THE IMPACT OF ASTHMA ON CHILDREN'S SCHOOL LIFE AGED 6 TO 12 YEARS

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ABSTRACT

Introduction: Asthma is the most common respiratory disease in children. Asthma symptoms can result in children having frequent school absences limited physical activities and social interactions with peers within the school setting. Purpose: The purpose of this study was to investigate the effect of asthma on children's school life aged 6-12 year related to demographic characteristic, school absences due to hospitalization, academic performance, physical activity, asthma stigma and school violence. **Methods:** Data were collected with the use of a questionnaire. Questions regarding the child's demographic information as well as factors that cause children's asthma attacks, types of treatment followed in the past year, children' compliance to treatment instructions, children's duration of absence from school due to hospitalization, children' academic performance and frequency of participation in sports activities were included. **Results:**The present descriptive cross-sectional study was conducted at a large pediatric hospital in Western Greece and included 160 parents of children with asthma. Analysis of the questionnaires showed that children were absent from school "less than one week" (48.3%) while child's academic performance was affected by their condition. Finally, four out of ten children play with their peers during school recess, while 18.4% prefer to play alone. Weather conditions and allergens were reported as the most prevalent (N = 90) factors that caused their child's asthma attacks. Parents claim their children have experienced some form of school violence while two out of ten parents choose not to talk openly about their child's health problem. **Conclusion:** Asthma has an impact on children's school life. Informative programs for students and teachers may be useful, aiming to raise awareness about asthma, and contribute to integrate these students in the school setting while avoiding difficulties.

KEYWORDS professional development, communication strategies, surgical teams, operating rooms

Introduction

Asthma is the most common respiratory disease in children. The condition is more prevalent in boys rather than girls and is responsible for the profound negative social and economic consequences associated with the exacerbation of the disease [1,2,3]. One-third of all preschool children suffer from a recurrent cough, wheezing and chest tightness before the age of six. However, 40% of these children will continue to have asthma [4,5,6].

Quality of life is affected by asthma management [7,8]. Interrupted sleep and restricted airflow have a negative effect on children's ability to participate in sports and social activities and can affect family life. The goal of asthma treatment, according to the 2013 World Asthma Strategy, is to achieve asthma control, but only a limited number of patients can achieve complete control [9]. However, cooperation between parents and children

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is essential in setting treatment goals for both parties. Parents are advised of non-pharmacological measures aimed at avoiding cigarette smoke and allergens. Children have to follow a pharmacological regime which is led by international guidelines such as the Global Initiative for Asthma (GINA) and the British Asthma Guideline [9].

For many children, the severity of the symptoms may decrease in early adolescence and may even disappear completely, especially in those with mild asthma. However, symptoms may persist or return in early adulthood in cases of children with severe asthma [10]. Asthma in older children is characterized as a chronic inflammatory process of the airway. Genetic predisposition, in combination with environmental factors, such as allergens and viral infections, can contribute to the development of asthma in children [11,12].

Childhood asthma often coexists with allergies and other atopic diseases. The possible association between sensitization and asthma in children begins with the development of allergy to cow's milk at a young age, with symptoms disappearing before the age of 3 in 95% of affected children. However, in the following years, the symptoms appear in other organ systems, resulting in conditions such as allergic asthma, allergic rhinitis and allergic dermatitis.

While approximately 60-75% of children with asthma have been sensitized to one or more allergens, asthma may also be present without allergic sensitization. It is increasingly accepted that the phenotype of recurrent wheezing, coughing, and chest tightness also occur in non-allergic young individuals [13,14].

Childhood asthma and quality of life

Childhood asthma is common in the western world mainly in minority populations in Europe and the United States (US), which are significantly affected by asthma morbidity and have higher rates of emergency admissions, hospitalizations, and even deaths [15]. The socioeconomic status of children in the United States appears to be closely associated with the development of chronic diseases such as asthma [16]. The quality of life of children with asthma is affected by asthma management. Children with sufficient asthma control demonstrate the better quality of life. Uncontrolled asthma is associated with decreased lung function, decreased performance in physical exercise and reduced quality of life. Most asthma symptoms occur at night. Nearly half of the children who have asthma that visited a university hospital outpatient clinic in the United States suffered from nocturnal symptoms [17]. Nocturnal symptoms cause loss of sleep or decreased quality of sleep, even effecting children with controlled asthma. Sleep disruption affects both parents and children, causing issues related to attendance and performance and can disrupt family life. In cases of severe asthma, symptoms during the night can lead to frequent absences, which can negatively affect a person's level of education and possible career choice. In addition, frequent nocturnal awakenings can cause depression, aggressive behaviour, and attention problems in adulthood [18]. Exercise-induced bronchoconstriction is another burden for children with asthma. Along with the frequent nocturnal awakenings due to shortness of breath, exercise-induced asthma can also impede social interactions. Exercise causes bronchial stimulation which can lead to coughing, wheezing and chest tightness, an indication of poorly controlled asthma that occurs in 23% of all children with asthma, with severe implications for their quality of life. Exercise-induced asthma also limits participation in sports and childhood physical activities (play) while 79% of children experience severe asthma due to this factor, as it is indicative of airway inflammation [19].

Sports and childhood physical activities (playing) are very important for a child, stimulating the development of social and motor skills [20]. Therefore, asthma can lead to reluctance to exercise and a sedentary lifestyle, which in turn can lead to poor cardiovascular fitness and an increased body mass index (BMI). Poor cardiovascular fitness leads to a higher respiratory rate for a relatively low workload, which may cause airway obstruction. Consequently, children with asthma that have developed poor cardiovascular fitness and/or a high BMI will exhibit a higher rate of respirations during childhood physical activities and sports, compared to their peers. This, in turn, contributes negatively to their athletic performance and quality of life [21].

Purpose

The purpose of this study was to investigate the effect of asthma on children's school life aged 6 to 12 year related to demographic characteristic, school absences due to hospitalization, academic performance, physical activity, asthma stigma and school violence (bullying) due to the condition.

Ethical Issues

Participation in the study was voluntary. Participants anonymity was respected, and they were assured that the data would be used exclusively for this study. The hospital's ethic committee granted access to the sample upon the researcher's request.

Methodology

Design and sample

The present descriptive cross-sectional study was conducted at a large pediatric hospital in Western Greece. The randomly selected participants included in the study were parents of children with asthma. Parents were approached during their child's hospitalization or their scheduled visit to the outpatient clinic. A total of 160 parents were included.

Research tool

A quantitative approach was used to conduct the research. Data were collected with the use of a self-reported questionnaire which included closed-ended questions consisting of two sections. The first section included questions regarding the child's demographic information (gender, nationality, age, child's age at the time of diagnosis, frequency of asthma attacks). The second section of the questionnaire included questions about factors that cause children's asthma attacks, types of treatment followed in the past year, children' compliance to treatment instructions, children' duration of absence from school due to hospitalization, children' academic performance and frequency of participation in sports activities.

Statistical Analysis-Data Management

Responses (N) and frequencies (%) were used to describe the qualitative variables. Chi-square test was used to determine statistically significant differences between the variables. Bonferroni correction was used in order to check the type I error, due to multiple comparisons, according to which the significance level was set at 0.05 / k (k=number of comparisons). Further reliability was confirmer when deemed necessary with the Monte

Table 1 Sample demographic information

Sample demographic information		N	%
Gender	Male	73	49,7
	Female	74	50,3
Ethnicity	Greek	131	89,7
	Other	15	10,3
Childs age	6-9 years	95	64,6
	10-12 years	52	35,4
Childs age at diagnosis	One month to 5 years	102	69,4
	6 to 12 years	45	30,6
Frequency of asthma attacks	Every day or often during the day	6	4,1
	2-6 times per week	48	32,7
	Once a week	35	23,8
	Once a month	32	21,8
	Two or more times a month	26	17,7

Carlo method. The statistically significant level was set at 0.05. Statistical analysis was conducted with the use of the statistical program SPSS v.24.0.

Results

A total of 160 parents were approached to whom the questionnaires were distributed. Of these, 149 were returned, yielding a response rate of 93.1%. During the analysis of the questionnaires, two were incomplete and thus were rejected from the study. The final sample consisted of 147 parents.

Sample demographic characteristics

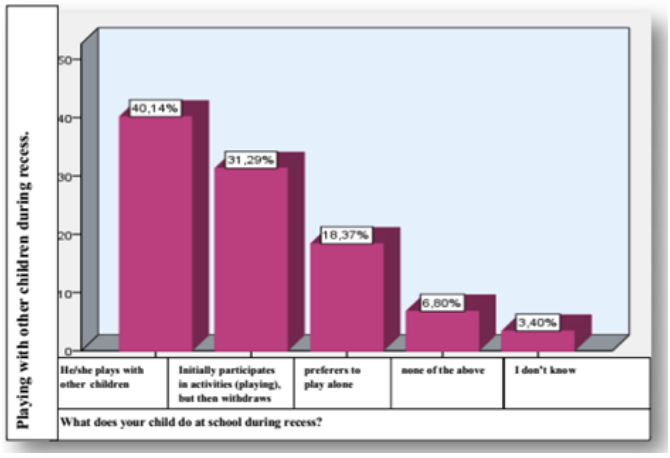
From the analysis of the parents questionnaires (N = 147), 49.7% of the children were boys (N = 73) and 50.3% were girls (N = 74), the vast majority were Greek (89.7% N = 131), while 64.6% were 6-9 years old (N = 95). The majority of the parents stated (69.4%, N = 102) that their childs age at the time of diagnosis was between 0- 5 years old. Regarding the frequency of asthma attacks, 3 out of 10 parents stated "2-6 times a week", 23.8% (N = 35) claimed "once a week", while 21.8% (N = 32) "once a month" (Table 1).

Parents reported weather conditions and allergens (e.g. dust, pollen) as the most prevalent (62.1%, N = 90) factors that caused their child's asthma attacks. While, long-term administration of medication (57.1%, N = 84) appears as the most common treatment compared to other treatments (i.e. immunotherapy). However, 26.5% (N = 39) claimed that their child was only receiving symptom relief treatments.

The majority of the parents agree (82%) that their child complies with asthma treatment instructions, while only 6.1% disagree (Graph 4). Regarding symptoms during the night, 46.94% of the parents claim that "2-6 times" a week their child's asthma causes problems, while two out of ten children are affected "once a month."

The majority of parents (48.3%, N = 71) reported that their child was absent from school in the last year as a result of hospitalization due to their asthma for "less than a week ", while almost three out of ten parents stated "more than a week ".

More than half of the sample agrees (56.5% (N = 83) that their child's health condition has a negative impact on their academic achievements. Parents stated that 29.3% of their children participated in athletic activities at school "once a month" (N = 43), 28.6% claimed they participated "2- 5 times a week " (N=42), while 8.8% claim they "never " participate in such activities. Finally, four out of ten children play with their peers during school recess, while 18.4% (N = 27) prefer to play alone (Graph 1).



Graph 1: Playing with other children during recess.

According to the data, one out of two children receives medication during school hours. The vast majority of parents (85.7%, N = 126) claimed that the school community should be informed about their child's health problem. Nearly three out of ten children have experienced some form of school violence due to their condition. Finally, the majority of parents (76.9%, N = 113) state they speak openly about their child's asthma, while almost two out of ten parents choose not to.

Correlations

In this section, the correlation between demographic information and questions regarding the effects of asthma on children's school life of aged 6-12 are presented. Initially, a statistically significantly correlation was found regarding children's gender and their activities during school recess [X^2 (4) = 9,762 p = 0.045 Monte Carlo 99% CI (0.035 - 0.045)]. Based on these findings, boys tent to initially participates in activities (playing), but then withdraw or prefer to play alone when compared to girls Children's age at the time of diagnosis was correlated with parents' responses regarding factors that cause their child's asthma attacks. The findings indicate 'stress' as a statistically significant factor for 51.1% of the children diagnosed 6-12 years, compared

Table 2-1. Parents responses to questions related to their childs asthma

Parents responses to questions related to their childs asthma		*N*	%
What factors cause your child asthma attacks?	Weather conditions	90	62,1
	Stress	56	38,1
	Allergens	90	61,2
	Viruses	80	54,4
	Other	1	0,7
What type of treatment has your child been following lately?	Symptom relief medication	39	26,5
	Long-term medication	84	57,1
	Special treatments (i.e. immunotherapy)	19	12,9
	None	4	2,7
	Other	1	0,7
Does your child comply with treatment instructions;	Strongly agree	51	34,7
	Agree	69	46,9
	Neither agree or disagree	18	12,2
	Disagree	6	4,1
	Strongly disagree	3	2
How often does your child have symptoms during the night?	Every day or often during the day	13	8,8
	2-6 times a week	46	31,3
	Once a week	37	25,2
	Once a month	31	21,1
	2 or more times a month	20	13,6
How many days has your child been absent from school in the last year as a result of hospitalization due to asthma?	None	34	23,1
	Less than a week	71	48,3
	More than a week	42	28,6
Does asthma affect your child's academic achievements?	Strongly agree	27	18,4
	Agree	56	38,1
	Neither agree or disagree	34	23,1
	Disagree	21	14,3
	Strongly disagree	9	6,1

Table 2-2. Parents responses to questions related to their childs asthma

How often does your child participate in athletic activities at school?	Every day	27	18,4
	2-5 times a week	42	28,6
	Once a month	43	29,3
	2 or more times a month	22	15
	Never	13	8,8
What does your child do at school during recess? During recess your child:	He/she plays with other children	59	40,1
	Initially participates in activities (playing), but then withdraws	46	31,3
	Preferers to play alone	27	18,4
	None of the above	10	6,8
	don't know/no opinion	5	3,4
Does your child receive medication during school hours?	Yes	72	50
	No	72	50
Should the school community be informed about the child's health problem?	Strongly agree	91	61,9
	Agree	35	23,8
	Neither agree or disagree -	17	11,6
	Disagree	3	2
	Strongly disagree	1	0,7
Has your child suffered any form of school violence (bullying) due to his / her health problem?	Yes	41	27,9
	No	97	66
	Don't know/no opinion	9	6,1
Do you openly discuss your child's health problem with people you socialize with?	Yes	113	76,9
	No	27	18,4
	Don't know/no opinion	7	4,8

to 32.4% of children whose age at the time of diagnosis was 0-5 years [x^2 (1) = 4,659 p = 0.031].

Taking medication during school hours and children's age at the time of diagnosis demonstrated a statistically significant difference in the participant's responses. Specifically, 62.8% of the children diagnosed 6-12 years old receive medication during school hours, compared to 44.6% of children whose age at the time of diagnosis was 0- 5 years [x^2 (1) = 4,012 p = 0.045].

Children's age at the time of diagnosis was significantly correlated with experiences of school violence due to their asthma. Children diagnosed 6-12 years old experienced school violence at a rate of 37.8%, compared to 23.5% of children whose age at the time of diagnosis was 0-5 years [x^2 (2) = 7,084 p = 0.029 Monte Carlo 99% CI (0.021 - 0.029)].

A statistically significant difference was found regarding the frequency of asthma attacks and factors the parents believe cause their children's asthma attacks. Whether as a cause for asthma attacks was significantly associated with the frequency of asthma attacks since participants claimed that 79.2% of their children have asthma attack "2-6 times a week ", compared to 50.0% of children who have asthma attack "once a month " due to weather conditions [x^2 (4) = 11,830 p = 0.019]

Children's frequency of asthma attacks was significantly associated with symptoms during the night, demonstrating that 50.0% of the children that experience an attack 'every day or often during the day' also experience symptoms during the night compared to the rest of the sample [x^2 (16) = 94,502 p <0.001 Monte Carlo 99 % CI (0.000 - 0.000)].

Taking medication during school hours depends significantly on the frequency of asthma attacks. The majority of children having asthma attacks on a "daily basis " or "often during the day " take medication during school hours at a rate of 83.3% with the percentage declining as asthma attacks decrease [x^2 (4) = 15,231 p = 0.004].

Frequency of asthma attacks and children's academic performance was also significantly correlated. The entire sample of parents whose child experiences an asthma attack on a "daily basis or often during the day " agree that their child's academic performance is compromised by their health condition [x^2 (16) = 31,851 p = 0.010 Monte Carlo 99% CI (0.008 - 0.013)].

Children's participation in school sports activities demonstrated a significant correlation with the frequency of asthma attacks. Children who have an asthma attack either "once a month " or "two or more times a month ", participate on a "daily basis" in sports activities (28.1% and 30.8% respectively), while 50.0% of parents who claim their child has an asthma attack on a "daily basis" never participate in sports activities [x^2 (16) = 29,194 p = 0.023 Monte Carlo 99% CI (0.016 - 0.023)].

Discussion

A cross-sectional study conducted in Colombia to evaluate the impact of asthma on school absences and academic performance of 1109 students, concluded that symptomatic participants had a higher rate of school absences and lower academic performance [22]. A similar finding was found in this present study; students who experienced asthma attacks on a daily basis often missed school and demonstrated poor academic achievements. In addition, the main factors that are significantly associated with the impact of asthma on school life were the child's age at the time of diagnosis and the frequency of asthma attacks. The child's age at the time of diagnosis appeared to correlate with "stress" as a cause for asthma attacks, taking medication during school hours as well as having experienced school violence for children diagnosed with asthma at a later age.

A study conducted in Greece investigated the effect of asthma on school absences and level of academic performance of 1539 primary and secondary school students. Academic performance was assessed based on parent-teacher reports and school academic scores for the past two years. Students with asthma had a higher number of school day absences compared to healthy students. However, students with limited access to health care services had fewer absences than those with the increased use of health care [23]. In the present study, one-week absence from school was mostly reported. However, the frequency of asthma attacks, specifically for children who experienced daily asthma attacks was determined as the main factor with a significant impact on children's school life. This factor (frequency of asthma attacks) was correlated with poor academic performance, difficulty due to symptoms at night, lack of participation in athletic activities, opting to play alone during school recess, receiving medication during school hours and having experienced some form of school violence.

A Korean study investigated allergic rhinitis, asthma and atopic dermatitis in relation to the school environment and academic performance of a large adolescent population. A total of 299,695 students participated in the Korea Youth Risk Behavior Survey (KYRBS) from 2009 to 2013. The results showed that increased school absences due to asthma could contribute negatively to school performance. Therefore, school life and environment should be a concern for the asthmatic adolescent [24]. In the present study, environmental factors such as weather and allergens (e.g. pollen, dust) were found to have a significant effect on asthma attacks in children.

Interviews were conducted with 23 children who have asthma aged 8-10 in a qualitative European study to investigate children's perceptions of the impact of asthma management at school. The majority of students had developed asthma symptoms during their time at school. The results showed that the management of asthma symptoms at school was inadequate, demonstrating a negative influence regarding children's participation in sports as well as their emotional state [25].

Similarly to the European study, the findings from our study indicate that is that one in ten children does not participate in sports activities, while two out of ten chooses to play alone. Perhaps this occurs due to the difficulty caused by their asthma, poor symptom management as well as physical difficulties faced when performing physical activities, playing and sports, which in turn causes a negative emotional state.

An additional finding of this study is the fact that two out of ten parents choose not to speak openly with people they socialize with about their child's health problem. In contrast, one-third of the children that participated in this study have suffered some form of school violence due to their health problem.

Indeed, many children are ashamed to use their medication at school, perhaps because they feel other children may ridicule them, resulting in increased asthma symptoms and attacks. Likewise, children's anxiety of an impending asthma attack is often accompanied by fear. Fear is also a factor for increased symptoms and possibly an asthma attack [26].

In 2019, researchers in the United Kingdom studied the academic performance of children with asthma living in urban areas and children without chronic conditions. The sample consisted of children aged 7 to 9 years. The study concluded that asthma contributes to poor academic performance, particularly affect-

Table 3. Gender and children's activities during school recess

Gender	**Children's activities during school recess**	*N*	*%*	***P value***
Male	He/she plays with other children	24	32,9	**0,045**
	Initially participates in activities (playing), but then withdraws	27	37	
	Preferers to play alone	16	21,9	
	None of the above	2	2,7	
	Don't know/no opinion	4	5,5	
Female	He/she plays with other children	35	47,3	
	Initially participates in activities (playing), but then withdraws	19	25,7	
	Preferers to play alone	11	14,9	
	None of the above	8	10,8	
	don't know/no opinion	1	1,4	

Table 4: Correlation of childs age at the time of diagnosis and a. Stress as a factor for asthma attacs, b. Medication receives during school hours and c. school violence (bullying) due to asthma

Age at the time of diagnosis	**Stress as a factor for asthma attacks**	*N*	*%*	***P-value***
0- 5 years	Yes	33	32,4	0,029
	No	39	67,6	
6-12 years	Yes	23	51,1	0,029
	No	22	48,9	
Age at the time of diagnosis	**Medication receive during school hours**	*N*	*%*	***P-value***
0-5 years	Yes	45	44,6	0,045
	No	56	55,4	
6-12 years	Yes	27	62,8	
	No	16	37,2	
Age at the time of diagnosis	**School violence (bullying) due to asthma**	*N*	*%*	***P-value***
0-5 years	Yes	4	23,5	0,029
	No	74	72,5	
	Don't know/no opinion	4	3,9	
6-12 years	Yes	17	37,8	
	No	23	51,1	
	Don't know/no opinion	5	11,1	

Table 5-1. Frequency of asthma attacks and a. Factors for children's asthma attacks b. Frequency of symptoms during the night

a.Frequency of asthma attacks	**What factors cause your child's asthma attacks? (*Weather conditions)***	*N*	*%*	***P value***
Every day or often during the day	Yes	4	66,7	0,019
	No	2	33,3	
2-6 times a week	Yes	38	79,2	
	No	10	20,8	
Once a week	Yes	16	45,7	
	No	19	54,3	
Once a month	Yes	16	50	
	No	16	50	
2 or more times a month	Yes	16	61,5	
	No	10	38,5	
b.Frequency of asthma attacks	**Frequency of symptoms during the night**	*N*	*%*	***P value***
Every day or often during the day	Every day or often during the day	3	50	<0,001
	2-6 times per week	2	33,3	
	Once a week	1	16,7	
	Once a month	0	-	
	Two or more times a month	0	-	
2-6 times per week	Every day or often during the day	6	12,5	
	2-6 times per week	26	54,2	
	Once a week	12	25	
	Once a month	2	4,2	
	Two or more times a month	2	4,2	
Once a week	Every day or often during the day	2	5,7	
	2-6 times per week	10	28,6	
	Once a week	15	42,9	
	Once a month	5	14,3	
	Two or more times a month	3	8,6	
Once a month	Every day or often during the day	2	6,3	
	2-6 times per week	4	12,5	
	Once a week	6	18,8	
	Once a month	18	56,3	
	Two or more times a month	2	6,3	
Two or more times a month	Every day or often during the day	0	-	
	2-6 times per week	4	15,4	
	Once a week	3	11,5	
	Once a month	6	23,1	
	Two or more times a month	13	50	

Table 5-2. c. Children receiving medication during school hours, d. Children's academic performance e. Frequency of children's participation in athletic activities

c.Frequency of asthma attacks	**Child receiving medication during school hours**	*N*	%	***P value***
Every day or often during the day	Yes	5	83,3	0,004
	No	1	16,7	
2-6 times a week	Yes	31	68,9	
	No	14	31,1	
Once a week	Yes	16	45,7	
	No	19	54,3	
Once a month	Yes	10	31,3	
	No	22	68,8	
2 or more times a month	Yes	10	38,5	
	No	16	61,5	
d.Frequency of asthma attacks	**Children's academic performance**	*N*	%	***P value***
Every day or often during the day	Strongly agree	3	50	0,01
	Agree	3	50	
	Neither agree or disagree	-	-	
	Disagree	-	-	
	Strongly disagree	-	-	
2-6 times a week	Strongly agree	16	33,3	
	Agree	16	33,3	
	Neither agree or disagree	10	20,8	
	Disagree	5	10,4	
	Strongly disagree	1	2,1	
Once a week	Strongly agree	7	20	
	Agree	11	31,4	
	Neither agree or disagree	9	25,7	
	Disagree	7	20	
	Strongly disagree	1	24,9	
Once a month	Strongly agree	-	-	
	Agree	13	40,6	
	Neither agree or disagree	10	31,3	
	Disagree	6	18,8	
	Strongly disagree	3	9,4	
2 or more times a month	Strongly agree	1	3,8	
	Agree	13	50	
	Neither agree or disagree	5	19,2	
	Disagree	3	11,5	
	Strongly disagree	4	15,4	

ing white children in urban areas. They concluded that school management guidelines for asthma should be consistently implemented and include school staff, carers and students to meet the challenges of managing asthma in the urban school environment [27].

Similarly, in this study, students that often-missed school due to asthma complications demonstrated poor academic performance. It is argued that teachers' positive attitudes towards chronic illnesses can facilitate the child's adaptation and peer acceptance and consequently have a positive outcome regarding academic performance.

In this current study, it was observed that gender does not have a significant impact on children's school life. However, there appears to be an association between gender and the way children play at school during recess, with girls demonstrating better group interaction. A possible explanation is that boys prefer more physical activities while playing and sports, which makes it difficult for boys with asthma to participate in such activities with their peers.

It is well-established that asthma attacks are often followed by strenuous physical activity, which is why parents, teachers and doctors often discourage children, especially the active ones, from exercising. However, children themselves often avoid such activities, because they fear they may cause an attack. This action can seriously hinder the child's interaction with their peers [28].

Conclusions

Asthma is the most common childhood chronic disease, and yet many parents are not well enough informed. The number of children who have asthma is constantly increasing. It is one of the most common reasons for children being absent from school and their parents away from work. Although it can occur at any age (even in infancy), the first symptoms usually appear around the age of 5 years. In early childhood, it is more common in boys, while during adolescence, girls are equally affected.

The above findings contribute to the conclusion that asthma has an impact on children's school life. Thus changes need to be implemented to improve the challenges faced by these children. Informative programs for students and teachers may be useful, aiming to raise awareness about asthma, and contribute to integrating these students in the school setting while avoiding difficulties. Future studies are needed in relation to the effect of asthma on children's school life using a larger sample to increase the generalizability of the findings.

Conflict of Interest

The authors have no conflicts to disclose.

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