

Asthmatic children's attitudes towards their illness

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Abstract

Introduction: Among numerous chronic diseases of childhood and adolescence, bronchial asthma causes many psychological problems, and this is related to its course, long-term treatment and the requirement of self-control. One of the important factors affecting the mental condition of children with asthma is their beliefs about the disease. The attitude towards the illness is also an important factor influencing the prognosis, course of therapy and control of asthma.

Aim: To understand the attitudes of children suffering from bronchial asthma towards their illness.

Material and methods: The survey was conducted in 2019 among 106 children with bronchial asthma aged 8–18 years (mean age: 13.5 ± 0.83) treated at the University Children's Hospital in Lublin and their parents. The study used the Child Attitude Towards Illness Scale (CATIS) and an original questionnaire.

Results: The research demonstrated that children's attitudes towards their own disease were quite varied. The mean of their scores in the CATIS scale ranged from 1.81 to 4.27, with the maximum value of the scale of 5, which means that negative or neutral attitudes prevailed.

Conclusions: In the studied group of children with asthma, negative or neutral attitudes towards their own disease prevailed, which depended mainly on the severity of the disease, the occurrence of exacerbations, self-control, as well as the family structure and place of residence. The CATIS scale can be useful in the work of many therapists as it can be used to assess and, possibly, change the unfavourable attitudes of chronically ill children towards their disease.

Key words: asthma, children, attitudes towards the illness.

Introduction

Chronic disease is always an unfavourable phenomenon in a child's life; it poses many threats to the child's proper functioning as well as physical and emotional development [1–4]. Bronchial asthma is one of the most common chronic diseases in the population of children and adolescents [5–11]. The results of the nationwide epidemiological research ECAP (Epidemiology of Allergic Disorders in Poland) demonstrated that in the largest cities, where the research was conducted, asthma was diagnosed in 20.1% of children aged 6–7 years and in 10.5% of children aged 13–14 years [9]. This disease puts many additional responsibilities and limitations on the affected child, requires self-discipline and self-control associated with daily PEF monitoring, keeping a self-monitoring diary, avoiding attack triggers and adhering to therapy. Moreover, asthma intensifies the emotional reactions that accompany adolescence, interferes with

the psychological needs of a teenager, causes a sense of otherness, lower value, decreased self-esteem, and often loneliness, fear and depression. On the other hand, a positive attitude of sick adolescents to asthma has a positive effect on their self-management [12–15]. Asthma therapy among children is particularly difficult, therefore, from the very beginning, we cannot limit ourselves to the medical approach to the disease, i.e. administering medications and avoiding allergens. Asthma treatment must also target the child's mental sphere. According to the principles of treatment and care for adolescents with asthma established by GINA 2019, treatment should ensure that the length and quality of their lives will not differ from that of their healthy peers [7–11].

The perception of one's illness forms an important factor that conditions coping with the disease [16, 17]. The image of the disease was also identified as an important factor in influencing medical, psychological and behavioural outcomes of treatment. According to the to-date reports

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concerning mainly adolescents suffering from asthma, beliefs about their disease form the crucial factor influencing disease self-control and well-being [16, 17]. According to many authors, the attitude towards the disease influences the course of therapy, self-esteem and functioning of the ill person [16, 17]. An excessively negative attitude towards the disease may worsen the psychophysical condition of the patients, contribute to loss of self-esteem and lowering of the mood, and lead to social isolation. On the other hand, an overly positive attitude towards the disease may hinder the treatment process and the fight against the disease. Shaping the right attitude towards the disease prevents emotional and cognitive disorders that may affect the course of treatment of patients, and above all, the quality of their life. Research results concerning the self-esteem of children with asthma are inconsistent. Taking into account results of the opposite studies, e.g. according to Letitre *et al.*: children with well-controlled asthma do not have poor self-esteem and their mental health problems are worth considering [18].

Aim

The aim of the research was to understand the attitudes of children suffering from bronchial asthma towards their illness.

Material and methods

Research using the diagnostic survey method was conducted in 2019 among children suffering from bronchial asthma and their parents. The selection of the study group was deliberate, i.e. we invited all children with asthma treated in the period of our research at the University Children's Hospital in Lublin, who met the following criteria and expressed their consent, as well as their parents' consent, to participate in the study. The research selection criteria were: diagnosis of bronchial asthma, duration of the disease of at least 1 year, and age of the child over 8 years (as recommended for the CATIS scale). A total of 115 questionnaires were distributed, of which 9 were discarded due to incomplete data. 106 questionnaires were qualified for the final analysis.

The research tools used were the Polish version (Wolańczyk *et al.*) of the standardized CATIS (Child Attitude Toward Illness Scale) by Austin and Huberty [19, 20] and a questionnaire designed specifically for the purposes of the present paper. The CATIS scale contains 13 multiple-choice questions, where the child circles one of the five following options, Likert scale: 'very often', 'often', 'sometimes', 'not very often', 'never' or: 'very good', 'rather good', 'not sure', 'rather bad', 'very bad'. Questions: 3, 6, 8, 10 and 12 were coded from 1 to 5, while questions: 1, 2, 4, 5, 7, 9, 11 and 13 were coded the other way around, i.e. from 5 to 1. This allowed for the numerical determination of the child's attitude towards the ill-

ness on a scale of 1–5 (from the most negative to the most positive). The proprietary questionnaire was addressed to the parents of the children under the study. The questionnaire consists of 25 questions concerning the course of the disease and its treatment as well as sociodemographic data.

Statistical analysis

The database and statistical research were carried out using the Statistica 13.0 software suite (StatSoft, Poland). To investigate the existence of differences between the studied characteristics, depending on the distribution and number of groups, the following tests were applied: Student's *t*, Mann-Whitney *U*, or Kruskal-Wallis *H*. The dependency analysis was performed using the Pearson or Spearman correlation coefficients. We adopted a significance level of $p < 0.05$.

Results

The children subjected to our research were aged between 8–18 years (mean age: 13.5 ± 0.83 years). The boys accounted for 59.43% while the girls for 40.57% of the children under the study. 53.77% of the children resided in urban areas, and 46.23% in rural ones. The vast majority of the children came from full families (86.79%), while 13.21% had single-parent families. Most of the children (83.96%) had siblings ranging from 1 to 3, while 14% were the only children. The financial situation of the respondents, in their subjective opinion, was mostly good (73.58%) or average (19.82%), and not a single person assessed it as bad.

On average, the examined children had suffered from bronchial asthma for 5.0 ± 2.8 years (min. 1 year, max. 15 years). Moderate chronic asthma accounted for 50.94% of the cases, mild chronic asthma for 39.62%, and severe chronic asthma for 9.43%. Almost all children (99.06%) have recently experienced an exacerbation of their asthma. All the children were hospitalized for asthma in the last year. A large percentage of them left school (81.14%) and used additional medical assistance (66.04%) due to the exacerbation of the disease, with only a small percentage self-measuring their PEF (16.98%), and keeping a self-monitoring diary (16.04%). Among the respondents, 14.5% of the children did not participate in PE lessons at all, 22.64% did not participate in school trips, camps and summer camps, and 31.13% did not participate in hobby clubs due to their illness.

The analysis of the test results using the CATIS scale demonstrated that the mean score for individual questions in the studied group of children with asthma ranged from 1.81 ± 0.72 to 4.27 ± 1.03 , which in the context of the maximum value (5) indicates rather negative or neutral attitudes of the respondents towards their illness. The detailed results are presented in Table 1. Children recorded the lowest score (1.81 ± 0.72) in case of question 2 ("Do you think it is okay that you have asthma?"), the highest

Table 1. Distribution of answers provided by children with asthma to particular questions in the CATIS scale

CATIS questions	Descriptive statistics for the CATIS scale					
	N	Mean	Median	Min.	Max.	SD
How good or bad do you feel it is that you have asthma?	106	1.92	2	1	4	0.86
Do you think it is okay that you have asthma?	106	1.81	2	1	4	0.72
What is it like having asthma?	106	2.24	2	1	5	0.86
How good or bad do you think it is to have asthma?	106	1.95	2	1	5	0.82
How often do you think your asthma is your fault?	106	4.27	5	1	5	1.03
How often do you feel that your asthma is making you unable to do the things you want?	106	3.19	3	1	5	1.20
How often do you think you'll always be ill?	106	3.60	4	1	5	1.06
How often do you think your illness is stopping you from doing new things?	106	3.50	4	1	5	1.19
How often do you feel different from other children because of your illness?	106	3.73	4	1	5	1.11
How often do you feel bad because you have asthma?	106	3.47	4	1	5	1.05
How often do you feel sad because of your illness?	106	3.50	3	1	5	1.10
How often do you feel happy despite having asthma?	106	3.88	4	1	5	1.16
How often do you feel as good as your peers despite having asthma?	106	3.86	4	1	5	1.02

Table 2. Answers provided by children to question 5 of the CATIS scale

How often do you think your asthma is your fault?	N	%
Never	60	56.60
Not very often	26	24.53
Sometimes	12	11.32
Often	5	4.72
Very often	3	2.83
Total	106	100.00

(4.27 ±1.03) in question 5 ("How often do you think your asthma is your fault?").

The next stage of the research was to determine the distribution of answers in the respective questions of the CATIS scale. The results of a detailed analysis of selected questions are presented below. Question 2 of CATIS ("Do you think it is okay that you have asthma?") recorded the lowest score. 34.91% of the respondents answered that it was not okay, 50.94% rather not, and 12.26% of the respondents were not sure if it was okay or not. According to 1.89% of the children surveyed, it is rather okay to have asthma and none of them replied it was okay.

In the top-rated question 5 ("How often do you think your asthma is your fault?") only a small percentage of respondents often thought so (2.83%), and more than half of them (56.6%) never thought so, meaning that they did not blame themselves for their illness. The results are presented in Table 2.

In question 6 ("How often do you feel that your asthma is making you unable to do the things you want?") 8.49% of the respondents indicated the answer 'very

Table 3. Answers provided by children to question 9 of the CATIS scale

How often do you feel different from other children because of your illness?	N	%
Never	33	31.13
Not very often	27	25.47
Sometimes	35	33.02
Often	6	5.66
Very often	5	4.72
Total	106	100.00

Table 4. Answers given by children to question 11 of the CATIS scale

How often do you feel sad because of your illness?	N	%
Never	24	22.64
Not very often	27	25.47
Sometimes	37	34.91
Often	14	13.21
Very often	4	3.77
Total	106	100.00

often', 18.87% 'often', 36.79% 'sometimes', 16.98% 'not very often', and only 18.87% marked 'never'.

Answers to question 9 ("How often do you feel different from other children because of your illness?") are presented in Table 3. 4.72% of the respondents indicated 'very often', and 31.13% 'never'.

As for question 11 ("How often do you feel sad because of your illness?") 3.77% of the children stated that

Table 5. The impact of sociodemographic factors on children's attitudes towards the disease according to the CATIS

Socio-demographic factors vs. CATIS		M	Me	SD	Statistical analysis
Gender	Girls	52.46	55.77	15.32	$t = -0.707, p = 0.481$
	Boys	54.52	57.69	14.30	
Child age	Up to 9 years	53.39	53.85	12.73	$F = 1.487, p = 0.231769$ $r = -0.037, p = 0.815$
	10–13 years	51.30	51.92	15.76	
	14 years and above	57.49	59.62	15.32	
Place of residence	Town/city	56.17	57.69	12.55	$t = 1.907, p = 0.049$
	Countryside	50.78	48.08	16.50	
Family structure	Full	53.72	57.69	14.80	$U = 418.5, p = 0.034$
	Incomplete	46.70	46.15	12.15	
Number of children in the family	One	48.30	48.08	11.11	$H = 3.640, p = 0.162$ $r = -0.104, p = 0.507$
	Two	54.91	57.69	15.29	
	Three or more	54.47	57.69	15.08	
Financial situation	Very good/good	53.03	53.85	14.97	$Z = -0.650, p = 0.516$ $R = 0.004, p = 0.970$
	Average	56.32	57.69	13.52	

Table 6. The influence of clinical variables on children's attitudes towards the disease according to the CATIS

Clinical variables vs. CATIS		M	Me	SD	Statistical analysis
Using additional medical care due to an exacerbation	No	60.74	63.46	15.36	$Z = -3.326, p = 0.001$
	Yes	50.05	51.92	13.01	
Conducting self-control (PEF measurements, diary)	Yes	45.02	46.15	12.52	$Z = -2.544, p = 0.011$
	No	55.34	57.69	14.55	
Number of hospitalizations	1–2	50.48	50.00	12.41	$t = 1.662, p = 0.104$ $r = -0.133, p = 0.397$
	3 and more	43.48	44.23	14.86	
Duration of the disease	Up to 3 years	55.07	57.69	12.44	$F = 0.971, p = 0.382$ $r = -0.187, p = 0.230$
	4–6 years	54.87	55.65	17.65	
	7 years and above	50.66	49.04	14.53	
Severity of asthma	Light	57.14	57.69	14.96	$Z = 1.453, p = 0.146$ $R = -0.274, p = 0.005$
	Moderate/severe	51.41	51.92	14.17	
	Yes	52.66	57.69	16.36	
Asthma exacerbations	Very frequent/frequent	49.11	51.92	14.94	$Z = -2.313, p = 0.021$ $R = 0.275, p = 0.005$
	Rare/none	56.57	57.69	13.88	
Absence from school due to asthma	I. Often	46.77	44.23	15.63	$H = 12.635, p = 0.002$ Intergroup differences: I–III $R = 0.344, p < 0.001$
	II. Occasional	54.16	55.77	12.01	
	III. Never	63.08	64.42	14.98	

they did very often and 22.64% chose 'never'. The results are presented in Table 4.

The presented research assumes that socio-demographic variables may have an impact on children's attitudes towards their illness. Six variables were adopted for the purpose of our research: age, gender, place of residence, number of siblings, family structure and financial situation. Statistical analysis revealed that gender, age and having siblings had no significant influence on their attitude towards the illness ($p > 0.05$). On the other

hand, the attitudes of children towards the disease significantly differed according to the place of residence ($p = 0.049$) and family structure ($p = 0.034$). Children living in the countryside and coming from single-parent families presented more negative attitudes. The research results are presented in Table 5.

As part of the research, we also analyzed whether clinical variables are factors that differentiate the level of the CATIS scale. It turned out that the severity of asthma ($p = 0.005$), the occurrence of exacerbations ($p = 0.005$),

school absenteeism ($p < 0.001$) and the use of additional medical care for this reason ($p = 0.001$) and conducting self-control of the disease ($p = 0.011$) all had a significant influence. Disease duration and hospitalization turned out to be irrelevant in this regard ($p > 0.05$). Children with more severe asthma, conducting regular self-monitoring, experiencing frequent exacerbations, with poor school attendance and additional medical care due to disease exacerbation demonstrated more negative attitudes. Detailed research results are presented in Table 6.

Discussion

The advancement of medicine and improved effectiveness of treatment resulted in a decrease in mortality and an increase in the number of people suffering from chronic diseases. Today therapy has not only a medical objective but also non-medical ones, understood as improving the patient's well-being and efficient functioning in everyday life [3, 4, 16].

Chronic disease, apart from somatic disorders, triggers negative emotions, known as mental strain. Strong negative emotions can hinder the healing process. The influence of chronic disease on a child's mental life is of interest to numerous authors [1, 16, 17, 19, 20]. Awareness of chronic disease is a source of anxiety and fear for a child. Chronic diseases expose children to many difficult and new situations, disrupt their development, and hinder the achievement of new goals. They are a difficult emotional experience for both the child and its family [21, 22]. Chronically ill children may treat the disease as a loss in terms of emotions, time and financial costs, but also as a condition that brings various privileges: relieving them of certain duties, giving them greater care on the part of their parents, and attracting more interest from their relatives. Shaping an appropriate image of the disease in a child increases the feeling of safety [2, 3, 16, 17, 21, 22].

According to epidemiological data, for many years, all over the world there has been an increasing number of new cases of bronchial asthma, especially in children and adolescents [5, 7–11]. Among the many risks it brings, an important one is an impairment in the quality of life, associated with the need for the systematic use of drugs, the appearance of side effects of treatment and the risk of exacerbations that form a threat to the patient's life. Our review of studies aimed at analyzing the situation of patients with asthma indicates the emotional sphere as the one that most distinctly suffers from disease-related trauma [1, 12, 13, 16, 17, 21, 22]. Many studies emphasize the excessive fear and anxiety of children suffering from asthma as typical for this illness. Children strongly experience their difference, when they cannot participate in active games with their peers, feel isolated and rejected. They tend to experience negative emotions such as frustration, sadness, anger or anxiety. They often experience fear of exertion and fear of shortness of breath. The sub-

ject literature reaches a consensus stating that negative emotions: anxiety, fear and anger can aggravate the clinical symptoms of asthma. An increase in the frequency of exacerbations and hospitalizations also adversely affects the child's psyche. Mental discomfort may also be caused by absenteeism from school, difficulties in concentrating attention (due to administered medications), shyness and lack of understanding on the part of teachers, and the resulting school problems. Asthma can be effectively controlled by appropriate treatment, as well as by shaping a positive attitude towards the disease, which, in turn, has a huge impact on the functioning of the ill child and the course of therapy.

Research and clinical observations indicate that asthma, by reducing psychosocial resources, e.g. self-efficacy, affects the development of children and adolescents [21–23]. This may be the result of exacerbations and poor disease control, as well as of inappropriate attitude towards the disease. Positive attitudes towards the disease give the child a chance for proper development, better functioning and better quality of life, and are conducive to shaping a correct self-image. Negative attitudes very often cause psychosocial issues, rebellion, aggression, ceasing of self-control and taking medications. Asthma cannot be cured, it will stay with the child for life. His/her attitude towards the disease will therefore determine their attitude towards the disease in adulthood. Children with a positive attitude will do better at school and in adulthood than those who have a negative attitude.

In the available English-language literature, there are few works on the issue of children's attitudes towards chronic disease. Studies of children with epilepsy, conducted with the use of the CATIS Scale, were carried out by, among others by Ransey *et al.*, who later suggested the use of this scale in children with asthma [20]. There are also few publications on this subject in Polish scientific works. The issue of children's attitudes towards chronic disease was studied in Poland, using the CATIS scale, by among others Wolańczyk *et al.* (41 children with enuresis, 60 children with respiratory system diseases and 40 children with cardiovascular disorders), Kózka *et al.* (100 children with chronic respiratory diseases), Grabińska *et al.* (48 children with cystic fibrosis and 26 with asthma) and by the author of the present study in a group of 123 children with diabetes [24–28]. The results from our research differ from the results of other authors as they revealed that the attitudes towards the disease in children with asthma were mostly neutral or negative rather than positive, and depended mainly on factors related to the context of the disease, the so-called condition-related factors (degree of severity and exacerbation of the disease, self-control), and only to a small extent on socio-demographic factors (family structure, place of residence). Analyzing the results of our research, we observed that children, who had to regularly measure their PEF and keep a diary of self-control, which likely lim-

ited their independence, had worse attitudes towards their illness. However, similarly to the studies of other authors, no significant relationship between the attitudes towards the disease and gender (studies in Krakow – by Kózka *et al.*) and the age of the respondents (studies in Bydgoszcz – Grabinska *et al.*) was discovered [25, 26].

A child's perception of its illness is related to the period of its onset. Some authors claim that if a child is ill from early childhood, the disease becomes part of its life, and the child gets used to it and accepts it more easily [21]. However, our research failed to confirm this correlation. Perhaps this was due to the problems of adolescence overlapping the image of the disease.

We can assume that correcting the image of asthma would have an impact on a more effective process of dealing with this disease, and thus on objectively better results of disease management.

Conclusions

The attitudes of children with asthma towards their disease were varied, with negative and neutral attitudes prevailing in the research group. Clinical variables determined the children's attitudes towards the disease to the greatest extent. Negative attitudes were presented by children with severe asthma, frequent exacerbations and school absenteeism, as well as those, who had to use additional medical care and conduct regular self-control. Most of the sociodemographic factors did not differentiate the children's attitudes towards their disease, except for the family structure and the place of residence. Among the respondents, worse attitudes were displayed by children from single-parent families and those living in the countryside.

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Conflict of interest

The authors declare no conflict of interest.

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