, Saudi Arabia.
9 Collage of Medicine , King Faisal University, Hofuf , Saudi Arabia
10 Departments of Pediatrics, College of Medicine, King Faisal University, Al-Ahsa, Saudi Arabia
11 Family medicine department, College of Medicine, King Faisal university
12 Department Of Biomedical Sciences, College Of Medicine, King Faisal University, Al-Ahsa 31982, Saydi Arabia

Corresponding author:
Khalid Al Noaim
Departments of Pediatrics, College of Medicine, King Faisal University, Al-Ahsa, Saudi Arabia
Email: dr.alnoaim@outlook.com

KEYWORDS

Bronchial asthma, Misconceptions, Knowledge, Management, Wheezing

ABSTRACT

Introduction: Asthma is the leading chronic respiratory disease affecting children and significantly impacts quality of life, especially in Saudi Arabia. In this study, we evaluated parental knowledge and practices regarding asthma management, identifying gaps that hinder effective control of the condition.

Methods: A cross-sectional survey was conducted in April 2024, using a convenience sample of parents from various regions of Saudi Arabia. A 10-item questionnaire distributed via social media was used to assess participants' understanding of asthma management.

Results: The survey involved 134 parents, predominantly mothers (73.1%) with varied demographics distributed across different regions of Saudi Arabia. The analysis revealed that the vast majority (90.3 %) of parents lacked sufficient knowledge regarding the effective management of childhood asthma. Notable misconceptions included a substantial belief among parents that inhalers could lead to prolonged dependency, with 31.3% agreeing that inhalers were potentially addictive. Furthermore, 62% of the respondents erroneously believed

that asthma medications should only be administered when symptoms are evident, indicating a reactive rather than preventive approach to asthma management. Additional findings have highlighted concerns over inhaler usage without a spacer, with many parents being unaware of the benefits of this device for medication delivery. This study also revealed a lack of awareness regarding the importance of regular medication adherence in the effective management of asthma. Despite the availability of information, there was significant reliance on emergency services, with a considerable proportion of parents opting to take their children to emergency rooms for mild asthma symptoms, underscoring the urgent need for better educational outreach and resources.

Conclusion: Our findings revealed a significant need for educational programs to improve parental management of childhood asthma in Saudi Arabia. Addressing these knowledge gaps could enhance disease outcomes and reduce healthcare burden.

Introduction

Asthma has been recognized as the most common chronic disease in children and has exacerbated public health concerns due to its increased burden. [1] Asthma is a chronic inflammatory disease of the lungs and airways that occurs because of hypersensitivity to stimuli such as viruses or allergens. As a result, airway blockage occurs, causing respiratory tract symptoms, such as shortness of breath, coughing, and wheezing. However, changes in weather and exercise can trigger asthma exacerbation.[2] There are more than 300 million cases, including adults and young people, worldwide.[3] The Saudi Asthma Initiative (SINA) estimates that the prevalence of asthma in children ranges from 8% to 25% in the country.[4] Lack of control over asthma and mismanagement affect children's quality of life in many ways, such as frequent emergency visits, non-participation in regular activities, and constant absenteeism; therefore, parents' awareness is important to reduce the severity of the disease [5].

Research indicates that childhood asthma control is affected by several factors such as lack of parental education, unfavorable environments, irregular use of medication, and infrequent visits to asthma clinics. [6-8] Parents often underestimate the severity and control of their children’s asthma. [6,9] A study found that (79.6%) of parents whose children had asthma had a moderate level of knowledge about their child’s condition; however, almost half of them had misconceptions about asthma treatments. During acute episodes, more than half of the participants (54.5%) massaged their children’s chest or back, and (52.4%) offered homemade or herbal medicines. [10] On the other hand, (61%) of the respondents who reported regularly visiting an asthma clinic had a high knowledge score. Likewise, only 53.9% of parents routinely visited pediatric clinics in a recent study conducted in Riyadh, Saudi Arabia [11]

A study in Saudi Arabia indicated that parents who had misconceptions about when to stop taking asthma medication to their children had a three-fold greater prevalence of uncontrolled asthma. They believed that when a severe asthma attack had passed and

coughing had ceased, the medication should be withdrawn. [12] The frequency of uncontrolled asthma is often due to parental misconceptions regarding asthma, such as using inhaled corticosteroids only when symptoms appear and not using the inhaler for extended periods. [13] Another important observation was that parents of children with asthma had significant misperceptions regarding the use of inhalers and the safety of inhaled corticosteroids. 67% prefer oral treatment, 48% believed that inhalers were addictive, 56% were worried about the side effects of inhalers, and 76% were concerned about using inhaled corticosteroids. [11,14] However, there are concerns regarding medications and their adverse effects. Medication use is influenced by parental beliefs and opinions. Proper home management and prompt intervention by physicians are crucial for effective asthma treatment. [6,15]

Secondhand smoke exposure can cause respiratory issues in children because children exposed to parental smoking have a higher frequency of respiratory problems. [16] A study in Riyadh, Saudi Arabia showed that participants had limited knowledge about the condition, with nearly two-thirds believing that smoking outside the house would not have an impact on children with asthma. [10,12] Patients' knowledge and awareness of chronic conditions, such as asthma, are crucial for effective management and control. [17]

Most parents hide their children's asthma diagnoses from family members, friends, or teachers because of the stigma. This stigmatization often leads to the diagnosis being denied by both children and parents. Instead, terms such as chest allergy or recurrent dyspnea are used to mask the chronic nature and functional impairment of the illness. [11] The study found a high rate of hospitalization, difficulty sleeping, and school absence due to asthma in Saudi Arabia, with 50% of the parents reporting nocturnal dyspnea. It also revealed a lack of parental education regarding the role of medication in asthma management. Additionally, 53.5% of the parents of asthmatic children believed that asthma was a hereditary disease, with 77% citing dust or allergens as a potent trigger. This belief aligns with the findings of previous studies conducted in the USA and India, which also reported that asthma is a hereditary disease. [18,19]

Although the connection between parents' knowledge and awareness of chronic asthma is being explored, limited research exists on its prevalence and impact on the quality of life in Saudi Arabia. This study aimed to assess misconceptions and management of parents of children with asthma in Saudi Arabia. By addressing this knowledge gap, this study can contribute to improved awareness, management, and quality of life for both children and parents suffering from this condition.

Methods

This cross-sectional investigation was conducted in April 2024 using convenience sampling across various regions of Saudi Arabia. The primary objective of this study was to evaluate misconceptions and management strategies among parents of children diagnosed with asthma in Saudi Arabia by employing an electronic survey disseminated via social media platforms through Google Forms.

Study procedure
The study targeted a demographic population comprising residents of Saudi Arabia who were parents of children with a prior diagnosis of asthma. Participants who did not meet the inclusion criteria, failed to complete the survey, or declined to participate were excluded.

Assessment tool
To achieve this aim, a previously validated Arabic version of a 10-item questionnaire was administered. [20] This questionnaire was divided into three pivotal sections: (A) six items gathering participant characteristics and demographic information; (B) ten items designed to assess parental knowledge concerning asthma using a 5-point Likert scale; and (C) three multiple-choice items aimed at understanding parental perspectives on asthma knowledge management.

Each of the 10 items is answered on a 5-point Likert-type scale. The items were ranked as follows:' strongly disagree, disagree, neutral, agree, and strongly agree' were ranked as 5, 4, 3, 2, and 1, respectively. The asthma knowledge questionnaire's missing answers received a "3." Higher scores indicate greater knowledge of asthma. The total score was determined by summing all score item replies, which ranged from 10 to 50. To further simplify the interpretation of the scale, scores ≥ 34 points were classified as sufficient knowledge, while lower than 34 points is considered Insufficient.

Sample Size
To determine the minimum number of participants required, a sample size formula for a single proportion was applied. A sample size formula for a single proportion was used to calculate the minimum number of participants required. An 8% sample proportion, representing the prevalence of bronchial asthma in Saudi Arabia, a 95% confidence interval, and a sample error of 5% were used to calculate the sample size. The final sample size was a minimum of 114 participants.

Data Analysis
Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to calculate the mean, median, mode, standard deviation, and frequency. Additionally, inferential analysis using the chi-square test was employed to examine the relationships between various variables. A p-value threshold of 0.05 was established to determine statistical significance.

Ethical Considerations
Ethical approval for this study was granted by the Ethics Committee of the Deanship of Scientific Research at King Faisal University under reference number KFU-REC-2024-MAY-ETHICS2435. Participation in this study was strictly voluntary, and all participants were fully informed of the study objectives and the estimated time commitment required. Informed consent was obtained electronically before participation in the survey.

Results

This study included 134 participants who self-reported having at least one child with asthma. Table 1 illustrates the sociodemographic characteristics of the study participants, showing a predominance of mothers (73.1%) over fathers (26.9%). The age distribution indicated a concentration in the middle-aged group, with participants mostly aged between 36 and 55 years, encompassing 64.1% of the sample. Regionally, the majority of respondents hailed from the western region (67.2 %), with the lowest representation from the central region (2.2 %). In terms of education, the largest group of participants held a bachelor's degree (68.7%), whereas a small proportion attained a PhD (2.2%). Income levels varied, with the highest bracket (more than 15,000 SAR) encompassing 38.1% of participants. Most participants lived in urban areas (90.3%) and the primary source of information on asthma was physicians (69.4%).

Table 1: Sociodemographic profile across the study participants

Sociodemographic factor		N	N%
Which parent is filling the survey	Father	36	26.9%
	Mother	98	73.1%
Parent age	< 18	6	4.5%
	18-25	3	2.2%
	26-35	22	16.4%
	36-45	44	32.8%
	46-55	42	31.3%
	>55	17	12.7%
Region	Northern	7	5.2%
	Eastern	19	14.2%
	Central	3	2.2%
	Western	90	67.2%
	Southern	15	11.2%
Education	Uneducated	1	0.7%
	School level	18	13.4%
	Diploma degree	12	9.0%
	Bachlor's degree	92	68.7%
	Master degree	8	6.0%

	PhD degree	3	2.2%
Income	<5000	5	3.7%
	5000-10000	33	24.6%
	10000-15000	45	33.6%
	>15000	51	38.1%
Community type	Urban	121	90.3%
	Rural	13	9.7%
Information source	Relatives	14	10.4%
	Physician	93	69.4%
	Social media	11	8.2%
	Web browsing	8	6.0%
	Other	8	6.0%
Do you think you are knowledgeable about asthma enough to take care of your children	Yes	51	38.1%
	Maybe	69	51.5%
	No	14	10.4%
Do you face challenges to provide care for your child	Often	23	17.2%
	Sometimes	85	63.4%
	Never	26	19.4%

A detailed examination of the family and asthma characteristics of the participants is shown in Table 2. A significant proportion of families reported having one child with asthma (54.5%), with a smaller number reporting having two children (32.1%). Male children were more frequently affected by asthma (63.4%) than were female children (36.6%). The children's ages were broadly spread, with the largest group being adolescents aged 13–18 years, representing 35.1% of the asthmatic children.

Table 2: Prevenance of asthmatic family and their characteristics

Variable		N	N%
Asthmatic family members	One	66	49.3%
	Two	42	31.3%
	Three	17	12.7%
	More than three	9	6.7%
Asthmatic children number	One	73	54.5%
	Two	43	32.1%
	Three	10	7.5%
	Four	4	3.0%
	Five	1	0.7%
	More than five	3	2.2%
Child gender	Male	85	63.4%
	Female	49	36.6%
Child Age	0-3	9	6.7%
	4-6	40	29.9%
	7-12	38	28.4%
	13-18	47	35.1%

Figure 1 categorizes parental knowledge as insufficient or sufficient, revealing that a substantial majority of parents (90.3%) possessed insufficient knowledge regarding effective management of asthma. Conversely, only a small percentage (9.7%) demonstrated sufficient knowledge, indicating the critical need for enhanced educational efforts.

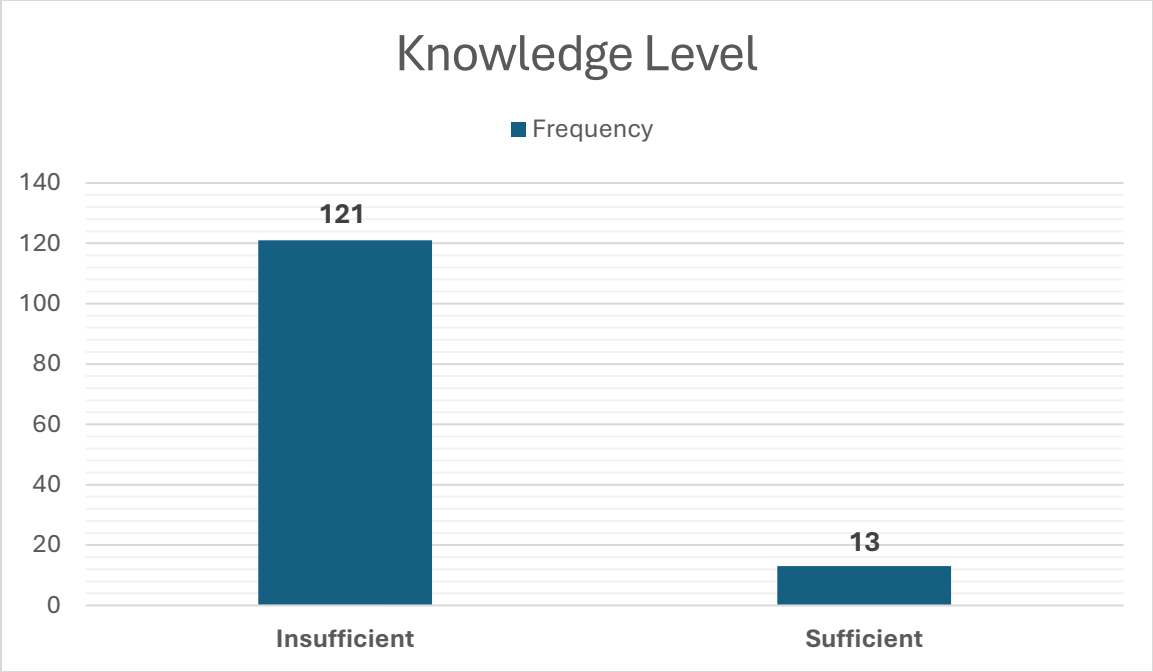

Figure 1: Classification of knowledge across parents

The responses of the parents of asthmatic children to the asthma management statements are summarized in Table 3. Regarding the belief that inhaler use can lead to dependence or addiction, 13 parents (9.7%) strongly agreed and 29 (21.6%) agreed, totaling 31.3% who perceived inhalers as potentially addictive. In contrast, 37 (27.6%) participants disagreed, 12 (9.0%) strongly disagreed, and 43 (32.1%) remained neutral. Regarding the statement that inhalers can harm the heart, 10 (7.5%) strongly agreed, 25 (18.7%) agreed, 34 (25.4%) disagreed, 11 (8.2%) strongly disagreed, and 54 (40.3%) were neutral. Regarding the duration of inhaler use, 22 (16.4%) strongly agreed and 54 (40.3%) agreed that it was not good for children to use the inhaler for too long, whereas 19 (14.2%) disagreed and 9 (6.7%) strongly disagreed, with 30 (22.4%) expressing neutrality.

Additionally, 39 parents (29.1%) strongly agreed and 44 (32.8%) agreed that children with asthma should use medications only when they have symptoms. In contrast, 21 (15.7%) disagreed, four (3.0%) strongly disagreed, and 26 (19.4%) were neutral. Regarding the use of inhalers without a holding chamber, 26 (19.4%) strongly agreed and 43 (32.1%) agreed that it was better to use inhalers directly, while 16 (11.9%) disagreed and 3 (2.2%) strongly disagreed, with 46 (34.3%) being neutral. Regarding the management of exercise in schools, 49 (36.6%) strongly agreed and 33 (24.6%) agreed that doctors should advise schools that children with asthma should not exercise, whereas 15 (11.2%) disagreed and 8 (6.0%) strongly disagreed, with 29 (21.6%) remaining neutral.

In the scenario of asthma attacks, 35 (26.1%) strongly agreed and 45 (33.6%) agreed that it was best to go to the emergency room even if symptoms were mild, while 21 (15.7%) disagreed and 1 (0.7%) strongly disagreed, with 32 (23.9%) remaining neutral. Finally, the belief in the necessity of daily administration of some asthma medications saw 20 (14.9%)

strongly agree and 45 (33.6%) agree, whereas 15 (11.2%) disagreed and 4 (3.0%) strongly disagreed, with 50 (37.3%) being neutral about the medication consistency.

Table 3: Parental Responses to Asthma Management Statements

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Inhaler use can lead to dependence or addiction	13 (9.7%)	29 (21.6%)	43 (32.1%)	37 (27.6%)	12 (9.0%)
Inhalers can have an effect on the heart or damage it	10 (7.5%)	25 (18.7%)	54 (40.3%)	34 (25.4%)	11 (8.2%)
It's not good for children to use the inhaler for too long	22 (16.4%)	54 (40.3%)	30 (22.4%)	19 (14.2%)	9 (6.7%)
Children with asthma should use asthma medications only when they have symptoms	39 (29.1%)	44 (32.8%)	26 (19.4%)	21 (15.7%)	4 (3.0%)
It's better to use inhalers directly without a holding chamber	26 (19.4%)	43 (32.1%)	46 (34.3%)	16 (11.9%)	3 (2.2%)
Parents should ask a doctor to tell the school that an asthmatic child shouldn't exercise	49 (36.6%)	33 (24.6%)	29 (21.6%)	15 (11.2%)	8 (6.0%)
Children who have asthma shouldn't participate in sports that make them run too much	32 (23.9%)	38 (28.4%)	36 (26.9%)	20 (14.9%)	8 (6.0%)
When a child has an asthma attack it's best to go to the emergency room even if symptoms are mild	35 (26.1%)	45 (33.6%)	32 (23.9%)	21 (15.7%)	1 (0.7%)
Some medications for asthma don't work unless they're administered every day	20 (14.9%)	45 (33.6%)	50 (37.3%)	15 (11.2%)	4 (3.0%)
With preventer medications, it does not matter if some doses are missed or if you go on and off them	13 (9.7%)	35 (26.1%)	49 (36.6%)	24 (17.9%)	13 (9.7%)

Analysis of demographic and social characteristics in relation to parental knowledge of asthma (Table 4) indicated varying levels of awareness across the different groups. Among the parents who completed the survey, 32 fathers (88.9%) had insufficient knowledge and 4 (11.1%) had sufficient knowledge. Conversely, 89 mothers (90.8%) displayed insufficient knowledge, while nine (9.2%) showed a sufficient understanding of asthma management. This distribution showed no significant difference based on whether parents completed the survey, with a chi-square p-value of 0.738. Age did not appear to significantly influence asthma knowledge; for example, among parents aged 36-45, 38 (86.4%) had insufficient knowledge compared to six (13.6%) with sufficient knowledge, yielding a p-value of 0.741 across all age groups.

Further analysis revealed that geographical location affected knowledge levels slightly, although the difference was not statistically significant (p = 0.505). The majority of parents from the western region, 81 (90.0%), had insufficient knowledge compared to nine (10.0%) who had sufficient knowledge. Education level also did not correlate significantly with knowledge about asthma management (p = 0.522), with the largest proportion of parents showing insufficient knowledge being those with a bachelor's degree, 82 (89.1%), compared to 10 (10.9%) with sufficient knowledge.

These findings suggest that demographic factors such as parents completing the survey, age, region, and education do not significantly impact the level of knowledge parents have about asthma, indicating that misconceptions and a lack of awareness are widespread, regardless of these variables.

Table 4: Demographic and Social Characteristics association to parent's knowledge

Variable		Knowledge		P-value
		Insufficient	Sufficient	
Which parent is filling the survey	Father	32	4	.738
	Mother	89	9	
Parent age	< 18	6	0	.741
	18-25	3	0	
	26-35	19	3	
	36-45	38	6	
	46-55	39	3	
	>55	16	1	
Region	Northern	7	0	.505
	Eastern	18	1	
	Central	2	1	
	Western	81	9	
	Southern	13	2	
Education	Uneducated	1	0	.522
	School level	18	0	
	Diploma degree	11	1	
	Bachlor's degree	82	10	
	Master degree	7	1	
	PhD degree	2	1	

Income	<5000	5	0	.579
	5000-10000	30	3	
	10000-15000	42	3	
	>15000	44	7	
Community type	Urban	110	11	.466
	Rural	11	2	
Information source	Relatives	13	1	.993
	Physician	84	9	
	Social media	10	1	
	Web browsing	7	1	
	Other	7	1	
Do you think you are knowledgeable about asthma enough to take care of your children	Yes	41	10	.009
	Maybe	66	3	
	No	14	0	
Do you face challenges to provide care for your child	Often	22	1	.423
	Sometimes	77	8	
	Never	22	4	
Are you asthmatic	Yes	29	5	.254
	No	92	8	
Asthmatic family members	One	62	4	.550
	Two	36	6	
	Three	15	2	
	More than three	8	1	
Asthmatic children number	One	67	6	.859
	Two	37	6	
	Three	9	1	
	Four	4	0	
	Five	1	0	
	More than five	3	0	

Child gender	Male	75	10	.288
	Female	46	3	

* Significant (P<0.05)

Discussion

The rising prevalence of asthma among children in Saudi Arabia, particularly in environments characterized by frequent sandstorms and urban pollution, underscores the urgent need to address both disease management and parental misconceptions. Given the significant role of parental awareness in mitigating the impact of asthma on children's lives, our study sought to evaluate and enhance our understanding of this critical area. The primary objective was to assess the level of knowledge among parents about managing their children's asthma, revealing that 121 parents lacked sufficient knowledge about their children's condition, highlighting the need for enhanced educational interventions [1-2].

As shown in Table 2, more than half of the families with children with asthma (54.5%) had only one child with this condition. Similarly, a study conducted in Riyadh exploring the knowledge of parents of asthmatic children between the ages of one and 14 concluded that the majority of families (202) had one asthmatic child, whereas a minority (37) had multiple children with this diagnosis [10]. This could explain the lack of adequate knowledge in many participants in both studies, as they may not have endured the adversities to the extent that parents with multiple children with this condition compelled them to engage in more extensive research on asthma. Furthermore, in this study, most asthmatic children were male (63.4%), while a minority (36.6%) were female. Nevertheless, a study exploring the knowledge and management of 250 caregivers of asthmatic children demonstrated that 52.8% of asthmatic children were female and the remaining (47.2%) were male [21]. This could be the result of both studies adopting the convenience sampling method, as 85 of the 134 children in this study were male, whereas in the study conducted in Jazan,132 of the 250 asthmatic children were female. In addition, this study revealed that teenagers had the highest percentage of patients (35.1%). However, a cross-sectional study evaluating the perception of asthma in 1450 parents of asthmatic patients in Riyadh contradicted these findings, for the least number of asthmatic children were those 12 years of age or older (116) [6]. This contrast between the two studies could be a consequence of the vast difference in sample sizes, considering that this study included only 134 participants, whereas the study in Riyadh included 1450 participants from several schools.

Most parents (90.3%) in this study exhibited insufficient knowledge of asthma management, whereas only a small percentage (9.7%) demonstrated sufficient knowledge. This indicates a critical need for enhanced educational efforts to support effective asthma management, similar to the findings from a 2015 study conducted with 292 parents of asthmatic children (aged 3–15 years) at outpatient clinics and emergency departments of two tertiary care medical centers in Riyadh City using a self-administered questionnaire [6]. This study confirmed the pivotal role that parents and caregivers play in managing their child’s asthma, emphasizing that healthcare providers cannot dictate treatment; rather, it is the parents who decide whether to follow medical advice based on their perceptions of illness and medication.

Conversely, another study demonstrated the effectiveness of asthma education programs in schools. These programs aim to enhance asthma control and management among children by providing structured educational sessions and supervised medication administration, which have been shown to significantly reduce emergency department visits and improve asthma-related knowledge and self-management among students [22].

A key finding of this cohort included the assessment of understanding of inhaler use, with almost 9.0% of the participating parents strongly disagreeing that inhalers do not cause dependence. This suggests that parents in Saudi Arabia have a better understanding of the use of inhaled medications for asthma control. Additionally, a similar percentage (9.7%) of parents strongly disagreed with statements regarding the appropriate timing and dosing of asthma medications, indicating that increased awareness of asthma is beneficial. However, a high percentage (97.8%) of the participants believed that inhalers could be used directly without a holding chamber, highlighting a knowledge gap regarding symptoms among participants in all age groups. These knowledge deficits may be linked to factors such as socioeconomic status, parental age, and misleading information sources. It also underscores the need for targeted educational interventions to improve parental understanding of asthma management, including proper use of medications, recognition of symptoms, and appropriate healthcare-seeking behaviors.

The findings of the current study contrast with those of a previous local study by Al-Binali et al., which used a different scoring system. They found that, while parents understood asthma symptoms well, they were knowledgeable about the mechanisms of the disease and its signs and symptoms. [23] Unlike the current study, a significant proportion (61.9%) of parents agreed with the statement, "Children with asthma should use asthma medications only when they have symptoms," indicating a lack of recognition among parents in Saudi Arabia regarding the side effects of not adhering to medical recommendations, which can affect asthma control.

Emergency departments play an essential role in managing bronchial asthma in Saudi Arabia, with a significant increase in the incidence of asthma in children. In a recent investigation, Al-Yami et al. reported that 8% of patients visited the emergency department more than once in six months due to asthma exacerbation. [24] In the current study, parents responded to statements like "When a child has an asthma attack, it’s best to go to the emergency room even if symptoms are mild," with 26.1% of participating parents strongly agreeing to seek medical help and visit the emergency room whenever symptoms occur. This confirms the need to raise awareness regarding proper asthma symptom management, medical facilities, and medical help seeking. This is important for both parents and healthcare providers as frequent visits to the emergency room may decrease satisfaction with medical services.

Controller medications should be administered to children with persistent asthma symptoms to minimize symptoms and prevent hospitalization. Adherence rate is often influenced by parental perceptions of medication pharmacokinetics. The current study found that 48.5% of parents agreed with the statement, "Some medications for asthma don’t work unless they’re administered every day," which reflects misleading knowledge that requires correction. This contrasts with previous local research showing parental concerns regarding the long-term use of corticosteroid inhalers.

Various demographic parameters were examined to assess their impact on parental awareness and understanding of asthma. Although a larger proportion of respondents were mothers, statistical analysis revealed no significant difference in asthma knowledge between the two types of parents (p = .738). This implies that mothers and fathers may have similar knowledge of asthma and how to treat it. This is similar to study
was published in 2016 [25]. There was no statistically significant difference between sexes and awareness of asthma (P = 0.052) .
The same study found that the asthma awareness score was highly significant in the older age group (P < 0.001). However, in our study, the data showed no significant relationship between parent age and asthma awareness (p = .741), suggesting that age may not have an impact on parent's understanding of asthma. This may be due to the different questionnaires used in that study, which included questions covering different aspects of the disease. It is also vital to highlight the increasing role of social media in public education and to make knowledge available to younger age groups.
According to other researchers, socioeconomic factors include occupation and education level (P > 0.05) [26]. Similar to our study, neither education level (p = .522) nor income level (p = .579) demonstrates a significant association with asthma knowledge among parents. This shows that while education and income have a big impact on other aspects of health and well-being, they may not have a big impact on parents' level of knowledge .
Additionally, in our study, there was no significant correlation between parents' knowledge of asthma and their own experience with the condition or the number of family members who had asthma (p =.254 and p =.550, respectively). Similarly, there was no significant difference in parental asthma awareness based on the number or sex of children with asthma (p =.859, p =.288 respectively). This contradicts a similar study published in 2020 [26] in which the understanding of asthma was strongly connected with participant asthma status (P=0.001) and having children with asthma (P=0.005). This can be attributed to the younger age of the parents and smaller sample size of our study.
Nonetheless, this study showed a significant correlation (p =.009) between an individual's ability to care for children with asthma and one's self-perceived understanding of the condition. Given the role of subjective views in caregiving practices, parents who believe they are well-informed about asthma are more likely to care for their asthmatic children in an effective way.
In summary, the findings of this study revealed that a substantial majority of parents (90.3%) in Saudi Arabia have insufficient knowledge regarding the effective management of childhood asthma. This underscores the critical need for improved educational interventions aimed at enhancing parents' understanding of management practices. To address this gap, asthma education should be integrated into routine pediatric visits to ensure the consistent dissemination of crucial information about symptom recognition and proper medication usage. In addition, leveraging digital platforms such as social media can extend the reach of educational materials, making them accessible to a broader audience. Support groups facilitated by health care professionals could also be beneficial by providing a platform for parents to share experiences and receive guidance, thereby enhancing their ability to effectively manage their children's asthma.
Despite the insights provided, this study has limitations owing to its cross-sectional design and use of convenience sampling, which may limit the generalizability of the findings. In addition, reliance on self-reported data can introduce response bias. Future studies

employing a longitudinal design could provide deeper insights into the impact of educational interventions on asthma management practices among parents, potentially leading to more effective strategies for reducing the burden of asthma on children in Saudi Arabia

References:

1- Ferrante G, La Grutta S. The Burden of Pediatric Asthma. Front Pediatr. 2018;6:186. Published 2018 Jun 22. doi:10.3389/fped.2018.00186.
URL: https://www.frontiersin.org/articles/10.3389/fped.2018.00186/full

2- Kostakou E, Kaniaris E, Filiou E, et al. Acute Severe Asthma in Adolescent and Adult Patients: Current Perspectives on Assessment and Management. J Clin Med. 2019;8(9):1283. doi:10.3390/jcm8091283.
URL: https://www.mdpi.com/2077-0383/8/9/1283

3- Dharmage SC, Perret JL, Custovic A. Epidemiology of Asthma in Children and Adults. Front Pediatr. 2019;7:246. doi:10.3389/fped.2019.00246.
URL: https://www.frontiersin.org/articles/10.3389/fped.2019.00246/full

4- Al Ghobain MO, Algazlan SS, Oreibi TM. Asthma prevalence among adults in Saudi Arabia. Saudi Med J. 2018;39(2):179–184. doi:10.15537/smj.2018.2.20974.
URL: https://smj.org.sa/content/39/2/179

5- Alsayed B, Alatawi A, Alatawi OM, et al. Association of Asthma Control With Caregivers' Knowledge and Practices for Children With Asthma in the Tabuk Region of Saudi Arabia: A Cross-Sectional Study. Cureus. 2023;15(2):e35162. doi:10.7759/cureus.35162.
URL: https://www.cureus.com/articles/135162

6- Abu-Shaheen A, AlFayyad I, Nofal A, et al. Perceptions and Practices in Parents of Saudi Children with Asthma: A Cross-Sectional Survey. Cureus. 2018;10(2):e2213. doi:10.7759/cureus.2213.
URL: https://www.cureus.com/articles/12113

7- Al-Kabbaa AF, Al-Shamrani KM, Salih MA. Does the management of bronchial asthma by family physicians meet standards of the national protocol? J Family Community Med. 2002;9(3):21-5.
URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3430164/

8- Austin JB, Selvaraj S, Russell G. Childhood asthma in the Highlands of Scotland--morbidity and school absence. Scott Med J. 2004;49(1):18-21. doi:10.1177/003693300404900105.
URL: https://journals.sagepub.com/doi/10.1177/003693300404900105

9- Chan PW, DeBruyne JA. Parental concern towards the use of inhaled therapy in children with chronic asthma. Pediatr Int. 2000;42(5):547-51. doi:10.1046/j.1442-200x.2000.01278.x.
URL: https://onlinelibrary.wiley.com/doi/10.1046/j.1442-200x.2000.01278.x

10- AlOtaibi E, AlAteeq M. Knowledge and practice of parents and guardians about childhood asthma at King Abdulaziz Medical City for National Guard, Riyadh, Saudi Arabia. Risk Manag Healthc Policy. 2018;11:67-75. doi:10.2147/RMHP.S143829.
URL: https://www.dovepress.com/knowledge-and-practice-of-parents-and-guardians-about-childhood-asthma-peer-reviewed-fulltext-article-RMHP

11- Abu-Shaheen AK, Nofal A, Heena H. Parental Perceptions and Practices toward Childhood Asthma. Biomed Res Int. 2016;2016:6364194. doi:10.1155/2016/6364194.
URL: https://www.hindawi.com/journals/bmri/2016/6364194/

12- BinSaeed AA. Caregiver knowledge and its relationship to asthma control among children in Saudi Arabia. J Asthma. 2014;51(8):870-5. doi:10.3109/02770903.2014.906608.
URL: https://www.tandfonline.com/doi/10.3109/02770903.2014.906608

13- Mazi A, Madani F, Alsulami E, et al. Uncontrolled Asthma Among Children and Its Association With Parents' Asthma Knowledge and Other Socioeconomic and Environmental Factors. Cureus. 2023;15(2):e35240. doi:10.7759/cureus.35240.
URL: https://www.cureus.com/articles/135240

14. Zaraket R, Al-Tannir MA, Bin Abdulhak AA, Shatila A, Lababidi H. Parental perceptions and beliefs about childhood asthma: a cross-sectional study. Croat Med J. 2011 Oct 15;52(5):637-43. doi: 10.3325/cmj.2011.52.637. PMID: 21990082; PMCID: PMC3195973.
URL: https://doi.org/10.3325/cmj.2011.52.637

15. Al-Anazi A, Al Moamary M, Ismaeli T, Alanazi AN, Olayan L, Alanazi AM, et al. Asthma in the pediatric population: Level of perception among the parents and guardians. Int J Med Public Health. 2015;5:14-8.
URL: https://www.researchgate.net/publication/283322316

16. Jung JW, Ju YS, Kang HR. Association between parental smoking behavior and children's respiratory morbidity: 5-year study in an urban city of South Korea. Pediatr Pulmonol. 2012 Apr;47(4):338-45. doi: 10.1002/ppul.21556. Epub 2011 Oct 17. PMID: 22006579.
URL: https://doi.org/10.1002/ppul.21556

17. Adams RJ. Improving health outcomes with better patient understanding and education. Risk Manag Healthc Policy. 2010;3:61-72. doi: 10.2147/RMHP.S7500. Epub 2010 Oct 14. PMID: 22312219; PMCID: PMC3270921.
URL: https://doi.org/10.2147/RMHP.S7500

18. Van Sickle D, Wright AL. Navajo perceptions of asthma and asthma medications: clinical implications. Pediatrics. 2001 Jul;108(1):E11. doi: 10.1542/peds.108.1.e11. PMID: 11433090.
URL: https://doi.org/10.1542/peds.108.1.e11

19. Chan PW, DeBruyne JA. Parental concern towards the use of inhaled therapy in children with chronic asthma. Pediatr Int. 2000 Oct;42(5):547-51. doi: 10.1046/j.1442-200x.2000.01278.x. PMID: 11059547.
URL: https://doi.org/10.1046/j.1442-200x.2000.01278.x

20. Franken MMA, Veenstra-van Schie MTM, Ahmad YI, Koopman HM, Versteegh FGA. The presentation of a short adapted questionnaire to measure asthma knowledge of parents. BMC Pediatr. 2018 Jan 26;18(1):14. doi: 10.1186/s12887-018-0991-4. PMID: 29373963; PMCID: PMC5785890.
URL: https://doi.org/10.1186/s12887-018-0991-4

21. Albarraq AA. Assessment of caregivers' knowledge and behavior in the management of pediatric asthma in Jazan, Saudi Arabia. Saudi J Health Sci. 2019;8(2):98-104. doi: 10.4103/sjhs.sjhs_6_19.
URL: https://doi.org/10.4103/sjhs.sjhs_6_19

22. Alhazmi J, Alhazmi S, Alharbi E, Alghamdi A, Alrumaithi R, Altamimi M, et al. Impact of Asthma Education Program 2020-2021 on Asthma Control Among Bronchial Asthma Children in Madinah City, Saudi Arabia. Cureus. 2023 Jun 17;15(6):e40571. doi: 10.7759/cureus.40571. PMID: 37465787; PMCID: PMC10351745.
URL: https://doi.org/10.7759/cureus.40571

23. Al-Binali AM, Mahfouz AA, Al-Fifi S, Naser SM, Al-Gelban KS. Asthma knowledge and behaviours among mothers of asthmatic children in Aseer, south-west Saudi Arabia. East Mediterr Health J. 2010;16(11):1153–1158.
URL: https://applications.emro.who.int/emhj/v16/11/16_11_2010_1153_1158.pdf

24. Al-Yami SM, Mohajer KA, Al-Jeraisy MI, Batarfi AM, Abolfotouh MA. Recurrent visits and admissions of children with asthma in central Saudi Arabia. Saudi Med J. 2010;31:921-4.
URL: https://smj.org.sa/content/31/9/921

25. Al-Harbi S, Al-Harbi AS, Al-Khorayyef A, Al-Qwaiee M, Al-Shamarani A, Al-Aslani W, Kamfar H, Felemban O, Barzanji M, Al-Harbi N, Dhabab R, Al-Omari MA, Yousef A. Awareness regarding childhood asthma in Saudi Arabia. Ann Thorac Med. 2016 Jan-Mar;11(1):60-5. doi: 10.4103/1817-1737.173194. PMID: 26933459; PMCID: PMC4748617.
URL:
https://journals.lww.com/aotm/fulltext/2016/11010/awareness_regarding_childhood_asthma_in_saudi.6.aspx

26. Alharbi SA, Kobeisy SAN, AlKhater SA, Alharbi AS, Alqwaiee MM, Alotaibi FN, Alawam KA, Alahmadi TS, Al-Somali FM, Almaghamsi TM, Yousef AA. Childhood Asthma Awareness in Saudi Arabia: Five-Year Follow-Up Study. J Asthma Allergy. 2020 Oct 2;13:399-407. doi: 10.2147/JAA.S272850. PMID: 33061466; PMCID: PMC7537987
URL: https://www.tandfonline.com/doi/full/10.2147/JAA.S272850