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Original paper

Patient knowledge at the Respiratory Ward of the Railway Hospital in Wilkowice-Bystra about preventive treatments to combat house dust mites and alleviate allergy symptoms

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ABSTRACT. House dust mite allergy is a serious problem that affects about six million people in Poland and if left untreated could be the reason for the development of bronchial asthma. The main purpose of this study was to analyse how aware the patients in the respiratory ward were about the prevention of allergic diseases caused by house dust mites and the prophylactic measures that can be taken. The study took place between September 2018 and November 2018 and involved 109 patients, hospitalised in the Respiratory Ward of the Railway Hospital in Wilkowic-Bystra, who had been diagnosed with asthma and house dust mite allergy. People between 51 and 60 years of age comprised the largest group of respondents. A diagnostic survey method was utilised for the study, whereby the survey data was collected by way of a questionnaire completed by the participants. Most people (45.0%) experience an increase in allergy symptoms when cleaning the house and when sleeping at night (35.0%). Over half of the respondents (59.0%) believe, that the main places in which dust mites are found in the home are rugs, blankets and bedding. According to respondents (40.0%), prophylactic treatments against dust mite allergy at home are effective in alleviating the symptoms. Most respondents use preventive measures to combat house dust mites and relieve allergy symptoms. The main source of information about the prevention of allergic diseases is a doctor.

Keywords: allergy, atopic asthma, prevention, house dust mite, patient knowledge

Introduction

Nowadays, in Poland and, indeed, worldwide, there is an increase in the incidence of allergic diseases caused by house dust mites. In Poland, this problem affects about six million people and untreated dust mite allergy may be the reason for the development of bronchial asthma [1–6]. The most numerous group of house dust mites belong to the Pyroglyphidae family, including such species as *Dermatophagoides pteronyssinus*, *D. farinae* and *Euroglyphus maynei*. They occur in places closely connected with humans, like beds, couches, sofas and other sleeping places as well as in upholstered furniture, on clothing, floors and carpets [7–14]. A patient cannot be effectively isolated from dust, but through cleaning and other preventive measures the dust can be reduced and thus allergic symptoms can be alleviated [15–21]. The diagnosis of house dust mite allergies begins with an interview with the person who is presenting with allergic symptoms, such as eczema, allergic rhinitis and conjunctivitis. Most often, these symptoms appear when housework such as cleaning or vacuuming is being done [22–27]. Preventive strategies in the home environment to control dust mites include frequent house cleaning, vacuuming with water vacuum cleaners or with a HEPA filter, ventilating rooms, washing bedding at 60°C, using anti-dust mite covers for duvets and pillows and utilizing acaricides. In addition to applying these prophylactic anti-dust mite treatments, it is also a good idea for the patient to take antihistamines to reduce the allergy symptoms [28–37]. Immunotherapy, or desensitisation, may also be indicated,. This consists of gradually injecting increasingly stronger doses of the allergen

Table 1. Relationship between the respondents' place of residence and their allergy symptoms throughout the year

Do you have allergy symptoms throughout the year?	Summary of two-part table		
	Urban residents	Rural residents	Total
Yes	21	40	61
% of the column total	33.33%	86.96%	
% of the overall total	19.27%	36.70%	55.96%
No	42	6	48
% of the column total	66.67%	13.04%	
% of the overall total	38.53%	5.50%	44.04%
Total	63	46	109
% total	57.80%	42.20%	100.00%

under the skin [3]. Thanks to medical staff educating patients, it is possible to reduce the frequency of hospitalisations related to asthma as well as the socio-economic costs associated with treating patients [38–42]. The main goal of the study was to analyse patient knowledge about the prevention of allergic diseases caused by house dust mites and about the prophylactic measures that can be taken to combat them.

Materials and Methods

The study took place between September 2018 and November 2018, with a group of 109 patients suffering with asthma and an allergy to dust mites, who were hospitalised in the respiratory ward of the Railway Hospital in Wilkowice-Bystra. The tests were conducted after obtaining the consent of the management of the hospital. The anonymity of the research, its purpose, and their voluntary participation were all explained to the respondents and, in addition, they were also shown how to complete the questionnaire.

In the study, a diagnostic survey method was used, whereby a questionnaire was used to collect the data for the survey. The questionnaire contained 31 open or closed questions. The data thus obtained was analysed in the statistical program STATISTICA version 13.0. The data compared the age, education, place of residence, gender of the participants and their living arrangements – alone or with other people. The level of significance, on the basis of which the existence or lack of correlation between variables was determined as $\alpha = 0.05$. The

Table 2. Details of relationship between living arrangements and allergy symptoms throughout the year

Do you have allergy symptoms throughout the year?	Summary of two-part table			
	Living with family	Living with husband/wife	Living alone	Total
Yes	36	17	8	61
% of the column total	65.45%	48.57%	42.11%	
% of the overall total	33.03%	15.60%	7.34%	55.96%
No	19	18	11	48
% of the column total	34.55%	51.43%	57.89%	
% of the overall total	17.43%	16.51%	10.09%	44.04%
Total	55	35	19	109
% total	50.46%	32.11%	17.43%	100.00%

Table 3. The frequency of exacerbations of the disease depending on the gender of the respondents

How often do the symptoms intensify?	Summary of two-part table		
	Women	Men	Total
More often than twice a year	28	28	56
% of the column total	52.83%	50.00%	
% of the overall total	25.69%	25.69%	51.38%
Once a year	5	17	22
% of the column total	9.43%	30.36%	
% of the overall total	4.59%	15.60%	20.18%
Twice a year	15	11	26
% of the column total	28.30%	19.64%	
% of the overall total	13.76%	10.09%	23.85%
Symptoms do not intensify	5	0	5
% of the column total	9.43%	0.00%	
% of the overall total	4.59%	0.00%	4.59%
Total	53	56	109
% total	48.62%	51.38%	100.00%

t-Student, ANOVA, r-Pearson, Spearmann, U-Mann Whitney and chi^2 tests were used to analyse the variables.

Results

In the study, men constituted 51.0% of all respondents (n = 56), and women 49.0% (n = 53). The largest group among the respondents were people between 51 and 60 years of age (32.0%), 41–50 years (28.0%), 31–40 years (28.0%), over 60 years old 7.0%, and 5.0% of respondents were between 20 and 30 years old. Another characteristic feature of the study group was their place of residence, with the majority of respondents (58.0%) living in a town/city and 42.0% in the countryside. As many as 40.0% of the respondents were people who had completed secondary education, with 28.0% having completed professional education, 27% higher education and 5.0% primary education. Blue-collar and white-collar workers constituted 37.0% and 35.0% of the group respectively, and a quarter of the respondents were pensioners. Over half of the respondents thought that their financial situation was good (65.0%), with 30.0% believing it was average and 5.0% bad. Most of the respondents lived at home with their family (51.0%), almost 1/3 lived in shared accommodation (32.0%), and 17.0% lived alone.

Analysis of patients' allergic diseases, diagnostics and treatment

Respondents were asked how long ago they had been diagnosed with house dust mite allergies. The same number of people (35.0%) had been diagnosed with house dust mite allergy in the time period 6 to 15 years ago as over 15 years ago, with almost a quarter diagnosed 1 to 5 years ago, and 6.0% starting treatment over the past year. Most of the respondents (n = 104) had had skin tests performed to diagnose their allergies to house dust, some had had an additional test, a blood test for the detection of a type of antibody called Immunoglobulin (IgE) (n = 70), while provocation tests had been performed less often (n = 27). As many as 50.0% of the participants mentioned atopic asthma as an allergic reaction, ¼ indicated perennial rhinitis, 14.0% allergic conjunctivitis, and 10.0% atopic dermatitis. Most people experience an increase in allergy symptoms during house cleaning (45.0%), at night while sleeping (as many as 35.0%), and 20.0% when vacuuming, sweeping floors, dusting and shaking out carpets. In 44.0% of respondents allergy symptoms are most severe in the evening, in 27.0%

Table 4. The relationship between the frequency of exacerbations of the symptoms and living with roommates

How often do the symptoms intensify?	Summary of two-part table			
	Living with family	Living with husband/wife	Living alone	Total
More often than twice a year	28	21	7	56
% of the column total	50.91%	60.00%	36.84%	
% of the overall total	25.69%	19.27%	6.42%	51.38%
Once a year	13	2	7	22
% of the column total	23.64%	5.71%	36.84%	
% of the overall total	11.93%	1.83%	6.42%	20.18%
Twice a year	14	7	5	26
% of the column total	25.45%	20.00%	26.32%	
% of the overall total	12.84%	6.42%	4.59%	23.85%
Symptoms do not intensify	0	5	0	5
% of the column total	0.00%	14.29%	0.00%	
% of the overall total	0.00%	4.59%	0.00%	4.59%
Total	55	35	19	109
% total	50.46%	32.11%	17.43%	100.0%

after waking up in the morning, and in 29.0% in the afternoon. Over half of the respondents (56.0%) said that their allergy symptoms persist throughout the year and 44.0% that they do not persist throughout the year. There was a perceived relationship between the place of residence and living with a family and the persistence of the allergy throughout the year (Table 1, 2).

The analysis shows that allergies persist much more often in people living in the countryside and living with their families. In more than half of the respondents, exacerbations occur more often than

Table 5. The frequency of seeking specialist advice depending on the gender of the respondents

How often do you seek the advice of a specialist?	Summary of two-part table		
	Women	Men	Total
Only when symptoms get worse	42	17	59
% of the column total	79.25%	30.36%	
% of the overall total	38.53%	15.60%	54.13%
Several times a year	11	33	44
% of the column total	20.75%	58.93%	
% of the overall total	10.09%	30.28%	40.37%
Several times a month	0	6	6
% of the column total	0.00%	10.71%	
% of the overall total	0.00%	5.50%	5.50%
Total	53	56	109
% total	48.62%	51.38%	100.00%

Table 6. The frequency of seeking specialist advice depending on the respondents' place of residence

How often do you seek the advice of a specialist?	Summary of two-part table		
	Urban residents	Rural residents	Total
Only when symptoms get worse	47	12	59
% of the column total	74.60%	26.09%	
% of the overall total	43.12%	11.01%	54.13%
Several times a year	16	28	44
% of the column total	25.40%	60.87%	
% of the overall total	14.68%	25.69%	40.37%
Several times a month	0	6	6
% of the column total	0.00%	13.04%	
% of the overall total	0.00%	5.50%	5.50%
Total	63	46	109
% total	57.80%	42.20%	100.0%

twice a year (51.0%), twice a year in 24.0% of respondents, in only 20.0% once a year, and in 5.0% there is no exacerbation of the disease. Statistically significant relationships were found between gender and co-habitation with a variable p <0.05 (Table 3, 4).

Women have exacerbations more often than men, while people who share their living arrangements with other people have exacerbations more often than people living alone. Most respondents (61.0%) admitted that they regularly take allergy control medications, 24.0% only when symptoms appear, and only 15.0% do not take any medications. More than half of the respondents follow the advice of a specialist only when their symptoms worsen (54.0%), 40.0% of the respondents follow the specialist's advice several times a year and 6.0% several times a month. A statistical analysis was made between the above variable and gender, age, education, place of residence and living arrangements (Table 5, 6).

A relationship between gender and place of residence was shown with the variable p<0.05. Women follow the advice of a specialist doctor only in the case of exacerbations, while men follow it several times a year. People living in the town/city follow specialist advice only in the event of an exacerbation of the disease, with people living in the countryside following it several times a year.

Analysis of patients' knowledge about preventive treatments to combat house dust mite allergy and alleviate its symptoms

Respondents were asked if they had pets at home. The analysis shows that 51.0% of respondents do not have animals at home, and 49.0% do. When asked which items accumulate the most dust in the home, respondents marked several answers. As many as 44.0% of respondents thought that the most dust is collected by carpets, then curtains(25.0%), mattresses, beds and pillows (25.0%), with only 6.0% of respondents alluding to furniture upholstery. A statistical analysis of the above variable was made with gender, age, education, place of residence and living arrangements (Table 7).

Statistically significant relationships between the examined variable and gender and place of residence were found (p<0.05). As many as 49.06%

Table 7. The respondents' knowledge about the objects that accumulate the greatest amount of dust in the house depending on gender, age, education, place of residence and living with roommates

Research variable	Items with the most dust (p = 0.05)
Gender	p=0.002
Age	p=0.87
Place of residency	p=0.015
Education	p=0.55
Living arrangements	p=0.32

of women believe that the most dust is in carpets and 28.30% in curtains. 41.07% of men also indicated carpets, 21.43% curtains and 37.50% other items. As many as 52.38% of urban residents and 34.78% of rural residents stated carpets. Only 22.22% of urban residents believe that items collecting the most dust are curtains and 25.40% indicated other items. Among rural dwellers, 28.26% believe that the most dust is in curtains and 23.91% in other items. No similar correlations were found between age, education level or living arrangements, and the examined feature.

The respondents specified how often they vacuumed their home during a week. The analysis shows that over 30.0% of respondents vacuum their home every day or once a week, 25.0% of respondents carry out this activity twice a week, with 15.0% doing it less often than once a week. A statistical analysis was made of the studied variable with gender, age, education, place of residence and living arrangements. A statistically significant relationship between gender and place of residence and the examined variable ($p<0.05$) was demonstrated. As many as 41.51% of women and 19.64% of men vacuum their home daily, 30.19% of women and 30.36% of men carry out this activity once a week, with 39.29% of men vacuuming twice a week. Of those people living in the country, 23.91% vacuum their home every day, 36.96% twice a week and 26.09% once a week. Of those people living in towns/cities, 34.92% vacuum their flat every day, while 42.86% vacuum once a week. Similar relationships between the frequency of vacuuming and age, education or living arrangements were not demonstrated. Respondents were asked if their household vacuum cleaners were equipped with high quality filters. More than half of the respondents use vacuum cleaners with high-quality filters to clean their homes (55.0%), while 45.0% of respondents said that they do not have such equipment. A statistical analysis of the above variable was made with gender, age, education, place of residence and living arrangements. The relationship between the examined variable and gender, education and living arrangements was demonstrated. Research shows that 81.13% of women while 30.36% of men use vacuum cleaners equipped with a special filter and 69.64% of males do not. Most people (79.31%) of those with higher education,52.27% of those with secondary education and 45.16% of those with professional education use cleaners with a special filter. 47.73% of respondents with secondary education and 54.84% with professional education do not. As many as 60.0% of people living with family and 65.71% of respondents who share their home with other people use a vacuum cleaner with a special filter. No such equipment was reported by 40.0% of respondents living with their families, 34.29% sharing with people other than family and 78.95% of people living alone. No similar correlations between the examined variable and age and place of residence were found. Respondents were asked if they often air their home. The research shows that ľ of respondents often air their home (75.0%), 20.0% rarely perform this activity, while 5.0% generally do. A statistical analysis of the above feature was made with gender, age, education, place of residence and living arrangements. There was a significant correlation between the studied variable and the place of residence $p<0.05$. Most people living in the town/city (80.95%) air their home with 19.05% rarely doing it. Those people living in the country perform this activity less frequently (67.39%). There was no correlation between the remaining features of the studied group and the frequency of airing the home. The analysis shows that town/city dwellers more often air their room than people living in the country. Respondents were asked if they think about maintaining the correct temperature (below 25°C)with humidity below 45.0% in their homes. As many as 66% of respondents do not consider these factors in their homes, 34.0% of respondents reported that they do bear in mind the temperature and humidity. A statistical analysis of the above variable was made with gender, age, education, place of residence and sharing accommodation. A relationship between the examined variable and the place of residence as well as education ($p<0.05$)was demonstrated. As many as 47.83% of the country dwellers bear in mind the above parameters in their home while 52.17% are not concerned about them. Only 23.81% of people living in the town/city try to maintain the right temperature and humidity in their rooms, while 76.19% do not. People with higher education (41.38%) and secondary education (47.73%) give consideration to the correct temperature and humidity at home, while 58.62% of people with higher education, 52.27% of people with secondary education and 87.10% of people with vocational education do not give much thought to them. Respondents described at what temperature they wash bed linen. Half of the respondents believe that

the temperature is not important when washing bed linen (n = 55), 27.0% do the washing at 60°C (n = 29), 18.0% at a temperature below 50°C (n = 20), while 5.0% at 100°C (n = 5). Respondents were asked if they use anti-allergyduvet covers, pillows or anti-allergy bedding of man-made fabrics. As many as 93.0% of respondents use the above-mentioned in everyday life, the remaining 7.0% do not use them. Respondents specified whether they use acaricides to control house dust mites. The largest part of the group (65.0%) do not use these substances, 24.0% admit to using them and 11.0% of the respondents rarely use acaricides. A statistical analysis of the above variable was made with gender, age, education, place of residence and living arrangements. A statistically significant relationship between sex and education and the use of acaricides was found ($p<0.05$). As many as 71.43% of men and 59.49% of women do not use these products. 28.57% of men admit to their general use and 22.64% of women rarely use them. 75.86% of people with higher education, 52.27% with secondary education and 67.74% with vocational education do not use acaricides at all. As many as 47.73% of people with secondary education confirm they use these substances. No similar relationship was found between age, place of residence or living arrangements. Participants answered questions abouttaking preventive measures against house dust mites. Most of the respondents (n = 83) use vacuuming as a preventative measure against house dust mites, 57 respondents air the rooms, and 29 dust. Only 17 respondents do not take any preventive measures against house dust mites. Respondents were asked whether the preventive measures taken are effective in combating allergy symptoms. As many as 40.0% of respondents believe that the measures taken are effective (n = 44). They are rated as quite effective by 34.0% of respondents (n = 37), while 16.0% (n = 17) rated them as unsuccessful. Only 10.0% of respondents do not see the effect of the preventive measures taken against home dust mites (n = 11).

Analysis of the sources of information for the preventive measures taken to combat dust mites

The people participating in the study indicated their sources of information concerning the prevention of allergic diseases caused by dust mites. Most respondents obtain information from a doctor (n = 82) while (n = 70) obtained information from the Internet, up to (n = 53) from the television and (n = 47) from brochures, books or guides. The last question concerned a subjective assessment of their own level of knowledge about the prevention of allergic diseases caused by dust mites. The analysis shows that 36.0% of respondents assess their knowledge as good, 29.0% very good, 25.0% average, and 10.0% of respondents assessed it as bad.

Discussion

Nowadays, the incidence of allergic diseases caused by house dust mites is on the rise, and an untreated allergy to house dust mites may be the reason for the development of the serious disease, bronchial asthma [7–14]. Patients' self-awareness regarding the prevention of allergic diseases caused by house dust mites is important [43]. This study involved 109 people suffering from inhaled allergies caused by house dust mites and in the majority of people (n = 104) the allergy had been diagnosed by means of skin tests. In some people (n = 70), however, additional blood tests were performed, which involved determining levels of IgE antibodies. Some people (n = 27), additionally, undertook provocation tests in order to diagnose their allergy. These numbers, as can be seen, do not add up, which is due to the fact that additional verification is necessary to explicitly confirm the allergen. According to the studies conducted, as many as 50.0% of the respondents report atopic asthma as the main symptom of allergies to house dust mites and ¼ reported perennial rhinitis. Other respondents complained of recurrent allergic conjunctivitis and the development of atopic dermatitis. It has been noticed that in children, allergy develops mainly in the form of atopic dermatitis or allergic rhinitis, and this is confirmed by the research on „Epidemiology of Allergic Diseases in Poland" conducted in 2006–2008 [44]. There is a large disproportion between these research results and our results. The most likely cause of this big difference in the results is connected with the length of time these allergies had been apparent in the populations studied. Atopic asthma, which is the most common health problem found in our own research, is often a complication of allergy, but rarely appears as the first symptom. The population for our research were adults with allergies which had often existed for many years. In the studies cited above [44], the allergies found in the paediatric patients were diagnosed in the

relatively recent past and had not yet contributed to the development of complications. Our own research showed that the older a patient with allergies, the more often he/she indicates atopic asthma as a symptom of the allergy. Respondents were asked about when the allergy symptoms to house dust mites intensifies and as much as 45.0% indicated cleaning as an activity which initiated allergy symptoms, 35.0% indicated resting at night, and 20.0% chose a different answer. Of these responses, 100.0% were related to specific household cleaning activities such as vacuuming and sweeping floors, dusting, and carpet shaking. It is intriguing that 35.0% of respondents indicate night rest as an activity that intensifies allergy symptoms. The studies by Majkowska-Wojciechowska et al. [44] highlighted the fact that not only bedding, but also mattresses are the reservoirs of house dust mites. As a result, most people perceive the greatest worsening of symptoms during the night hours. Respondents were asked if their allergy persisted throughout the year, and as many as 56.0% indicated that they did. According to Kowalski et al. [45], the concentration of allergens in the home throughout the year may remain at a more or less constant level, and heating and lack of ventilation may contribute to greater airborne allergens in the winter. In the case of inhalation allergies, it would be necessary to perform a full allergic panel, as the variable nature of the disease may result from an overreaction of the immune system to more than one inhalation allergen. In own research, a correlation was found between the place of residence, living with the family and the persistence of allergies throughout the year. Allergies persist more often in people living in the countryside and living with their families. In more than half of the respondents, exacerbations of the disease occurred more than twice a year and more often affected women, similar results were confirmed by Bartoszek in his research [46]. The study group was asked about taking medications for allergies. Over 60.0% of the respondents declare that they take drugs regularly, Ł of the respondents when symptoms of allergy appear. Referring to the study by Grad et al. [47], there are various ways of treating allergies, ranging from taking antihistamines to desensitization. According to research, most patients follow the recommendations of their doctor. Over half of the respondents (54.0%) follow the specialist's advice only when the allergy symptoms are exacerbated, 40.0% follow it several times a year, and 6.0% several times a month. It is also intriguing that men paid visits to a specialist clinic much more often. A similar relationship occurred in the case of people living in the country; it was this study group which most often had consultations at a specialist clinic about their health problems. According to polls by the Public Opinion Research Center (CBOS), approximately 55.0% of Poles receive treatment in specialist clinics [48]. However, in the course of this study, a different relationship was noticed in that women are much more likely to visit a doctor. Further questions focused on determining the respondents' level of knowledge concerning the prevention of allergic diseases caused by house dust mites. Respondents were asked what they considered were the most important reservoirs for house dust mites. The results obtained were as follows; 15.0% indicated rugs, 11.0% bedding and blankets, 9.0% clothing and curtains, 6.0% bed and mattresses. The largest group of respondents indicated that dust mites accumulate on all of these items (59.0%). This is confirmed by the studies by Majkowska-Wojciechowska et al. [44] and Kowalski et al. [45]. The next question was on the subject of where the largest amounts of dust accumulate and the respondents indicated carpets and curtains. In the studies cited above [44,45], it was noted that these reservoirs are often forgotten about by people suffering from inhalation allergies(most often they indicate a bed or mattresses) and a similar relationship was demonstrated in our own research. The results obtained show that it is important to educate patients who are diagnosed with inhaled allergies. Next, the respondents were asked to indicate which elements of house dust may contribute to the development of allergies. The most frequent answer was 'all indicated' (51.0%). The question listed house mite allergens and their droppings (indicated by 30.0%), animal hair, pollen, spores, insects and mould (9.0%), while 10.0% could not answer. The question about habits related to house cleaning shows that nearly 30.0% of allergy sufferers vacuum their homes every day, a quarter of them do it at least twice a week, and another 30.0% once a week. Respondents were asked whether they use vacuum cleaners equipped with high-quality filters, an affirmative answer was given by 55.0% of the respondents. It is known that the use of low-quality vacuum cleaners, bag vacuum cleaners and vacuum cleaners that do not have the correct quality filters, may contribute to the exacerbation of allergic symptoms in correlation

with cleaning. The necessity to use vacuum cleaners equipped with high-quality filters by allergy sufferers is also confirmed by Jakimiec et al. [35]. The vast majority of respondents (66.0%) admit that they do not pay attention to the microclimate of the rooms they live in (temperature and humidity). According to Samoliński [4], in the case of allergies to house dust mites, ensuring the correct microclimate is extremely important.The reduction of humidity and lowering of temperature means that the dust mite cannot reproduce. This is another element in the field of knowledge in which patient education seems to be of paramount importance in improving the quality of life and reducing the frequency of disease exacerbations [17–21]. The water temperature for washing bed linen is another thing that the respondents find unimportant, with as many as 50.0% of respondents saying that it does not matter. Dombkowski et al. [34] draw attention to the fact that house dust mites are relatively resistant to environmental factors. However, washing at temperatures exceeding 55ºC allows for their complete removal [49]. It is surprising that such a large percentage of respondents indicate that wash temperature is not important. However, there is no reliable research that establishes the habits of allergy sufferers in this area. The vast majority of respondents (93.0%) indicate that they use such things as anti-allergy duvets, pillows and bedding. Similarly, research by Woodcock [24] shows that the use of anti-allergic covers and bedding reduces exposure to mites. On the other hand, Siwak et al. [36] note that the use of such products does not significantly affect the intensity of allergy symptoms. It can be seen that many products of this type do not have the appropriate approvals, only the manufacturer's description suggesting to the purchaser that it has antiallergic properties. The last question was about sources of knowledge about allergies. Most (n = 82) respondents indicated that their doctor was their source of knowledge, followed by the Internet (n = 70) and television or books (n = 50). It is essential to develop detailed information brochures to be distributed to patients immediately after diagnosis, which could help to improve patients' understanding of inhalation allergies and their prevention.

In conclusions, the majority of patients with asthma know about preventive recommendations to combat dust mites in the home environment and alleviate allergy symptoms, however, they need to adhere to these recommendations more rigorously, and especially consider the correct temperature and humidity inside their homes.

There is a need to educate patients and their families in order to supplement their knowledge about preventive treatments to combat house dust mites and to alleviate allergy symptoms, so that they can use these preventive measures more effectively.

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