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Evaluating Health Outcomes for Children with Asthma and Determining the Role of Prevention and Health Education

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Abstract: Asthma is the most common chronic respiratory disease in children. Notably, 80% of children's first asthma attacks occur before the age of 5, typically during preschool years. This aligns with trends in developed countries in Europe and the United States. This study aimed to evaluate health outcomes for children with asthma and determine the role of prevention and health education. The study included 90 patients, and all necessary written consent was obtained to ensure transparency and privacy. The study was conducted from 2024 to 2025 from several different hospitals in Iraq.

The results showed that the most common age group with asthma was between 5 and 9 years old (40 patients, representing 44.4%). Patients were distributed equally according to gender: Male 45% 50%, Female 45% 50%. The average duration of asthma was 4.5 ± 2.1 years. Family history showed that 40 patients, the rate satisify were 44.4%

and we concluded Although local and international research on the high use of corticosteroids in preschool children with asthma is limited, the relationship between corticosteroids and asthma in children has been explored. Studies have revealed that nearly half of primary school children with asthma use corticosteroids, which affects their mood and interpersonal relationships. A comparison between students with asthma and healthy students concluded that students with asthma reported lower performance in physical activities and greater difficulty learning physical education.

Keywords: Children, Asthma, Prevention, Health Education, Corticosteroids.

Introduction

Millions of children and their families' quality of life is impacted by the incidence of paediatric asthma, which is a major global public health concern. Recurrent episodes of shortness of breath, coughing, wheezing, and chest tightness are the hallmarks of this chronic inflammatory illness of the airways, which can significantly affect children's physical, mental, and social well-being. Asthma is one of the main causes of childhood medical visits, pediatric hospitalizations [1,2],

and school absences, according to global epidemiological data. This emphasizes the critical need to create efficient management and preventative techniques as well as Key clinical characteristics, such as the frequency and intensity of exacerbations, symptom control, lung function, medication adherence, and health-related quality of life indicators, are analyzed when assessing health outcomes in children with asthma [3,4,5] through These findings make it easier to identify inequalities in vulnerable populations' access to and equity of care, in addition to enabling the evaluation of the efficacy of medical interventions were Additionally, the emphasis on health outcomes offers a scientific viewpoint for creating and improving programs that address the unique requirements of kids with asthma in various socioeconomic and cultural settings [6,7,8] About The proactive role of preventive and health education is a key component of the all-encompassing strategy for treating childhood asthma while According to recent research, putting in place educational programs for kids, parents, and caregivers greatly enhances their understanding of how to manage their asthma, encourages therapeutic self-management, and encourages healthy lifestyle choices that lessen triggers and enhance long-term prognosis [10,11] based on A key component of lowering the disease's burden is prevention, which is focused on early detection of biological and environmental risk factors, the encouragement of smoke-free surroundings, routine access to primary care services, and instruction on how to use inhalers and medications correctlyn as well as Encouraging health education improves coping mechanisms for asthma episodes, increases adherence to medication, and fortifies the autonomy of families and communities therefore In order to consolidate a cross-cutting strategy in the secondary and tertiary prevention of paediatric asthma, preventative and education programs that are grounded on scientific evidence encourage early symptom detection, environmental control, and the development of healthy behaviours from a young age [12,13,14]

Material and method

A cross-sectional study was conducted on Iraqi children with asthma. The study included 90 patients, and all necessary written consent was obtained for the study, ensuring transparency and privacy. The study period was one year, from 2024 to 2025. Initial data included height, age, sex, number of visits, and symptoms experienced by the patients. A questionnaire distributed to the parents was used to determine the duration of the child's illness and the medications used by the parents. Demographic information and data related to the system were collected from several different hospitals in Iraq, based on a written form submitted by the parents, in order to obtain all information related to this study.

All data and results related to this study were analyzed using IBM Soft SPSS Statistics software, and figures were plotted using Microsoft Excel 2013. Initial findings were also recorded based on a detailed medical history and physical examination. In all children under five years of age, identifying the disease is the most challenging, as the symptoms are not always entirely clear. Asthma diagnosis relies on an analysis of typical clinical symptoms, which are best described by school-aged children and adolescents. Therefore, specialists recommend that asthma be definitively diagnosed only at a later age in a child. Until then, it is referred to as frequent wheezing. However, the symptoms of airway obstruction can be confused with a whole range of other diseases.

To mark the launch of the Global Asthma Initiative and the European Respiratory Society, the Iraqi Ministry of Health also collaborated by expanding its advocacy efforts, focusing on promoting asthma self-care policies, implementing asthma health counseling programs (training staff in hospitals, schools, and other relevant institutions, disseminating asthma self-care information), training relevant personnel in asthma self-care, and conducting relevant research. Looking back from 1998 to the present, the issue of "asthma self-care" has received increasing attention and appreciation from researchers, experts, and practitioners in the field of asthma. However, the ability of children with asthma to perform self-care is often limited due to their developmental characteristics. Implementing the four basic healthcare priorities—regular

symptom assessment and monitoring, control of asthma exacerbations, progressive drug therapy, and self-care and education for patients and primary caregivers—is crucial.

Results

According to the demographic statistics, there is a balanced gender representation among paediatric asthma patients, with a sizable percentage falling within the 5–9 age range where This implies that asthma treatment plans ought to be customized to meet the requirements of this age group while taking developmental aspects into account as well as Designing focused health interventions requires an understanding of the demographic context also Since asthma symptoms typically last 4.5 years, many patients have had the condition for a long time, which may have an effect on their general health and management techniques in addition to The need for better control techniques and preventive efforts to lower exacerbations is highlighted by the average of 3.2 asthma episodes annually in addition to The significant number of patients (66.7%) who use inhaled corticosteroids indicates that they are following the suggested treatment guidelines for managing their asthma where also Leukotriene receptor antagonist use, however, is very low (22.2%), which may indicate gaps in available therapy alternatives or patient education of alternative medicines additionally found according to Allergens are the most commonly reported environmental trigger, and they are a major factor in asthma flare-ups therefore in This emphasizes how crucial it is to teach families how to reduce their exposure to allergens and make their homes better in order to better control asthma where in others tables found The cohort's moderate asthma control is shown by the mean FEV1 and peak flow values and To evaluate the efficacy of treatment and modify management strategies as needed, these outcomes must be continuously monitored while according to Positive involvement in their care is indicated by the high number of patients who get asthma control education where found To make sure that parents and patients properly understand how to manage asthma, it is important to assess how well education works to reduce symptoms and improve quality of life beside this Although many families have implemented preventive measures, the data shows that there is still opportunity for improvement and about finding Health education programs should place an emphasis on strategies like action plans and routine check-ups, which are essential for managing asthma effectively.

Table 1- Describe the primary key findings extracted from the patients and demographic data.

Characteristic	Frequency (n)	Percentage (%)
Age Group		
0-4 years	30	33.3%
5-9 years	40	44.4%
10-14 years	20	22.2%
Gender		
Male	45	50%
Female	45	50%
Duration of Asthma (years)	4.5 ± 2.1	
Number of Asthma Attacks (last year)	3.2 ± 1.5	
Duration of Asthma (years)	4.5 ± 2.1	
Medication Type	Frequency (n)	Percentage (%)
Inhaled Corticosteroids	60	66.7%
Long-acting Beta Agonists	30	33.3%
Leukotriene Receptor Antagonists	20	22.2%
Symptom	Frequency (n)	Percentage (%)
Cough	65	72.2%
Wheezing	50	55.6%

Shortness of Breath	40	44.4%
Chest Tightness	30	33.3%

Figure 1- Distribution of patients in the study according to Environmental Triggers

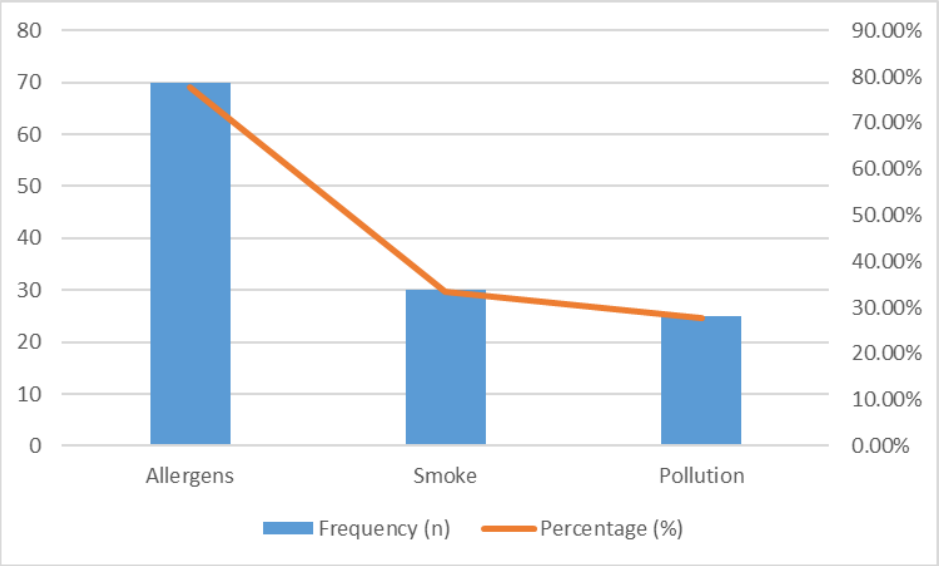


Figure 2- Outcomes of children patients according to visits

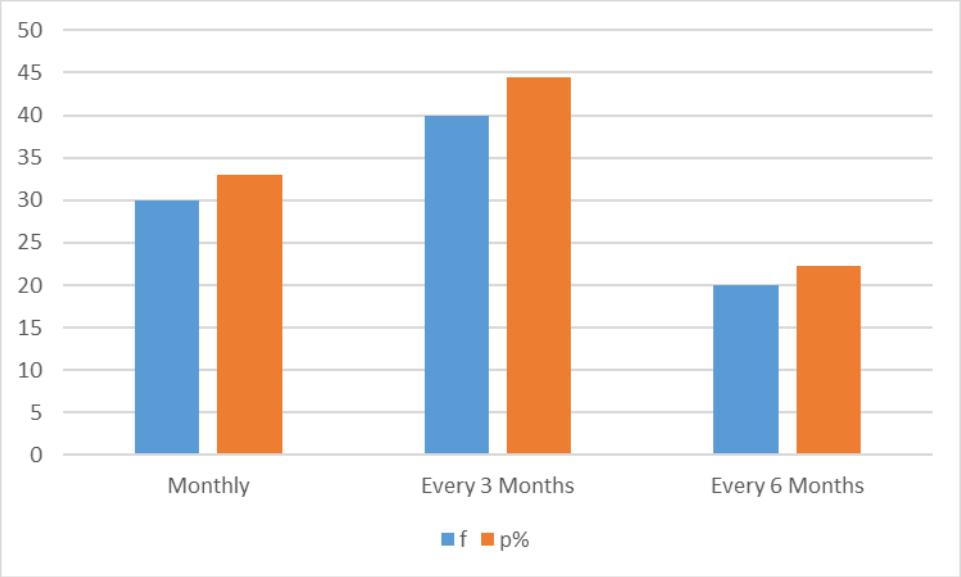


Table 2- Health outcomes of patients and others finding

Education Type	**Frequency (n)**	**Percentage (%)**
Asthma Management	75	83.3%
Trigger Avoidance	60	66.7%
Preventive Measures Adopted		
action Plan	50	55.6%
Regular Check-ups	45	50%
Family History of Asthma		
Family History	Frequency (n)	Percentage (%)
Yes	40	44.4%
No	50	55.6%

Figure 3- Distribution of patients according to Hospitalization History

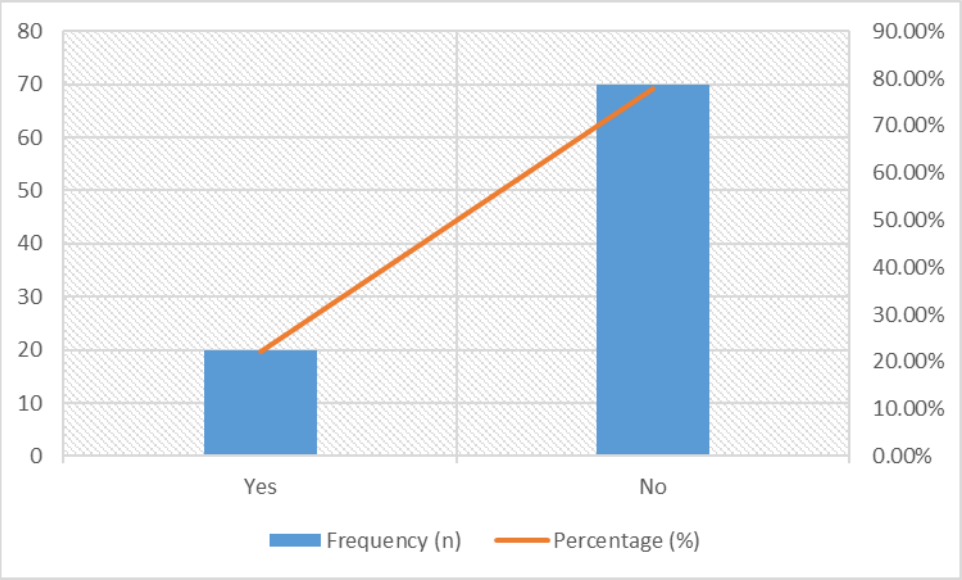


Figure 4- Assessment outcomes according to Parental Involvement in Management

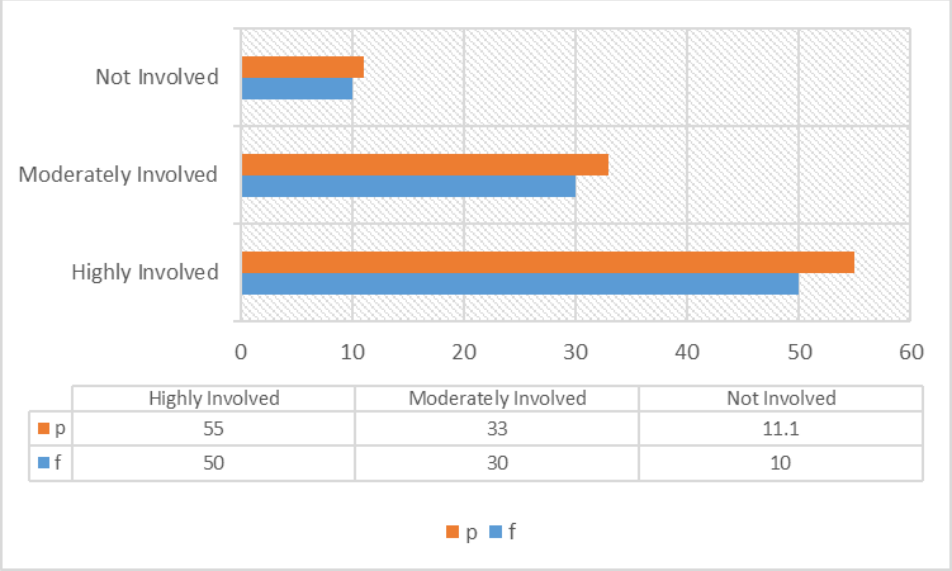
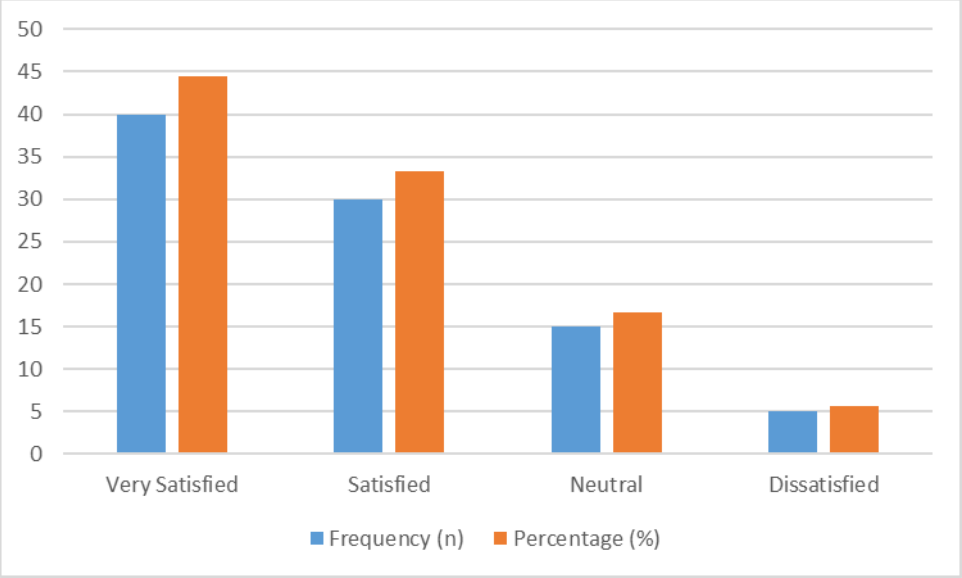


Figure 5- Assessment outcomes final of the final study according to Satisfaction with Care



Discussion

Recurrent asthma is common in children under 5 years old and is usually associated with viral infections of the upper respiratory tract, making it difficult to diagnose asthma. • To diagnose asthma in children under 5 years old based on wheezing symptoms, the following criteria should be considered: Clinical diagnosis of asthma in children under 5 years old 21. Asthma or coughing accompanies exercise, laughter, or crying in the absence of a respiratory infection. − History of other allergic conditions (eczema or rhinitis) or parents with asthma. − Significant improvement after 2-3 months of treatment, followed by worsening after discontinuation of treatment.

Integrating relevant clinical case studies into the curriculum enables students to understand the impact of the disease on the entire family. In cases of childhood asthma, the role of caregivers includes not only managing the child's condition but also interacting with caregivers who may be experiencing stress, anxiety, or frustration.

This article investigated the relationship between current asthma and potential contributing factors using data from the Iraqi Health Survey of Interviews and Examinations of Children and Adolescents. This national cross-sectional study included 90 children and adolescents aged 0 to 14 years between 2024 and 2025. Data collection included a physical examination of the child, interviews with parents, written questionnaires, and prevalence estimates. Multivariate logistic regression analyses were performed. Increasing age, male sex, a personal history of asthma, and a positive family history of allergies were associated with increased risk, where Asthma is a chronic disease typically characterized by a series of respiratory symptoms. These symptoms change throughout a patient's life. This diagnosis has a multifactorial origin, resulting from a complex interaction between genetic and environmental factors [15,16,17]

Asthma usually presents with a series of respiratory symptoms, such as severe shortness of breath, coughing, chest tightness, and wheezing. Symptoms can vary depending on the duration and severity of the illness [18]. Due to the significant increase in the number of patients over the past fifty years, asthma has become one of the most common chronic diseases. Even developed countries report that the prevalence of asthma represents one-third of their population. A twenty-year study conducted by the National Institute of Health, as part of monitoring the population's health status in relation to the environment in Iraq, revealed that the most common allergic diseases were allergic rhinitis, with the number of sufferers increasing from 6% to 12%, followed by bronchial asthma from 4% to 10%. Finally, atopic eczema which maintained a prevalence of 10% throughout the entire monitoring period [19,20]. This disease is influenced by a number of factors. We often speak of the multifactorial causes of childhood asthma, which include uncontrollable factors (heredity and sex) and modifiable factors (environment and behavior), where found in a previous study. In the fields of public health, medicine, sociology, and psychology, quality of life assessments are gaining more and more importance. When assessing children's perceptions of their daily quality of life, mental health-related quality of life (HRQoL) questionnaires are useful tools also The overall evaluation of children's and adolescents' well-being, community health, and the monitoring of outcomes in childhood illness treatment all benefit from HRQoL assessment tools while according to The HRQoL assessment evaluates the efficacy of medical technology and public health initiatives, new insights into the effects of risk factors, and the impact of illness on children. Through preventative measures and early interventions, chronic diseases can delay or prevent their long-term effects, and, in this population, the primary objective of intervention is to lessen the burden of disease and, as a result, enhance quality of life. The patient's physical, mental, and social health are frequently evaluated using the quality-of-life rating. Due to its capacity to engage patients in managing their care, enhance doctor-patient communication, and ultimately influence care and health outcomes, HRQoL assessments have recently gained popularity in clinical practice. The patient's age, language skills, lack of attention and motivation, and poorly designed questions—which may be

too difficult for children—should all be taken into consideration when designing questionnaires that assess children's quality of life.

Also found in a pervious study, the following should occur at least once during the diagnostic process: When FEV1 is low, the patient's FEV1/FVC ratio also decreases. For children, this is >0.90. • Test results show greater fluctuations in lung function than normal, for example: − An increase in FEV1 exceeding 12% of the predicted value after inhalation of a bronchodilator; this is called "bronchodilator reversibility". − Daily variation in daytime PEF >13%. − An increase in FEV1 exceeding 12% of the predicted value after 4 weeks of anti-inflammatory treatment in the absence of a respiratory infection. • The greater the fluctuation or the higher the frequency of fluctuation, the stronger the diagnosis of asthma. • Testing should be repeated at symptom onset, in the morning, and after discontinuation of bronchodilators. • Bronchodilator reversibility may disappear during severe exacerbations or viral infections. If bronchodilator reversibility is not observed in the initial test, the clinical urgency and the availability of other testing methods should be considered to determine the next diagnostic approach.

Conclusion

Asthma in children is becoming more common by the year, and the average age at which it first appears is going down, making it more difficult to afford long-term medical care. Therefore, early detection and early intervention are crucial for childhood asthma care. Given the current state of asthma among Taiwanese schoolchildren, there is still a significant amount of room for improvement in school-based asthma care programs, despite their ongoing development. It is essential to acknowledge the crucial role that kindergarten workers and childcare workers play in healthcare after comprehending the current situation of asthma-suffering children in schools and their care. A comprehensive asthma management mechanism needs to be established, integrating health professional systems, early childhood education systems, and families. Asthma-stricken children across the population will receive more comprehensive medical care as a result of this, preventing gaps in school care.

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