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An exploratory investigation of food choice behavior of teenagers with and without food allergies

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ABSTRACT

Background: Understanding food choice behavior in adolescence is important because many core eating habits may be tracked into adulthood. The food choices of at least 2.3% of teenagers living in the United Kingdom are determined by food allergies. However, the effect of food allergies on eating habits in teenagers has not yet been studied.

Objective: To provide an understanding of how teenagers with food allergies make food choice decisions and how these differ from those of non–food-allergic teenagers.

Methods: One focus group discussion with non–food-allergic teenagers (n = 11) and 14 semistructured interviews (7 with food-allergic and 7 with non–food-allergic teenagers) were performed (age range, 12–18 years). The focus group discussion and interviews were audiorecorded, transcribed verbatim, and analyzed using thematic content analysis.

Results: Teenagers from both groups (food-allergic and non–food-allergic) named sensory characteristics of foods as the main reason for choosing them. Some food-allergic teenagers downplayed their allergy and frequently engaged in risk-taking behavior in terms of their food choices. However, they reported difficulties in trying new foods, especially when away from home. Parental control was experienced as protective by those with food allergies, whereas non–food-allergic teenagers felt the opposite. Most teenagers, including food-allergic ones, expressed the wish to eat similar foods to their friends. Other themes did not vary between the 2 groups.

Conclusion: Food-allergic teenagers strive to be able to make similar food choices to their friends, although differences to non–food-allergic teenagers exist. It is important to address these differences to improve their dietary management.

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Introduction

Adolescence is a period of physical, developmental, and social changes, which can notably affect a young person's food choice behavior and nutritional health.¹ Food choice behavior in adolescence is particularly important because behavioral patterns acquired during this time are likely to persist into adulthood.² A range of individual, interpersonal, physical, environmental, and societal influences have been identified as factors that affect adolescent food choice behavior.^{3,4}

At least 2.3% of teenagers in the United Kingdom⁵ live with an additional factor that influences their food choices—food allergy.

Because there is currently no available cure for food allergies, dietary avoidance of the culprit food remains the mainstay of treatment.⁶ Management of food allergy involves careful label reading, adaptation of recipes, prevention of cross-contamination, and increased alertness when eating away from home.^{7,8} During adolescence, the responsibility for allergen avoidance is handed over from the parents to the young person, which can cause anxiety and stress on both sides.^{9–12} As has recently been reported, independence and social well-being are among the foremost issues in terms of health-related quality of life in food-allergic teenagers.¹³ Reduced parental oversight tempts some to engage in risk-taking behavior in the management of their food allergies,^{14,15} and, indeed, teenagers are the highest risk group for fatal food-triggered anaphylactic reactions.¹⁶ Previous studies have explored the experiences of teenagers with food allergies,^{17,18} the psychosocial effect of food-induced anaphylaxis,⁹ and the practical challenges teenagers with food allergies face.¹⁴ These studies, however, do not specifically illuminate how food allergies affect the eating habits of

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teenagers. Health care professionals and policymakers have developed guidelines for the dietary management of food allergies,^{6,19} but it remains to be assessed how teenagers with food allergies are able to adapt their behavior to them. Food choice behavior is embedded in cultural, social, economic, psychological, and biological influences²⁰ that might affect how recommendations are put into practice. There is a need to identify in which ways food choice decisions of teenagers are informed by their allergies so that their dietary management and quality of life can be improved. Thus, the purpose of the present study is to gain insight into the food choice behavior of food-allergic teenagers, from their own perspective, using a qualitative approach.

Methods

Qualitative research is a naturalistic, interpretative approach that aims to provide an in-depth, complex understanding of how people see and interpret their social world.²¹ In recent years, qualitative research has penetrated traditional quantitative disciplines, including health research.²² There, it can explore behaviors that are inaccessible to quantitative research techniques, such as treatment adherence or use of clinical guidelines.²³ An understanding of the patient's perspective is particularly important in the case of people with allergies, where management of the condition is based on long-term strategies undertaken by the patients themselves.²⁴ Table 1 contrasts the key characteristics of quantitative and qualitative research.

Participants

This study included 2 sets of population samples: food-allergic teenagers and non-food-allergic teenagers. The sample size of this study was determined by data saturation and by its exploratory nature and was intentionally kept small. Teenagers were purposely sampled to achieve a maximum variation in age, sex, socioeconomic status, and for those with food allergies, the range of foods to which they were allergic. The study sample was recruited from local schools (Portsmouth, Isle of Wight, Southampton), through advertising (non-food-allergic) and invitation letters that were sent to parents and/or teenagers (food-allergic), and a national support charity (The Anaphylaxis Campaign) that contacted eligible food-allergic teenagers with an invitation letter. In addition, participants from an earlier population-based cohort study on the Isle of Wight (Food Allergy and Intolerance Research [FAIR] study), which included both food-allergic and non-food-allergic teenagers,^{5,26} were invited to participate. Food-allergic participants included those who had evidence of IgE-mediated allergy to egg, milk, peanuts, tree nuts, sesame, crustaceans, fish, or wheat. Their diagnosis needed to be confirmed with a positive skin prick test result and serum specific IgE results plus a convincing clinical history or a positive food challenge result. Participants who had

another disease that affected their food choice behavior (eg, diabetes) were excluded. The Southampton and South West Hampshire National Health Service Research Ethics Committee approved this research project. Written informed consent and a completed screening questionnaire were obtained from all potential participants to assess for eligibility and pseudonyms have been used throughout the articles in place of the participants' names.

Focus Group Discussion and Interviews

Data were collected using 1 focus group discussion (FGD) and 14 semistructured interviews. Participants were asked to prepare a simple worksheet on which they recorded what they had eaten the previous day, which was used to initiate the discussion during the FGD and interviews but not to assess the actual dietary intake. The FGD was conducted with non-food-allergic teenagers only and was held in a local school from which the FGD members were recruited. It was facilitated by the first author (I.S.), who had training and experience in focus group moderation. The third author (C.V.) attended the FGD and took field notes. A topic guide was prepared to elicit discussion of a wide range of attitudes, beliefs, and behaviors related to daily eating habits. It was informed by the literature^{27,28} and modified on the basis of the investigators' past clinical and research experience.

Because of organizational difficulties and considerations in respect to age and sex differences that became evident after the FGD, it was decided to use interviews instead of FGD as the data collection method. The FGD was conducted at a school; it was mixed sex, with pupils from similar years and the same peer group. Because teenagers with food allergies were recruited from various routes, it was feared that they would not have felt comfortable in an unfamiliar group of teenagers of different ages and sexes.

Thus, a total of 14 semistructured interviews were conducted by the first author: 7 with food-allergic and 7 with non-food-allergic teenagers. The interviews took place at the participants' homes without parents present (with the exception of 2 teenagers who preferred to have their mothers present). The interview protocol was developed from the topic guide used in the FGD (Table 2). As far as possible, interviews were participant led. Both the FGD and the interviews lasted approximately 1 hour. They were audiotaped and transcribed verbatim for analysis. Participants of the interviews were sent a copy of the resulting transcript to verify that it agreed with their memory.

Statistical Analysis

The theory or conceptual model guiding the investigation and analysis was proposed by Story et al⁴ and conceptualizes adolescent eating behavior as a function of individual and environmental influences. The model rests on social cognitive theory and ecologic theory and consists of 4 levels of influence: individual influences,

Table 1
Key characteristics of quantitative and qualitative research^a

Quantitative	Qualitative
Deductive	Inductive
Studies well-known phenomena	Often studies unknown or little known phenomena
Testing of hypotheses and theories	Development of hypotheses and theories
Conducted in controlled settings	Conducted in naturalistic settings
Large number of participants randomly selected	Small number of participants purposefully selected; range and diversity key
Numerical data	Narrative data: detailed, information rich, and extensive
Statistical analysis	Content (text, audio, and video) analysis
Explore outcomes due to treatments, manipulations, and outcomes	Explore complex issues and interactions among humans, reasons for outcomes, and processes
Single reality that can be measured and generalized	Multiple realities that are continuously changing with individual interpretation

^aAdapted from Harris et al.²⁵

Table 2

Interview protocol: key questions

Eating habits

1. You should have completed a short worksheet when you arrived today. Would you like to tell me what you have eaten the previous day? Can you tell why you have chosen those foods and not others? What was the situation like when you had these foods?
2. Can you tell me what foods you normally eat? Which foods do you particularly like? What is your favorite food? Are there foods you don't like? Do you consider yourself picky?
3. Can you think of a situation where you are having foods which you normally don't eat? Do you eat different foods in summer and winter?
4. Do you have different eating habits on the weekends? What do you eat at school? Do you bring your own lunch or do you get school meals?
5. Are you having your breakfast/lunch/dinner always at a table? Or do you sometimes eat in front of the television or computer?

Eating out

1. Sometimes it is not possible to have a meal at home. Can you tell me about your eating out habits?
2. What places do you go to?
3. Do you eat fast foods?

Traveling

1. Does your eating behavior change when you are traveling?

Food, family and community

1. Eating is considered to be a social thing. Do you think people you are eating with influence you?
2. How important is food and eating in the family? Does each family member have the same food?
3. How much control do your parents have over your eating habits?
4. We know that many teens don't eat meals together with their families. Why is this?
5. What do you choose to eat when you are with friends? When you are going to their house?
6. What would be served at a party?

Food preparation and shopping

1. Do you know how to cook or prepare foods?
2. Do you sometimes buy foods yourself?

Food and emotions

1. Sometimes what we eat is influenced by our feelings. Can you tell me any experience of how your mood has influenced the eating habits?
2. What foods are eaten when you feel good? What foods are eaten when you feel bad?
3. Are your snacks influenced your moods?
4. Do you sometimes find yourself eating particular foods when you are stressed, bored or depressed?

Ethnicity, religion, culture

1. People are different. Our ethnicity, religion, or family traditions may influence what we eat. Do these things influence what you eat? If so, how?
2. Do you have a friend coming from a different ethnical background? Are you aware of any cultural differences when it comes to food?

Food and health beliefs

1. A number of people try to follow a healthy diet. What is your understanding of a healthy diet? Would you like to tell me if or how important it is for you to eat healthy foods? Which foods do you consider as being healthy? Which are unhealthy?
2. Where do you get the information from? eg, television, school,...
3. What are the advantages and disadvantages of eating a healthy diet?
4. What are the barriers to eating a healthy diet?

Development of food preferences

1. Think about changes you have made in what you eat over the last few years? Describe a little bit what you were eating when you were younger.
2. What triggered that change?

(Only or food-allergic teenagers)

1. You are here because you have a food allergy. At what age did you consciously become aware of your allergy? Would you like to tell me what difficulties you have when it comes to eating food?
2. Do you read labels? How often?
3. Do you ever eat food that might contain some allergens?
4. Do you ever eat the foods you are allergic to?
5. Are you sometimes jealous about your friends who can eat everything?
6. Do you tell people about your allergy? Who knows that you are allergic? Did you ever come across people who didn't understand the seriousness of your allergy?
7. What was the most difficult adjustment that was made because of the food allergy?
8. Are there any barriers when eating out in restaurants?

social environmental influences, physical environmental influences, and societal influences.

Data analysis was performed using Braun and Clarke's criteria for thematic analysis.²⁹ It was aided by NVivo 8 software (QSR International Pty Ltd, Doncaster, Victoria, Australia). At the beginning, the FGD and interviews were analyzed separately for each population (food-allergic and non-food-allergic). The transcripts were first read to become familiar with the data. Meaningful text segments were then identified and coded. The next step involved collating generated codes into potential subthemes for each sample. The second author (H.M.) reviewed the codes, and emerging subthemes were compared. The subthemes that were agreed on were then grouped into overarching themes related to the food choices of both samples. A comparison between the 2 groups to highlight similarities and differences was performed as mapped out in Table 3. Participants were given the opportunity to review the themes.

Results

Twenty-five teenagers (aged 12–18 years) participated in this study (7 with food allergy and 18 without, of which 11 participated in the FGD). The characteristics of all teenagers are given in Table 4. Six key themes that affect adolescent food choices emerged from the FGD and interviews (Table 3).

Variety and Enjoyment of Food as Learning Process (Individual and Social Environmental Influences)

Most teenagers from both allergic and nonallergic groups considered varying their food choices and learning to enjoy foods to be a part of growing up. Many would purposely try new foods to widen their palate, but not all felt confident in doing so. Most of the food-allergic teenagers stated that they were cautious with trying new foods, especially when outside their home and on holidays abroad. As a consequence, they chose foods that were safe for them

Table 3
Themes and subthemes

Themes (influences)	Subthemes by groups		Common subthemes
	Food-allergic	Non-food-allergic	
Variety and enjoyment of foods as learning process (individual and social environmental influences)	I would like to try new foods but often it's safer to stick to what I know I can eat. I eat differently nowadays but not because of my allergy. I firstly choose foods because I like them and secondly to see if they contain nuts. My allergy doesn't dominate my diet – I just don't eat what I shouldn't.	Trying new foods is part of growing up, but sometimes it's also nice to stick to what you know. "Party rings? – We don't really have them now, do we?" "There is always something about certain fruits that puts me off."	Food is fuel for me. I have discovered that the whole experience of foods is enjoyable. I know I should be eating healthily but I don't really want to. I want to be slim. Chocolate makes you happy. Food is sometimes just around.
Body awareness, feelings, and temptations of foods (individual, social environmental, and societal influences)	I have to choose food that won't make me ill.		
Parental control vs convenience (individual, social environmental, and physical environmental influences)	My parents have a lot of control over what I eat, but sadly not forever! What I eat, depends where I am – outside home I have to be more careful.	My parents have a lot of control over what I eat, but not for long! What I eat depends where I am – outside home I am the boss.	Why would I bother making food if I don't have to?
Eating as social experience (social environmental influences)	Eating can be a social event when I feel comfortable with people. If I ate with friends, I would like to have similar foods. Eating would be easier if I wasn't depending on other people.	Eating can be a social event but also social pressure. If I ate with friends, I would have snacks or fast foods.	
Routine, traditions, and environment (individual, societal, and physical environmental influences)			It's all about routine. "We always have a roast on a Sunday." Cold foods in summer, hot foods in winter.
Knowledge shapes understanding of foods (individual and societal influences)	The media rarely influences what I eat.	Food is about more than just me. The television told me all I know about food.	Food has to be good value for money, especially if I have to pay myself.

to eat or relied on parental judgment. A few thought their allergy hindered their ability to vary their diet and enjoy foods. Although some teenagers had learned to cope with their situation, others would develop a fear of new foods or feel obliged to like foods they could eat:

Interviewer: "Do you consider yourself picky?"

Participant: "Um, no but I think that's coz I feel guilty when I don't like something I sometimes feel I like I have to like it because, you know, it's hard to find, I probably won't find it again so, there have been times when I have been at school and I haven't liked what they've given me, but I feel like I have to, which may sound not right but I guess that's something, I've got into my mind." (Emily, 12 years old, food-allergic)

Most teenagers from both groups noted that their eating habits had changed throughout the years. Those food-allergic teenagers who believed their diet had changed highlighted that this was due to other reasons than their allergies.

Taste, smell, texture, and presentation of foods seemed to be the most important reason cited for choosing particular foods among food-allergic and non-food-allergic teenagers: "There is always something about certain fruit that puts me off, like, there is only, I can eat strawberries, strawberries are ok but bananas, they sort of

make your mouth or teeth go all weird and..." (FGD member, non-food-allergic)

In addition, many of them felt it was important that foods provide them with energy. Most of those who had food allergies emphasized that their allergy came second to enjoyment as a motivation for choosing foods: "Just, if I like it or not, I'll just like see what I like and then see if it's got nuts in it, first, I won't pick it all out with nuts first..." (Ryan, 14 years old, food-allergic)

Although their food allergy deprived them from certain foods, food-allergic teenagers had accepted their situation and did not have a desire to consume the foods they were allergic to. Only those who had to give up their favorite food said that they would miss it.

Another aspect of foods and eating that some teenagers from both groups had discovered was that the whole experience of foods as such could be enjoyable. This involved preparing and sharing meals, as well as eating out.

Body Awareness, Feelings, and Temptation of Foods (Individual, Social Environmental, and Societal Influences)

Almost all teenagers from both groups had substantial knowledge of healthy foods and considered healthy eating to be important for well-being and positive body image. However, following a

Table 4
Characteristics of the study participants

Characteristic	Food-allergic (n = 7)	Non-food-allergic (n = 18)
Mean age, y	14.3	16.0
Sex, %		
Female	42.9	44.4
Male	57.1	55.6
Educational level of mother, %		
GCSE or A-level	57.1	60.0
Degree level	28.6	13.3
Postgraduate degree level	14.3	26.7
Educational level of father, %		
GCSE or A-level	33.3	33.3
Degree level	50.0	41.7
Postgraduate degree level	16.7	25.0
Ethnicity, %		
White British	85.7	94.4
Asian British	0	5.6
Mixed background	14.3	0
Type of diet, %		
Omnivore	100	94.4
Vegetarian	0	5.6
Culprit foods, No.		
Peanuts	5	
Tree nuts	5	
Milk	1	
Eggs	1	
Wheat	0	
Crustaceans	1	
Fish	0	
Sesame	1	
Avoidance, No.		
Single foods	1	
Multiple foods	6	

Abbreviation: GCSE, general certificate of secondary education.

healthy diet meant that consumption of their preferred foods (which included crisps, chocolate, and fast foods) should be limited. Teenagers with food allergies did not show a different attitude toward healthy eating than their nonallergic peers. A few indicated that their food allergy would either automatically ensure that they ate healthier or make them think about the quality of their diet. Many times, teenagers referred to availability as a reason for choosing foods. They would eat food that was around or offered; it often tempted them. Some also saw a close link between food choices and feelings and would use certain foods to deal with boredom or sadness. Teenagers with food allergies did not see any difficulties in finding safe foods in those offered at parties or age-related events.

Having a food allergy and, consequently, choosing foods that do not pose a health risk was perceived as an important but not dominant factor that affected eating habits. Some of the teenagers seemed to undervalue their allergy, and checking labels, avoiding may contain products, and asking for ingredients in restaurants was not done routinely: "...I think the only time I tend to read label is if I've eaten it and I think I'm reacting [...] but that's the only time I would ever read the label for food." (Jack, 17 years old, food-allergic)

Parental Control vs Convenience (Individual, Social Environmental, and Physical Environmental Influences)

Most teenagers from both groups thought that their parents ultimately had a lot of control over their food choices. Although non-food-allergic teenagers expressed the wish to take over the responsibility for their food choices, food-allergic teenagers felt safe under their parents' control and would not necessarily seek independence. Most teenagers also enjoyed the convenience of being served a warm meal at the end of the day.

Nearly all non-food-allergic teenagers liked the idea of eating out because it gave them the opportunity to choose foods they

wanted. For some food-allergic teenagers, this situation was generally described in the reverse. Although the home environment would provide the security of being surrounded by only safe foods, eating out, especially when abroad, demanded higher levels of care: "Um, I'm much more nervous about eating out when I'm on holiday because like it's a different language and I don't really know how to, and I don't know how to ask, um, whether something has nuts in it, so normally I'd just kind of eat stuff that seems like very safe..." (Laura, 15 years old, food-allergic)

Eating as Social Experience (Social Environmental Influences)

Many non-food-allergic teenagers said that they enjoyed sharing meals with friends and family and considered it to be a nice way of getting together. Nevertheless, such occasions could also turn out to be distressing if someone pressured them to try certain foods.

Most food-allergic teenagers stated that they enjoyed shared meals if they felt comfortable with the people they were with. With less familiar people, they feared the embarrassment of having a reaction in front of them.

In terms of actual food choices, a number of teenagers from both groups tended to have fast foods when eating with friends. The desire to be like everyone else motivated many teenagers to make similar food choices to their friends. Some food-allergic teenagers would struggle in situations where this was not possible. In addition, they were often dependent on other people in providing them with safe foods.

Routine, Traditions, and Environment (Individual, Societal, and Physical Environmental Influences)

Influences on teenagers' eating habits also included daily routine, family and cultural traditions, and environmental factors such as the weather. However, these factors did not seem to be affected by food allergies.

Knowledge Shapes Understanding of Foods (Individual and Societal Influences)

Although satisfying hunger was considered to be the main purpose of eating, some non-food-allergic but no food-allergic teenagers reflected on ethical issues arising from food. In contrast, price was equally important to both groups. Those non-food-allergic teenagers who showed an interest in healthy eating used the television as their primary source of information. Watching television was also reported to influence the subconscious desire for food in both groups.

Discussion

This qualitative study is unique in providing an in-depth account of young people's food choices from the viewpoint of food-allergic and non-food-allergic teenagers. By comparing the food choice behavior between these groups, pivotal characteristics that determine food choice decisions of food-allergic teenagers could be identified. Previous research has mainly focused on quality of life and psychosocial effects of food allergies on children, teenagers, and their families. A recent review of these studies concluded that a diagnosis of food allergy has detrimental effects on daily family life, social events, and certain aspects of quality of life.³⁰ The present study adds new knowledge to existing literature by giving prominence to a topic that will help improve the dietary management of food allergies in teenagers.

One of the major findings to emerge from this study is that teenagers with food allergies found it more difficult to be adventurous with new foods than non-food-allergic teenagers. Even though there were also some fussy eaters among nonallergic

Table 5
Clinical implications of study findings

Study findings	Clinical implications
Food allergies might be a formidable barrier to trying new foods.	Clinicians should be aware that food allergy may inhibit dietary variety. It may be useful to emphasize to parents the importance of introducing a variety of foods into the diet of their food-allergic teenagers from an early age and encouraging teenagers to repetitively try out new foods on safe occasions.
Sensory preferences are the main driver of teenagers' food choices.	A dietary consultation should start with an assessment of the teenager's eating habits and food preferences. Advice should always be built around this information. A collection of suitable recipes fitted around their food preferences might inspire teenagers to engage with food preparation.
Food-allergic teenagers rely on their parents to make food choices.	Supporting parents to gradually hand over responsibility for food choices to their child through involving the child in food shopping and food preparation. Teenagers should be taught how to make an informed decision about what to eat, depending on the environment – level of carefulness needs to be higher when eating away from home. Teaching teenagers to ask restaurant staff about allergenic ingredients, and reinforcing confidence to do so. Giving advice for school trips and traveling abroad. Nutrition education from an early age.
Food-allergic teenagers would like to eat similar foods to their friends.	Suggesting suitable restaurants and providing guidance to teenagers for eating out with friends. Informing friends and their families about catering possibilities so that the teenagers are not prevented from attending social events. Preventing eating occasions where teenagers are overtly given different meals to their peers. If possible, school meals should not be different from those of the other teenagers.

teenagers, it was notable that food allergy can be a major obstacle to learning to introduce variety into the diet. This finding corroborates those from a French study that reported that food neophobia can be a consequence of food allergies.³¹

Almost all teenagers from both groups described sensory preferences (such as taste and texture) as the main reason for choosing foods. Food-allergic teenagers who had been recently diagnosed as having allergy mentioned that their allergy deprived them of certain foods, especially if they had to give up their favorite foods, a finding echoed in previous research.^{17,18} In most circumstances, food-allergic teenagers had never acquired certain taste preferences and therefore also did not have the feeling of missing out on foods they were not allowed to eat.

Food allergies did not seem to have an effect on overall health awareness of teenagers. Only one food-allergic teenager believed that her allergy had made her automatically eat healthier. Similar thoughts have been expressed by families of food-allergic children.³² In addition, emotions and feelings were discussed as influencing factors on food choices, but again no differences were observed between the groups.

Another interesting finding was that none of the food-allergic teenagers believed that finding safe foods at parties was particularly difficult. Previous studies have reported a negative effect of food allergies on the social activities of children and teenagers,^{17,33,34} although some of them presented the parent's perspective.^{12,32,35,36} It is possible that these limitations are due to the fear or anxiety of a reaction by family, friends, or those catering rather than considerations made by the food-allergic teenager in terms of actual food choices.

Whereas many food-allergic teenagers conceded that food allergy played a role in their food choices, some of them understated its importance and engaged in risk-taking behaviors that involved infrequent label reading, consuming “may contain” products, or not asking for ingredients in restaurants, all behaviors that have been previously described.^{7,9,14,15,17,18,33,37}

Adolescence is the period when parental control diminishes and teenagers exercise increased autonomy over their food choices.³⁸ Although non-food-allergic teenagers generally looked forward to taking over the responsibility for their food choices one day, food-allergic teenagers appreciated the convenience of having their parents in control because it provided them security. This finding is in contrast to other studies in which food-allergic teenagers or young adults were struggling with parental hypervigilance^{33,39} or parents themselves expressed concern in regard to over-protection.⁴⁰ It seems that teenagers with food allergies seek more protection and control for food than their healthy peers, but in other aspects of life, as previously demonstrated,^{33,39} they have similar parental expectations and demands.

Parental control seemed to be closely linked to the environment within which food choices are made. Nonallergic teenagers often mentioned that if they were outside the home they had the freedom to choose what they wanted. In line with previous investigations,^{7,9,14,15,17,18,33,37} food-allergic teenagers tended to be more careful when consuming foods outside home, especially when traveling abroad. However, these teenagers also highlighted that they still enjoyed eating out.

Almost all teenagers liked to eat meals in the company of others should they feel comfortable with them. This was primarily true for food-allergic teenagers who did not want attention drawn to their allergy in front of other people. Similar experiences have been previously reported.¹⁸ Most importantly, teenagers did not want to stand out from their peers so would often consume the same foods as their friends. As reported in other studies,^{9,41} food-allergic teenagers struggle with the feeling of being different, and in situations like this they are reminded of it. However, there were a range of other factors that influence adolescent food choices that were similar between the groups, including routine, traditions, environment, and factors related to understanding of foods. Because these are nonmodifiable influences on food choice, it appears natural that they have an equal influence on food-allergic and non-food-allergic teenagers. The groups had slight differences in terms of general food-related knowledge or interest, such as ethical issues or information on healthy eating conveyed by the mass media. Teenagers without food allergies appeared to be more susceptible to environmental cues about food and eating than those without. However, other issues, such as costs or television advertising, were again considered an influence that affected both groups.

This study highlights similarities and differences in food choice behavior among food-allergic and non-food-allergic teenagers. Strengths of this study include its comparative nature. By comparing non-food-allergic with food-allergic teenagers, similarities and differences in their food choices could be described. The teenagers were recruited through various routes, including local schools, a national support charity (Anaphylaxis Campaign), and an earlier population-based cohort study on the Isle of Wight (FAIR study),⁵ and, therefore, their characteristics revealed a rich variation (Table 4). Teenagers with food allergies were on average slightly younger than those without food allergies, but because qualitative research aims to collect a broad range of views and opinions, it was more important that different age ranges were presented. Although parents of non-food-allergic teenagers were on average more highly educated than those of food-allergic teenagers, differences only appeared with respect to degree and postgraduate degree level and presumably did not have a great influence on the results. Another strength of this study is that it presents factors associated with food choice behavior

from the teenager's viewpoint, which has not been studied before. Further, most of the current literature on dietary management of food allergies in children and teenagers is derived from anecdotal evidence.^{7,37} This study is the first publication to address the full complexity of food choice behavior within this population on a research level. The qualitative research design enabled the researchers to collect information that supports and adds to findings from previous research studies.^{9,17,18} Although findings from qualitative research cannot be extrapolated to the whole population because of the small sample sizes, their strength lies in revealing areas that can be further looked into in future investigations.

However, limitations are also recognized. The sample sizes between the 2 groups were uneven because one FGD was conducted among non-food-allergic teenagers ($n = 11$) in addition to the interviews. This imbalance was accounted for during the analysis by giving the FGD the same weight as one interview. Leaving out collected data would have been unethical toward study participants. Although the sample size was large enough to answer the research question of this study, which was to identify influences on food choice decisions of teenagers with food allergies, it did not allow the specification of food choice behavior of subsets of participants, such as those defined by age, sex, ethnicity, type and severity of allergy, and time of diagnosis. In addition, this study used advertisements to recruit non-food-allergic teenagers, which could have introduced a bias toward health-conscious teenagers. However, a potential selection bias is not corroborated in the findings of the study, indicating that both food-allergic and non-food-allergic teenagers have limited interest in healthy eating. Finally, the need to integrate a sex dimension into food allergy research has been highlighted as an important area for future study.⁴²

This research has identified key aspects of food choice behavior among teenagers with food allergies relevant to their dietary management and with immediate implications for clinical practice (Table 5). It emphasizes the importance of involving an allergy-specialist dietician from the beginning to ensure appropriate counseling and care for teenagers with food allergies. Further research is needed to investigate food choice behavior in teenagers with food allergies with respect to age, sex, ethnicity, individual food allergies, severity of allergies, and time of diagnosis.

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