



Research Article

Evaluation of the Quality of Life of the Asthmatic Child

Karima ElFakiri*, Khaoula ElBarkaoui, Nouredine Rada, Mohammed Bouskraoui

Pediatric department A, Allergology and pulmonology unit, Mother-child hospital, CHU Mohammed VI, Faculty of Medicine and Pharmacy Cadi Ayyad Marrakech Morocco

***Corresponding Author:** Fakiri KE, Pediatric department A, Allergology and pulmonology unit, Mother-child hospital, CHU Mohammed VI, Faculty of Medicine and Pharmacy Cadi Ayyad Marrakech Morocco

Citation: Fakiri KE, Barkaoui KE, Rada N, Bouskraoui M (2026) Evaluation of the Quality of Life of the Asthmatic Child. Arch Pediatr 11: 348. DOI: 10.29011/2575-825X.100348

Received Date: 20 July 2026; **Accepted Date:** 18 August 2026; **Published Date:** 20 August 2026.

Abstract

Asthma is the most common chronic inflammatory disease in children, and its management requires a comprehensive approach involving both the child and their environment. **Aims of the study:** To assess the quality of life in children with asthma and identify the most significant factors negatively affecting it. **Patients and methods:** A prospective, descriptive, cross-sectional, and analytical study was conducted on 100 asthmatic children followed in the Pediatric Department A of Mohammed VI University Hospital in Marrakech over a 3-month period (June–September 2023). **Results:** The children were aged 7 to 15 years, with the 7–11 age group representing 64%. Females accounted for 58%. Most patients belonged to a middle socioeconomic class (67%), while 33% were from a low-income background. Urban residence was predominant (71%). According to global initiative for asthma (GINA), asthma was controlled in 58%, partially controlled in 28%, and uncontrolled in 14%. The Pediatric Asthma Quality of Life Questionnaire (PAQLQ) assessed three domains (symptoms, activity limitations, emotional function) with an overall mean score of 5.13. Symptoms were the most affected domain. A statistically significant correlation ($p < 0.05$) was found between quality of life scores and factors such as age, sex, socioeconomic level, residence, and asthma control. Adolescents, females, disadvantaged children, and urban residents reported lower scores. **Conclusion:** Quality of life in asthmatic children is influenced by medical, social, and environmental factors. A personalized, multidisciplinary approach is essential to improve outcomes.

Keywords: Asthma; Child; Quality of life; Control

Introduction

Asthma is a heterogeneous respiratory condition characterized by chronic inflammation of the airways, responsible for variable episodes of coughing, shortness of breath, wheezing, and chest tightness. Beyond its respiratory manifestations, asthma is accompanied by significant consequences on the quality of life of the child and their family. Entering a chronic illness imposes physical, emotional, and social constraints on the child that require comprehensive and appropriate management. From the time of diagnosis, one of the doctor's priorities is to establish a maintenance treatment aimed at improving the child's respiratory capacity and reducing the frequency of attacks. Symptoms such as shortness of breath, cough, and rapid fatigue cause functional discomfort that affects daily life. They limit the child in their school

activities, sports, leisure, and social interactions. Our study's main objective is to evaluate the physical and psychological quality of life of asthmatic children followed in the pediatric A department consultations at Mohammed VI University Hospital in Marrakech

Materials and methods**Type of Study**

This study is prospective, descriptive, and analytical. It was conducted with 100 children followed for asthma in the pediatric allergology and pulmonology department of university hospital Mohammed VI in Marrakech. The data collection period spanned three months, from June 2023 to September 2023. The methodological objective was to obtain a precise view of the quality of life of asthmatic children, while taking into account their clinical data, therapeutic regimen, and daily experiences.

Target Population

The study focused on children followed in consultation at Pediatric Department A, pediatric allergology and pulmonology unit. The study included: children over 6 years old with a documented diagnosis of asthma; receiving maintenance treatment; and having received therapeutic education. Excluded were children under 6 years old and those with an associated condition that could interfere with the assessment of quality of life or asthma control.

Data Collection

The data collection took place in real time during the weekly consultations. Informed oral consent from the parents was obtained. Anonymity and confidentiality of the data were strictly observed. Two tools were used:

- A collection form gathering demographic, socioeconomic, clinical, paraclinical, and therapeutic data.
- The Pediatric Asthma Quality of Life Questionnaire (PAQLQ) by Juniper et al [1] ,

French version. An investigator assisted each child by verbally explaining the questions in dialectal Arabic to ensure proper understanding.

Variables Studied

1. Clinical Data

The information collected included: sociodemographic data, medical history, clinical examination, paraclinical examinations: chest X-ray, pulmonary function tests, skin prick tests, prescribed treatment, therapeutic compliance, inhalation technique, and the level of asthma control according to GINA recommendations.

2. Assessment of quality of life

The Pediatric Asthma Quality of Life Questionnaire (PAQLQ) evaluates three areas:

- Symptoms (10 questions),
- Activity limitation (5 questions),
- Emotional function (8 questions).

Each item is rated on a scale of 1 to 7. The questions address either the discomfort caused by asthma over the past seven days or the frequency of symptoms. The scores describe the physical, functional, and emotional impact of the disease on the child's life

Data analysis

Statistical analysis was performed using SPSS version 21. Qualitative variables are expressed as percentages and quantitative variables as means $\pm$ standard deviation. Comparisons used: The Chi-square test, Fisher's exact test.

The significance threshold was set at $p < 0.05$.

Result

In this study, the ages of children with asthma ranged from 7 to 15 years, with a mean of 10.19 ± 2.75 years and a median of 10 years. The majority belonged to the 7–11 age group (64%), compared with 36% in the 12–15 age group. The sex ratio is 1.38, indicating a predominance of females (58%). The majority of patients (71%) live in urban areas. The mean age at asthma onset is 3.27 ± 2.11 years, with a median of 3 years, reflecting an early onset. A history of atopy is found in 56% of children. The most common allergies include allergic rhinitis (47%), atopic dermatitis (36.4%), and allergic conjunctivitis (35%). The most commonly observed clinical signs are dark circles under the eyes in 73% of cases, wheezing in 17% of cases, and clubbing in 8% of cases. A chest X-ray was performed in 90% of the children, revealing chest distension in 38% of cases. Among the 25 children who underwent skin testing, sensitivities were found to house dust mites (20%), molds (20%), and olive trees (16%). Pulmonary function tests were performed in 39% of the children; we found a beta-2 agonist-reversible obstructive ventilatory disorder in 33%, a non-reversible obstructive ventilatory disorder in 28%, and normal results in 39%. The primary maintenance treatment was inhaled corticosteroids (ICS), prescribed in 75% of children.

Quality of Life Assessment

The average overall quality of life score was 5.13 ± 1.4 , with symptoms: 4.97, activity limitations: 4.98, and emotional function: 5.25. The children were divided into two groups: high score (59%) and low score (41%) (Tables 1-2).

Quality of Life Scores	Mean	(SD)	Minimum score	Maximum score
Overall Score	5.13	1.4	1.83	6.6
« symptôms » dimension	4.97	1.42	1.8	6.8
« activity limitation » dimension	4.98	1.45	1.6	6.9
« emotional function »dimension	5.25	1.34	2	7

Table 1: Quality of life scores.

	Quality of life scores	
	High score N(%)	Low score N(%)
Overall score	59(59%)	41(41%)
« symptôms » dimension	53(53%)	47(47%)
« activity limitation » dimension	56(56%)	44(44%)
« emotional function »dimension	60(60%)	40(40%)

Table 2: Classification of quality of life scores.

Correlational Analysis

A positive and significant association ($p < 0.05$) was observed between quality of life and patients' individual characteristics. The results are presented in the tables below (Tables 3-9)

	Overall score (mean)	« symptôms » dimension (mean)	«activity limitation » dimension (mean)	Dimension «émotinal function» dimension (mean)	P
gender					P<0.05
- Boy	5.16	5.37	5.35	5.50	
- Girl	5.09	4.67	4.71	5.07	
Age					
-7-11	5.22	5.06	5.06	5.32	
-12-15	4.97	4.80	4.82	5.10	
Economic status					
- medium	5.24	5.11	5.14	5.38	
- low	4.91	4.66	4.67	4.96	
Place of résidence					
-Urban	5.35	4.87	4.87	5.18	
-Rural	5.59	5.22	5.23	5.41	

Table 3: Correlation between quality of life and individual patient characteristics: age, sex, socioeconomic status, and place of residence

	Overall quality of life score		
	High score (n =59)	Low score (n =41)	P
	N(%)	N(%)	
Gender			P <0.05
- Boy	35(83%)	7(17%)	
- Girl	24(41%)	34(59%)	
Age			
-7-11	43 (67%)	21(33%)	
-12-15	16(44.4%)	20(55.6%)	
Economic status			
- Medium	43(64%)	24(36%)	
- Low	16(48.5%)	17(51.5%)	
Placed of residence			
-Urban	46(65%)	25(35%)	
-Rural	13(45%)	16(55%)	

Table 4: Classification of the overall quality of life score according to patients' individual characteristics.

	Overall score (mean)	« symptôms » dimension (mean)	«activity limitation» dimension (mean)	«function émotional » dimension (mean)	P
Asthma control					P =0.00
-Well controlled asthma	6.5	6.5	6.2	6.8	
-Partially controlled asthma	5.86	6.3	5.4	5.9	
-Uncontrolled asthma	4.2	4.4	3.7	4.5	

Table 5: Correlation between quality of life and asthma control.

	Overall quality of life		P
	High score (n =59)	Low score (n =41)	
	N(%)	N(%)	
Asthma control			P = 0.00
Well controlled asthma	33(57%)	25(43%)	
Partially controlled asthma	22(78.6%)	6(21.4%)	
Uncontrolled asthma	4(28.6%)	10(71.4%)	

Table 6: Classification of the overall quality of life score according to asthma control.

	«Symptôms» dimension score		P
	High score	Low score	
	(n =53) N(%)	(n =47) N(%)	
Asthma control			P = 0.00
-Well controlled asthma	49(84.5%)	9(15.5%)	
-Partially controlled asthma	4(14%)	24(86%)	
-Uncontrolled asthma	0(0%)	14(100%)	

Table 7 : Classification of the “symptoms” dimension score of quality of life according to asthma control.

	«Activity limitation» dimension score		P
	High score	Low score	
	(n = 56) N(%)	(n = 44) N(%)	
Asthma control			P = 0.00
-Well controlled asthma	48(82.8%)	10(17.2%)	
-Partially controlled asthma	8(28.6%)	20(71.4%)	
-Uncontrolled asthma	0(0%)	14(100%)	

Table 8: Classification of the “activity limitation” dimension score of quality of life according to asthma control.

	«Emotionnal function » dimension score		P
	High score	Low score	
	(n = 60) N(%)	(n = 40) N(%)	
Asthma control			P = 0.00
-well controlled asthma	50(86%)	8(14%)	
-Partially controlled asthma	9(32%)	19(68%)	
-Uncontrolled asthma	1(7%)	13(93%)	

Table 9: Classification of the “emotional function” dimension score of quality of life according to asthma control:

Discussion

The concept of quality of life emerged in the 1970 in the United States and quickly gained traction in the field of healthcare [2]. Most authors define quality of life in terms of four fundamental domains: physical well-being (autonomy and physical abilities) and somatic well-being (symptoms, consequences of the disease and treatments), psychological state (emotions, anxiety), and relational stability (family, social, and professional environments) [3, 4]. Several studies have examined the correlation between age and quality of life in children with asthma. According to Al-Akour et al [5], the children’s age was the most predictive baseline variable of quality of life in children with asthma.

In our series, the correlation between age and quality of life is positive and significant ($P < 0.05$). The mean overall quality of life score among children aged 7 to 11 is lower than that of children aged 12 to 15 (5.22 vs. 4.97), as well as in all domains measured by the PAQLQ. The domain most influenced by age is the symptoms domain [6]. These results show that adolescents have a lower quality of life than asthma patients aged 7 to 11, and that the symptoms of their condition have the most significant impact on their quality of life. Our findings may be explained by the fact that during adolescence, self-awareness, the quest for independence, and peer influence become more prominent. These patients may better understand the limitations imposed by their condition, which challenges their autonomy and independence. Between 20% and 50% of adolescents diagnosed with asthma report significant depressive symptoms [7]. These symptoms are generally associated with a reduced quality of life linked to poor symptom control, increased use of healthcare services, and non-adherence to medication, poor treatment outcomes, and a higher prevalence of mortality.

Poor adherence also remains a significant factor that affects adolescents' quality of life. They are reluctant to take their asthma medications, particularly preventive treatments. They feel self-conscious about using inhalers for fear of being stigmatized or feeling different from their peers, and this can obviously lead them to withdraw socially, which may deprive them of emotional support. In contrast, younger children often tend to adapt more easily to their chronic condition by choosing daily activities that are less restrictive and better suited to their condition. This may be due in part to the fact that young children are generally less aware of their symptoms and less concerned about the constraints associated with the disease. They are often more open to following medical recommendations and adapting to their environment to avoid asthma triggers [6].

The relationship between quality of life and the gender of children with asthma has always been a key focus in studies examining the factors that determine the quality of life of children with asthma. In our study population, the relationship between gender and quality of life is positive and statistically significant ($P < 0.05$). The average overall quality of life score for girls is lower than that for boys (5.16 vs. 5.09) as well as in all measured domains. These results show that boys with asthma have a higher quality of life than girls.

The symptom dimension score is the most affected, followed by the activity limitation dimension: girls may experience restrictions in their daily activities due to coughing, shortness of breath, and other asthma-related symptoms. These limitations can affect their quality of life by restricting their participation in physical and

social activities. The majority of boys (83%) had a high score, while only 41% of girls had a high quality-of-life score. Similarly, this correlation has been documented by various studies [8-10].

Girls are more health-conscious and are therefore more likely to over report their symptoms, disclose their health issues, and voice their concerns about illness. This may be due to a heightened sensitivity to their health and a greater openness to discussing their health problems [10]. Boys, on the other hand, tend to keep their diagnosis a secret for fear of not being accepted by others. This attitude may be influenced by gender norms that encourage boys not to show vulnerability or weakness [5]. Boys may have smaller airways than girls, which can lead to increased airflow resistance. This can make breathing more difficult and increase the severity of their symptoms. Increased airway resistance in boys may also contribute to greater sensitivity to asthma triggers. Furthermore, boys are more physically active than girls, which can worsen their asthma symptoms, particularly when they engage in sports. Socioeconomic status has a profound impact on the quality of life of children with asthma, influencing their access to healthcare, their living environment, their nutrition, their education, their psychological well-being, and their social opportunities. Several studies suggest that socioeconomic status has a significant impact on the quality of life of children with asthma [11-13]. The correlation between socioeconomic status and quality of life is positive and significant ($P < 0.05$). It was found that the average overall quality of life score is higher among patients in the middle socioeconomic group compared to those in the low socioeconomic group, at 5.24 versus 4.91, respectively. The same finding was observed for all three dimensions of the questionnaire. A high percentage of patients in the middle socioeconomic group (64%) had a high score, compared to 48.5% of patients in the low socioeconomic group.

The dimension most influenced by this variable is symptoms: this can be explained in particular by living conditions linked to socioeconomic status, such as housing quality and exposure to allergens and irritants, which can influence the development of asthma and its control. Poor-quality housing, overcrowding, and excessive humidity can increase exposure to allergens and worsen asthma symptoms [14]. On the other hand, the financial pressures and stress associated with a low socioeconomic status can have a negative impact on the psychological well-being of asthma patients, which may exacerbate their symptoms [12]. Our findings are consistent with those of Nikhil Shetty et al [12] and Gregory et al [15], who observed a positive effect of higher family income on quality-of-life scores. Higher family income can make healthcare services more affordable and allow family members to access necessary treatments and care more easily, unlike children from low-income families who have limited access to these resources,

which can lead to inadequate disease management, more severe symptoms, and more frequent activity limitations [16].

Housing conditions, such as indoor air quality and the presence of asthma triggers like mold, can vary depending on socioeconomic status. Children living in poor-quality housing or in more polluted neighborhoods may be more exposed to asthma triggers, which can lead to more frequent asthma attacks and limitations on their activities [14]. A secure and high family income can help reduce financial stress, which may have a beneficial effect on the psychological well-being of family members. Financial security can provide peace of mind and improve overall quality of life. It is common to observe that children living in rural environments tend to have lower rates of asthma, allergic rhinitis, eczema, and allergen sensitization compared to children living in non-agricultural urban communities [17].

The relationship between place of residence and quality of life is positive and statistically significant ($P < 0.05$). The results show that patients living in rural areas had a higher overall quality of life score than those living in urban areas, with scores of 5.59 and 5.35, respectively. This trend was also observed across all three dimensions of the survey. Among patients living in rural areas, 65% achieved a high quality of life score, whereas among those living in urban areas, only 45% achieved a high quality of life score. The dimension most influenced by this variable is consistently symptoms: this finding aligns with the results of N. Al-Akour [5] in Jordan, which indicated that children residing in rural areas were 1.4 times more likely to score higher in the symptoms domain compared to children living in urban areas. The literature appears to confirm that place of residence, particularly living in rural or agricultural settings, can have a significant influence on the prevalence of asthma in children, as well as on their quality of life.

The hygiene hypothesis, suggests that the increase in allergic and autoimmune diseases observed in recent decades may be linked to a decrease in exposure to infections and pathogens in the environment [18-19] there is growing evidence that asthma symptom control is the best predictor of quality of life in children with asthma [19]. We observed a positive and highly significant correlation ($p = 0.00$) between well-controlled asthma and high quality-of-life scores. The overall quality of life scores are as follows for each group: controlled group: 6.5, partially controlled group: 5.86, and uncontrolled group: 4.2. These scores indicate that the controlled group has the highest quality of life, followed by the partially controlled group, while the uncontrolled group has the lowest quality of life among the three groups. Fifty-seven percent of patients with controlled asthma had a high score, while only 28.6% of patients with uncontrolled asthma had a high quality of life score.

This result demonstrates that there is a relationship between subjective indicators of asthma control and the quality of life (QOL) of asthma patients. Asthma symptoms, such as the frequency of daytime symptoms, the presence of nighttime symptoms, and activity limitations, have a direct influence on patients' daily lives and their overall well-being. Our results are consistent with the findings presented by Al-Gewely et al [15]. and S. Cerović et al [6]. We observed a positive and highly significant correlation ($p = 0.00$) between well-controlled asthma and high scores on the symptom-assessment scale. The overall quality-of-life scores for each group are as follows: controlled group 6.5, partially controlled group 6.3, and uncontrolled group 4.4. These averages indicate that the controlled group has the highest quality of life, followed by the partially controlled group, while the uncontrolled group has the lowest quality of life among the three groups. A significant percentage 84.5% of patients with controlled asthma had a high score, whereas none of the patients with uncontrolled asthma had a high quality-of-life score. This result demonstrates that there is a relationship between subjective indicators of asthma control and the symptoms experienced by asthma patients. Asthma symptoms have a direct impact on patients' daily lives and their overall well-being. Our results are consistent with the literature [16, 6]. In our study, there was a positive and highly significant correlation ($p = 0.00$) between well-controlled asthma and high scores on the dimension assessing activity limitation. The scores for the activity limitation dimension were as follows for each group: controlled group: 6.2, partially controlled group: 5.4, and uncontrolled group: 3.7. These scores suggest that uncontrolled asthmatics experience more restrictions in their daily activities than controlled and partially controlled asthmatics. The vast majority of patients (83%) with well-controlled asthma achieved a high score, whereas no patient with uncontrolled asthma achieved a high quality-of-life score.

Patients with poorly controlled asthma experience greater discomfort during physical activities and when in contact with animals, and have a greater fear of having an asthma attack. These factors contribute to limitations in their daily activities, which impairs their quality of life. Our results are consistent with those of N. Al-Akour [6]. A positive and highly significant correlation ($p = 0.00$) between well-controlled asthma and high scores on the emotional dimension was observed. Scores varied across the groups as follows: the controlled group scored 6.8, the partially controlled group scored 5.9, and the uncontrolled group scored 4.5. These scores suggest that uncontrolled asthmatics experience a greater number of negative emotions compared to controlled and partially controlled asthmatics. 86% of patients with well-controlled asthma scored high, whereas only 7% of patients with uncontrolled asthma had a high quality-of-life score.

These findings highlight that effective asthma control is associated with a reduction in negative emotions, such as frustration, fear, anxiety, and anger, as well as feelings of difference and exclusion among children with asthma. This translates to better emotional adjustment in these children, which can have a positive impact on their overall quality of life.

Conclusion

Asthma has a significant impact on children's quality of life. To improve the management of this condition and better address the specific needs of young patients, it is essential to more widely incorporate the use of quality-of-life scales into the routine monitoring and treatment of chronic conditions such as asthma. Quality of life is linked to various factors specific to each individual, including age, gender, socioeconomic status, place of residence, and clinical aspects such as asthma control. The quality of life of children with asthma depends on a complex interplay of personal, social, environmental, and clinical factors. To improve their quality of life, effective asthma management must take these multiple aspects into account. This requires a comprehensive, child-centered approach that combines appropriate medical treatment with psychosocial and environmental support to address the specific needs of each child with asthma.

Conflict of interest

None

References

1. Juniper EF, Guyatt GH, Feeny DH, Ferrie PJ, Griffith LE (1996) Townsend Measuring quality of life in children with asthma. *Qual. Life Res* 5: 35-46.
2. Brousse C, Boisaubert B (2007) Quality of life and its measurement. *Rev Médecine Interne* 28: 458-462.
3. Schraub S, Lecomte S, Mercier M, Bonnetterre J, Arveux P (1995) Measuring quality of life in oncology. *Bull Cancer/Radiother* 82: 79-84.
4. Oliveira MA, Barbiere A, Santos LA, Faresin SM, Fernandes ALG (2005) Validation of a simplified quality-of-life questionnaire for socioeconomically disadvantaged asthma patients. *J Asthma* 42: 41-44.
5. Al-Akour N, Khader YS (2008) Quality of life in Jordanian children with asthma. *Int J Nurs Pract* 14: 418-426.
6. S. Cerović (2009) The Serbian Version of the Pediatric Asthma Quality of Life Questionnaire in Daily Practice. *J. Asthma* 46: 936-939.
7. Bitsko MJ, Everhart RS, Rubin BK (2014) The Adolescent with Asthma. *Paediatr. Respir Rev* 15: 146-153.
8. Warschburger P, Busch S, Bauer CP, Kiosz D, Stachow R et al, (2004) Health-Related Quality of Life in Children and Adolescents with Asthma: Results from the ESTAR Study. *J Asthma* 41: 463-470.
9. Hassan MR, Kabir S, Basher AE, Rahman MA, Islam MA, et al (2017) Quality of Life in Children with Asthma in Bangladesh. *Arch Pediatr* 26: 471-476.
10. Rydström I, Dalheim-Englund A, Holritz-Rasmussen B, Möller C, Sandman P (2005) Asthma quality of life for Swedish children. *J Clin Nurs* 14: 739-749.
11. Joy EN, Adaye AC, Maduka UD, Tagbo O (2022) Socio-demographic characteristics of children and young adults with varying asthma control does it make a difference? *Malawi Med J* 34: 31-36.
12. Shetty N, Rao A, Soans S, Sriyan A (2016) Quality of Life in Adolescents with Asthma. *IJSR - Int J Sci Res* 5: 505-507.
13. Carey SK, Edds-McAfee C, Martinez V, Gutierrez De Blume AP, Thornton KM (2019) An Examination of Factors Affecting Quality of Life for Children With Asthma and Their Caregivers in Southeastern Georgia. *J. Pediatr Health Care* 33: 529-536.
14. Elkheir OA, Hafez MR, Mohamed SI (2018) "Environmental and Personal Factors Related to Asthma Severity among Children: Hospital-Based Study, Egypt." *Epidemiol Biostat Public Health* 13: 1-8.
15. Miller GE (2018) Divergent transcriptional profiles in pediatric asthma patients of low and high socioeconomic status. *Pediatr Pulmonol* 53: 710-719.
16. Al Gewely (2013) Health-related quality of life in childhood bronchial asthma. *Egypt J Pediatr Allergy Immunol* 11: 83-93.
17. Riedler J, Eder W, Oberfeld G, Schreuer M (2000) Austrian children living on a farm have less hay fever, asthma, and allergic sensitization. *Clin Exp Allergy* 30: 194-200.
18. Ege MJ (2017) The hygiene hypothesis in the age of the microbiome. *Ann Am Thorac Soc* 14: 348-353.
19. Alexandre-Silva GM (2018) The hygiene hypothesis at a glance: Early exposures, immune mechanisms, and novel therapies. *Acta Trop* 188: 16-26.