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Food label reading habits of mothers of children with IgE-mediated food allergy before and after training

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KEYWORDS

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Abstract

Background: One of the most important points in the treatment of food allergies is the avoidance of the culprit allergen. This study aimed to determine whether the training given by a dietitian to mothers of children with IgE-mediated food allergies increased the habit of reading food labels.

Methods: Mothers of children with IgE-mediated food allergies were trained on reading food labels by a dietitian. Then, the mothers' food label reading habits were measured with a questionnaire form at 3-month intervals before and after the training.

Results: The study included 56 children with IgE-mediated food allergies and their mothers. Thirty-four (60.7%) of the patients were males. The median age was 10 (min-max = 1-52) months. The most common food allergen was eggs, and this allergy was detected in 31 (55.3%) of the patients. The most common systemic involvement was skin, which was seen in all patients (100.0%). Fifty-six mothers of children with IgE-mediated food allergies participated in the study (Median age: 30 years, min-max = 20-45). There were statistically significant differences between the pre- and post-training groups in terms of the answers to the question "What are the things that affect you the most when buying food?" as "Label information on food packaging," "Do you look at the product label when purchasing food?" as "yes," "If your answer is "yes," "Which food group do you look at?" as "milk and dairy products or eggs and products," and "What do you pay attention to on food labels?" as "allergen information" (P = 0.001, 0.001, 0.001, 0.001, and 0.001, respectively).

Conclusion: This study concluded that providing training by a dietitian on how to read food labels to mothers of children with IgE-mediated food allergies increases mothers' awareness of reading the labels.

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Introduction

Food allergies are immunological reactions that can lead to serious health problems, such as severe anaphylactic shock, even with the ingestion of small amounts of food allergens.1 Food allergies are a public health problem, affecting approximately 10.0% of the population.² Their prevalence is increasing worldwide, especially in childhood.^{3,4} The most common food allergens in children are milk, egg, wheat, and peanut.5 Approximately 40.0% of children with food allergies in the United States develop at least one life-threatening reaction. These reactions can develop after exposure to minimal doses of allergens.6 Forty-one per cent of allergic reactions that occur after accidental ingestion of allergenic foods are caused by packaged foods.7 To protect against these reactions, patients should avoid the culprit food that causes food allergy and carry an adrenaline autoinjector for life-threatening reactions. The fear of severe reactions that may be caused by accidental ingestion of small amounts of food allergens deteriorates the quality of life of both patients and their families.8 Therefore, reading food labels on packaged products is of great importance.

This study aims to determine the effect of training on food label reading habits in mothers of children with food allergies after training by a dietitian.

Material and Methods

All mothers of children diagnosed with IgE-mediated food allergy between February 2023 and February 2024 were invited. No formal power analysis was conducted; the sample size was based on the number of eligible and consenting participants. Fifty-six participants who consented and agreed to attend follow-ups were enrolled consecutively. The patients were diagnosed with IgE-mediated food allergy after complete blood count, total IgE level, specific IgE tests for suspicious foods, skin prick test consisting of food allergens, and oral provocation test. After the definitive diagnosis of the patients, a two-part questionnaire was filled out by the mothers. The first part of the questionnaire included demographic data about the patients and their mothers, and the second part included questions related to food labels. The second part of the questionnaire included questions such as: What are the issues that affect you the most when buying food?, Do you look at the product label when buying food? Which food group do you read the food label for?, What do you pay attention to on food labels?, In which situations do you usually read food labels? Do you find the label information sufficient? What is the reason for your finding the label information insufficient?9 After the questionnaire form was filled out, the mothers were trained by dietitian K.Y. on reading food labels. A standardized protocol and visual materials were used across all training sessions for consistency. A list of foods containing the allergen associated with the food to which the child was allergic was given to the mothers in the form of a brochure. The patients were called for a checkup 3 months later. The adherence to the list of allergen-containing foods to be avoided and label reading habits in the patients were reevaluated by refilling the questionnaire, and the answers, pre- and post-training, were compared statistically.

The following parameters were taken into consideration when training participants on reading food labels.

Content of the training

The training aimed to increase the participants' basic knowledge level on food allergies and the risks of exposure to allergens. The concept of cross-contamination and the meaning of the expression "may contain trace amounts" were explained to the parents. The participants were given a list of foods to avoid according to their allergen profile.¹⁰

Teaching the label structure

After the basic information, the structure of food labels was systematically explained, regarding where and in what format the ingredients list, allergen warnings, and additional phrases were located on the labels. It was stated that allergens could be emphasized on the labels with bold, capital letters, or italics, and that these formats were elements to be considered. The participants were provided with the definition of the label sections through sample labels.

Alternative terms and keywords

The participants were informed that allergens could be mentioned on the labels with different names. For example, it was stated that individuals with milk allergy may encounter terms such as "casein," "whey," and "lactoalbumin," and those with egg allergy may encounter terms such as "ovalbumin" and "ovomucoid" on labels. Each participant was presented with a written list of alternative names for individual allergens.

Scenario-based learning

To reinforce the label reading practice, participants were presented with real-life scenarios. For example, questions such as "Can products labeled vegan be consumed?" or "Can a cracker on the market shelf that says whey be consumed?" were asked to evaluate the decision-making process of the participants.

Monitoring and support process

The necessary information about alternative products and ingredients, and food and meal recipes specific to the individual allergen, was provided to the participants. Participants were reevaluated 3 months after the training in the monitoring phase, their competencies were reviewed, and additional support was provided when necessary.

Written informed consent was obtained from the patients' parents for participation in the study. The study

was approved by the Ethics Committee of Başakşehir Cam and Sakura City Hospital (File number: KAEK/2023.01.38).

Statistics

We performed statistical analysis using Statistical Package for Social Sciences (SPSS) 21.0 software (SPSS Inc., Chicago, IL, USA). Descriptive statistics were expressed as frequency and percentage for categorical variables, whereas quantitative data were expressed as median for non-normally distributed data and as mean for normally distributed data. We used the Chi-square test to compare the categorical variable. The McNemar test was used to evaluate the relationship between categorical variables among dependent groups.

Results

Study population

The study included 56 children with IgE-mediated food allergies and their mothers. Thirty-four (60.7%) of the patients were males. The median age was 10 (min-max = 1-52) months. The most common food allergen was egg, which was detected in 31 (55.3%) of the patients. The most common systemic involvement was skin, and this was observed in all patients (100.0%). Fifty-six mothers of children with IgE-mediated food allergies participated in the study. The median age of the mothers was 30 years (20-45 years). Demographic and clinical characteristics of patients diagnosed with IgE-mediated food allergy and their mothers are summarized in Table 1.

Mothers' food label reading habits

There were statistically significant differences between the pre- and post-training groups in terms of the answers to the question "What are the things that affect you the most when buying food?" as "Label information on food packaging," "Do you look at the product label when purchasing food?" as "yes," "If your answer is "yes," "Which food group do you look at?" as "milk and dairy products or eggs and products," and "What do you pay attention to on food labels?" as "allergen information" (P = 0.001, 0.001, 0.001, 0.001, 0.001, and 0.001, respectively). There was no statistically significant difference between the pre- and post-training groups in terms of those who answered "yes" to the question "Do you find the label information sufficient?" (P = 0.523) (Table 2).

Food label reading habits of mothers according to their employment status

Nonworking mothers

There were statistically significant differences between the pre- and post-training groups in terms of the answers to the question "What are the things that affect you the most when buying food?" as "Label information on food

Table 1 Demographics of children with IgE-mediated food allergy and their mothers.

	n (%)
Diagnosis age, median (min-max), month	10 (1-52)
Gender, male	34 (60.7)
Maternal age, median (min-max), year	30 (20-45)
Maternal educational status	
Primary education	13 (23.2)
High school	14 (25.0)
University	29 (51.8)
Mother's employment status	
Working	41 (73.2)
Nonworking	15 (26.8)
Socioeconomic status, monthly income	
>1000 USD	41 (73.2)
<1000 USD	15 (26.8)
Allergic food	
Hen's egg	31 (55.3)
Cow's milk	19 (33.9)
Tree nuts	4 (8.0)
Banana	1 (1.7)
Soy	1 (1.7)
Chicken meat	1 (1.7)
Clinical findings according to the system	
involved	
Skin	56 (100.0)
Respiratory	17 (30.3)
Cardiovascular	23 (41.0)
Gastrointestinal	17 (30.3)
Total	56 (100.0)

packaging," "Do you look at the product label when purchasing food?" as "yes," "If your answer is "yes," "Which food group do you look at?" as "milk and dairy products or eggs and products," and "What do you pay attention to on food labels?" as "allergen information" (P = 0.001, 0.001, 0.001, 0.001, and 0.001, respectively). There was no statistically significant difference between the preand post-training groups in terms of those who answered "yes" to the question "Do you find the label information sufficient?" (P = 0.454).

Working mothers

There were statistically significant differences between the pre- and post-training groups in terms of the answers to the question "Which food group product label do you look at?" as "milk and dairy products or eggs and products" (P = 0.001 and 0.001, respectively). There was no statistically significant difference between the pre- and post-training groups in terms of those who answered "yes" to the question "Do you find the label information sufficient?" (P = 1.000) (Table 3).

Food label reading habits of mothers according to socioeconomic status

Low socioeconomic status

There were statistically significant differences between the pre- and post-training groups in terms of the answers

Table 2 Comparison of pre- and post-education food label reading habits in mothers of children with IgE-mediated food allergy.

	Pre-training n (%)	Post-training n (%)	Р
What are the things that affect you the most when buying food?		53 (94.6)	
Past experiences	48 (85.7)	,	
Label information on food packaging	27 (48.2)		0.001
Advertisements	21(37.5)		
Packaging material	28 (50.0)		
Price	35 (62.5)		
Doctor/dietitian recommendations	40 (71.4)		
Product ease of use/preparation	33 (58.9)		
Information from family and friends	38 (67.8)		
Internet	34 (60.7)		
Do you look at the product label when purchasing food?	31 (00.7)	55 (98.2)	
Yes	23 (41.0)	33 (70.2)	0.001
f your answer is "no," please explain why.	23 (41.0)	52 (92.8)	0.001
Not noticeable	15 (26.7)	32 (72.0)	
I know what I'm buying, no need			
I don't understand the information	20 (35.7)		
I don't believe what is written	17 (30.3)		
	6 (10.7)		
The writing is small, I can't read it	8 (14.2)		
The explanations are not sufficient	11 (19.6)		
It takes a long time to read the label	26 (46.4)	45 (00.3)	
f your answer is "yes," which food group do you look at?	4.4.05.0	45 (80.3)	
Milk and dairy products	14 (25.0)		0.001
Flour foods (Wheat and other grains)	7 (12.5)		
Meat and poultry products	10 (17.8)		
Eggs and products	15 (26.7)		0.001
Fish varieties and products	3 (5.3)		
Peanuts and products	12 (21.4)		
Tree nuts (Hazelnuts, walnuts, almonds, cashews) and products	11 (19.6)		
Shellfish (Shrimp, lobster, squid, etc.)	3 (5.6)		
Lentils and products	6 (11.2)		
Sesame products	12 (21.4)		
Pulses (Soybeans, chickpeas)	3 (5.6)		
What do you pay attention to on food labels?		54 (96.4)	
Ingredient information	33 (58.9)		
Gram information	17 (30.3)		
Nutritional values (carbohydrate, fat, protein, etc.)	14 (25.0)		
Product brand	51 (91.0)		
Place of production	22 (39.2)		
Production date	54 (96.4)		
Expiration date	56 (100.0)		
Allergen information	24 (42.8)		0.001
n what situations do you usually read nutrition labels?	` '	26 (46.4)	
When I am going to compare products	17 (30.3)	()	
When I am going to buy the product for my child	34 (60.6)		
When I want to lose weight	17 (30.3)		
When I am buying the food for the first time	23 (41.0)		
When my child with food allergies is allergic to any of the food ingredients.	47 (83.9)		
Do you find the label information sufficient? Yes	13 (23.2)		0.523
Please indicate the reasons why you find the label information inadequate.	15 (25.2)		0.323
t is not written in its entirety	33 (59 0)		
t is not understandable	33 (58.9) 32 (57.1)		
	32 (57.1)		
t should be on the back of the packaging (not visible)	27 (48.2)		
t is not true, I do not believe it	12 (21.4)		
t does not say how the food is made	33 (58.9)		
The harmful aspects of allergens found in the food are not stated	32 (57.1)		
t is not readable	27 (48.2)	m	
Total	56 (100.0)	56 (100.0)	

Table 3 Pre- and post-education food label reading habits of mothers of children with IgE-mediated food allergy according to their employment status.

	Pre-training n (%)	Post-training n (%)	Р
Nonworking mothers			
What are the things that affect you the most when buying food?			
Label information on food packaging	17 (30.3)	38 (67.8)	
Do you look at the product label when purchasing food?			0.001
Yes	15 (26.7)	40 (71.4)	0.001
If your answer is "yes," which food group do you look at?			
Milk and dairy products	11 (19.6)	38 (67.8)	0.001
Eggs and products	12 (21.4)	33 (58.9)	0.001
What do you pay attention to on food labels?			
Allergen information	16 (28.5)	39 (69.6)	0.001
In what situations do you usually read nutrition labels?			
When my child with food allergies is allergic to any of the food ingredients.	-	-	
Do you find the label information sufficient? Yes	11 (19.6)	21 (37.5)	0.454
Working mothers			
What are the things that affect you the most when buying food?			
Label information on food packaging	-	-	0.001
Do you look at the product label when purchasing food?			
Yes	-	-	
If your answer is "yes," which food group do you look at?			
Milk and dairy products	3 (5.3)	14 (25.0)	0.021
Eggs and products	3 (5.3)	12 (21.4)	1.000
What do you pay attention to on food labels?			
Allergen information	-	-	
In what situations do you usually read nutrition labels?			
When my child with food allergies is allergic to any of the food ingredients	-	-	
Do you find the label information sufficient? Yes	2 (3.5)	5 (8.9)	
Total	56 (100.0)	56 (100.0)	

to the question "What are the things that affect you the most when buying food?" as "Label information on food packaging," "If your answer is "yes," "Which food group do you look at?" as "milk and dairy products or eggs and products," and "What do you pay attention to on food labels?" as "allergen information" (P = 0.006, 0.006, 0.031, and 0.006, respectively). There was no statistically significant difference between the pre- and post-training groups in terms of those who answered "yes" to the question "Do you find the label information sufficient?" (P = 0.1000).

High socioeconomic status

There were statistically significant differences between the pre- and post-training groups in terms of the answers to the question "What are the things that affect you the most when buying food?" as "Label information on food packaging," "Do you look at the product label when purchasing food?" as "yes," "If your answer is "yes," "Which food group do you look at?" as "milk and dairy products or eggs and products," and "What do you pay attention to on food labels?" as "allergen information" (P = 0.001, 0.001, 0.001, 0.001, and 0.001, respectively). There was no statistically significant difference between the pre- and post-training groups in terms of those who answered "yes" to the question "Do you find the label information sufficient?" (P = 0.481) (Table 4).

Food label reading habits of mothers according to their education level

Primary education

There were statistically significant differences between the pre- and post-training groups in terms of the answers to the question "Do you look at the product label when purchasing food?" as "yes," (P = 0.031). There were no statistically significant differences between the pre- and post-training groups in terms of the answers to the question "What are the things that affect you the most when buying food?" as "Label information on food packaging," "If your answer is "yes," "Which food group do you look at?" as "eggs and products," and "Do you find the label information sufficient?" as "yes," (P = 0.070, 0.063, and 1.000, respectively).

High school

There were statistically significant differences between the pre- and post-training groups in terms of the answers to the question "If your answer is "yes," "Which food group do you look at the label?" as "milk and dairy products" (P = 0.016). There were no statistically significant differences between the pre- and post-training groups in terms of the answers to the question "If your answer is "yes," "Which food group do you look at?" as "eggs and

Table 4 Pre- and post-education food label reading habits of mothers of children with IgE-mediated food allergy according to their socioeconomic status.

	Pre-training n (%)	Post-training n (%)	Р
Low socioeconomic status			
What are the things that affect you the most when buying food?			
Label information on food packaging	3 (5.3)	14 (25.0)	0.006
Do you look at the product label when purchasing food?			
Yes	-	-	-
If your answer is "yes," which food group do you look at?			
Milk and dairy products	3 (5.3)	14 (25.0)	0.006
Eggs and products	7 (12.5)	13 (23.2)	0.031
What do you pay attention to on food labels?			
Allergen information	3 (5.3)	14 (25.0)	0.006
In what situations do you usually read nutrition labels?			-
When my child with food allergies is allergic to any of the food ingredients.	-	-	
Do you find the label information sufficient? Yes	3 (5.3)	5 (8.9)	1.000
High socioeconomic status			
What are the things that affect you the most when buying food?			
Label information on food packaging	23 (41.0)	39 (69.6)	0.001
Do you look at the product label when purchasing food?			
Yes	20 (35.7)	40 (71.4)	
If your answer is "yes," which food group do you look at?		` '	
Milk and dairy products	11 (19.6)	38 (67.8)	0.001
Eggs and products	8 (14.2)	32 (57.1)	0.001
What do you pay attention to on food labels?	` ,	` ′	
Allergen information	21 (37.5)	40 (71.4)	0.001
In what situations do you usually read nutrition labels?	` '	, ,	
When my child with food allergies is allergic to any of the food ingredients	-	-	0.001
Do you find the label information sufficient? Yes	10 (17.8)	21 (37.5)	-
Total	56 (100.0)	56 (100.0)	0.481

products," "What do you pay attention to on food labels?" as "allergen information," and "Do you find the label information sufficient?" as "yes," (P = 0.070, 0.070, and 1.000, respectively).

University

There were statistically significant differences between the pre- and post-training groups in terms of the answers to the question "What are the things that affect you the most when buying food?" as "Label information on food packaging," "If your answer is "yes," "Which food group do you look at?" as "milk and dairy products or eggs and products," and "What do you pay attention to on food labels?" as "allergen information" (P = 0.001, 0.001, 0.001, and 0.001, respectively). There was no statistically significant difference between the pre- and post-training groups in terms of those who answered "yes" to the question "Do you find the label information sufficient?" (P = 0.581) (Table 5).

Discussion

There is no known cure for food allergies, and allergen avoidance is the mainstay of treatment. Therefore,

allergens that are not declared on the food label pose a serious risk to patients. Avoiding food allergens is difficult for patients and families, and is often unsuccessful. Approximately 10% of patients experience at least one allergic reaction per year. In their study, Fleischer et al. determined that 87.4% of allergic reactions to foods in preschool children were due to accidental exposure. Causes of accidental reactions included unintentional ingestion, label-reading errors, cross-contamination, preparation errors, and manufacturer labeling errors. Errors in reading and interpreting labels can cause life-threatening reactions for people with food allergies. Education is important, and proper label reading is crucial for diet success and treatment. Is

The most common food allergens reported in children and adults are cow's milk, hen's eggs, soybeans, sesame, tree nuts, peanuts, wheat, fish, and shellfish. Hen's eggs and cow's milk are the most common food allergens for children and infants. All children who participated in our study were under 5 years of age, and the most common food allergens were milk and eggs. Milk and eggs are found in several packaged foods in different forms, which increases the risk of accidental allergic reactions. The fact that mothers receive training from a dietitian on reading labels for two commonly consumed foods, milk and eggs,

Table 5 Pre- and post-education food label reading habits of mothers of children with IgE-mediated food allergy according to their educational status.

Level of education	Questions	Pre-treaning n (%)	Post-treaning n (%)	Р
Primary education	What are the things that affect you the most when buying food?			
	Label information on food packaging Do you look at the product label when purchasing food?	5 (8.9)	12 (21.4)	0.070
	Yes	6 (10.7)	12 (21.4)	0.031
	If your answer is "yes," which food group do you look at? Milk and dairy products	-	-	-
	Eggs and products	6 (10.7)	11 (19.6)	0.063
	What do you pay attention to on food labels? Allergen information	-	-	-
	In what situations do you usually read nutrition labels? When my child with food allergies is allergic to any of the			
	food ingredients Do you find the label information sufficient?	-	-	-
	Yes	5 (8.9)	7 (12.5)	1.000
High school	What are the things that affect you the most when buying food?	3 (0.7)	7 (12.3)	1.000
	Label information on food packaging	-	-	-
	Do you look at the product label when purchasing food? Yes	-	-	-
	If your answer is "yes," which food group do you look at?			
	Milk and dairy products	5 (8.9)	12 (21.4)	0.016
	Eggs and products	4 (7.1)	11 (19.6)	0.070
	What do you pay attention to on food labels?			
	Allergen information	6 (10.7)	13 (23.2)	0.070
	In what situations do you usually read nutrition labels? When my child with food allergies is allergic to any of the food ingredients	-	-	-
	Do you find the label information sufficient?			
	Yes	3 (5.3)	6 (10.7)	1.000
University	What are the things that affect you the most when buying food?			
	Label information on food packaging	15 (26.7)	27 (48.2)	0.001
	Do you look at the product label when purchasing food? Yes	-	-	-
	If your answer is "yes," which food group do you look at?			
	Milk and dairy products	5 (8.9)	27 (48.2)	0.001
	Eggs and products	5 (8.9)	23 (41.0)	0.001
	What do you pay attention to on food labels?	42 (24 4)	20 (50.0)	0.004
	Allergen information	12 (21.4)	28 (50.0)	0.001
	In what situations do you usually read nutrition labels? When my child with food allergies is allergic to any of the food ingredients	-	-	-
	Do you find the label information sufficient?			
	Yes	5 (8.9)	13 (23.2)	0.581
Total		56 (100.0)	56 (100.0)	

and that they are successful after the training, makes our study even more important.

According to Turkish law, food labels must include the name of the food, the list of ingredients, allergens, the net amount of the food, the expiration or consumption date, instructions for use, the name or business name and

address, the country of origin, the alcohol level for beverages with an alcohol by volume of more than 1.2%, a nutritional warning, and a user guide. In the current study, mothers were taught the habit of reading food labels by the dietitian. They were advised to pay particular attention to the allergen information section among the parameters

mentioned above. As a result of this training, there was a statistically significant increase in mothers' food label reading habits.

It has been previously reported in the literature that women tend to check food labels for allergens more than men. The same study determined that women, especially those between the ages of 18 and 34, check food labels for food allergies more frequently than other age groups. In addition, it is known that women assume a large part of the responsibility for food shopping and meal preparation at home. In the current study, we specifically preferred mothers because they are more closely associated with grocery shopping. The fact that the participants were both females and young women with a median age of 30 years, together with the education provided by the dietitian, may have increased the success of reading food labels.

In the current study, we found that the label reading habits and awareness of allergen information in unemployed women increased statistically significantly after the training. We also found that the awareness of milk and egg products on food labels increased after the training for both employed and unemployed women. The increase in both label reading habits and awareness of milk and egg products in unemployed women may be related to their spending more time in the kitchen.

Some studies in the literature indicate that a higher level of education is associated with more knowledge about food allergies and food labeling. 16,18,19 In the current study, we found a statistically significant increase in the food label reading habits and awareness of milk and egg allergens on food labels in mothers with higher levels of education compared to other mothers after the food label reading training.

Children with food allergies who are on a diet are at risk of growth retardation and nutritional deficiencies.²⁰ A balanced and healthy diet is possible with the help of dietitians. However, dietitians also play an important role in the allergen avoidance phase during the treatment of patients with food allergies.21 In the study by Doğan et al., it was determined that most of the patients did not receive training from a dietitian, and only 26.4% of the parents preferred to meet a dietitian. 36.8% of the parents stated that they took the dietitian's recommendations for the food allergy diet into consideration.²² In the current study, we found that the label reading habits in mothers of children with food allergies increased after the training provided by the dietitian. This increase in awareness of food label reading was detected in all groups regardless of employment status, education level, and socioeconomic status. These results suggest that label reading training by dietitians helps increase the success rate of food allergy treatment. Interestingly, the proportion of mothers who perceived food labels as sufficient did not change significantly post-intervention (P = 0.523). This suggests that consumer education alone is insufficient and highlights the need for clear and more accessible labeling practices by regulatory agencies and the food industry.

There were some limitations to our study. First, the number of participants in our study was small. This was because it was difficult to find a compliant patient mother who regularly came to the 3-month periodic checkups for some patients, and we specifically preferred mothers as the

participant group (Fathers and caregivers were not included in the study). Second, only children with IgE-mediated food allergies were included in the study (Mothers of children with non-IgE-mediated food allergies were not included). The rapid course of IgE-mediated reactions may have increased the anxiety in mothers. As a result of this fear and anxiety, the mothers' success levels in reading food labels may have increased after the training. Third, the questionnaire used in the study has not been used previously in mothers of children with IgE-related food allergies. The use of self-reported questionnaire responses as outcome measures may have introduced social desirability bias. Fourth, the absence of a control group in our pre-post design limits causal inference, as the observed changes may be partially impacted by time-related factors or increased parental awareness. Fifth, our findings apply only to mothers of children with IgE-mediated food allergies. Fathers, other caregivers, and non-IgE-mediated food allergy cases were excluded. Sixth, the predominance of universityeducated (51.8%) and high-income (73.2%) participants limits generalizability to more diverse populations. Finally, the short follow-up period (3 months) does not allow evaluation of the long-term sustainability of the training's effect. Also, the use of a single trainer may limit replicability.

In conclusion, dietitians should regularly provide training on reading food labels to mothers and caregivers of children with food allergies. This training may increase dietary compliance and treatment success in patients with food allergies.

Author Contributions

Performed experiments: MHC; Collected the data: OTU, IT, KYilmaz, IY, AS, KYirgin; Contributed data or analysis tools: OTU, IT, KYilmaz, IY, AS, KYirgin; Provided key/unique reagents: MHC; Analyzed the data: MHC, OTU, IT; Interpreted the data: MHC; Conceived and designed the study: MHC, KYilmaz; Supervised the study: MHC; Wrote the paper: MHC; Approved the final version: MHC, OTU, IT, KYilmaz, IY, AS, KYirgin.

Conflict of Interest

None.

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