

BRIEF COMMUNICATION

Factors influencing food choices of food-allergic consumers: findings from focus groups

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Abstract

Background: Up to 35% of the population modify their diet for adverse reactions to food. This study described the food choice behaviour of diagnosed food-allergic (DFA), self-reported food-allergic or intolerant (SFA) and nonfood-allergic (NFA) consumers, and explored differences between them.

Methods: Six focus groups with adults ($n = 44$) were conducted. Data analysis was performed using thematic content analysis.

Results: Compared to NFA participants, DFA consumers were deprived of satisfaction and pleasure from foods, experienced difficulties finding safe foods and had to be organized with eating. SFA participants faced similar problems, but to a lesser degree; their food choices were strongly influenced by emotional factors or health awareness.

Conclusion: Food-allergic consumers' food choices are influenced by a number of factors that differ to those of NFA consumers. It is therefore important to offer people with food allergies or intolerances advice that goes beyond how to avoid allergens.

Food choice is determined by a complex combination of factors ranging from biological to social and cultural (1), and affects the acquisition, preparation or consumption of food (2).

Food allergy affects approximately 3–4% of adults in westernized countries (3). However, the prevalence of self-reported food allergy is substantially higher ($\leq 35\%$) (3). Currently, avoiding the offending food is the mainstay of treatment (4). Although there is some evidence of the impact of food allergy on anxiety and quality of life (5, 6), little is known about the extent to which food allergies determine food choice decisions.

This study describes the complexity of food choices made by food-allergic as opposed to nonfood-allergic (NFA) consumers using a qualitative approach.

Methods

This study included three samples: diagnosed food-allergic (DFA), self-reported food-allergic or intolerant (SFA) and NFA adults. Potential participants with diagnosed food allergies to egg, milk, peanuts, tree nuts, sesame, crustaceans, fish or wheat were recruited through a local hospital and support charity (The Anaphylaxis Campaign). Only those with evidence of a positive skin prick test, serum-specific IgE results or a positive food challenge were included. Nonfood-allergic

and SFA participants were recruited through advertisement. The Southampton and South West Hampshire NHS Research Ethics Committee (A) approved this research project.

Data were collected using focus group discussions (FGDs), held in a meeting room of a local restaurant/community centre and lasting 1–2 h. A topic guide informed by previous examples (7) was prepared to elicit the discussion (Table 1). Focus group discussions were audio-taped and transcribed verbatim for analysis, using Braun and Clarke's criteria for thematic content analysis (8). It was aided by NVivo 8 software (QSR International Pty Ltd, Doncaster, Victoria, Australia). Participants' statements were coded and collated into subthemes, then grouped into common themes and elements.

Results

Forty-four adults (12 DFA, 15 SFA and 17 NFA) participated in six FGDs, two in each group. Sample characteristics are outlined in Table 2.

The analysis generated three main elements and seven themes:

Why do I eat?

Theme 1: 'I just feel like eating'

A number of participants across all groups reported a link between eating habits and feelings. Particularly, SFA group

Table 1 Topic guide for focus groups (online repository)

1. You should all have completed a worksheet when you arrived today. Would you like to tell us what you have eaten the previous day? Prompts: Can anybody share with us why he or she chose those foods and not others? What factors influenced the food choice? Are some factors influencing the food choice particularly strong? Does this change from time to time? In which situations does the reason you eat change? Has anybody different eating habits at the weekends?
2. When it comes to food preparation, does anyone want to share with us what he or she considers? Prompts: Do you prefer to prepare your meals or eat out? What is the difference between a meal and a snack?
3. Personal circumstances or special occasions often do not allow us to have a meal at home. Can anybody tell us about his or her eating out habits? Prompts: How often? What places? How does anybody decide where to go when he or she wants to go out? What about fast foods? If so, why?
4. Eating is sometimes considered to have a great social impact. What do you think influences you when eating with others? Prompts: Food and eating in the family? How often does the family eat together? What meals are family meals and when do they occur? Why or why not? How important is food and eating in the family? Eating with friends? Who in the family prepares the food? Who chooses what the family will eat?
5. Sometimes what we eat is influenced by our feelings. Can anybody share their experiences of how their mood has influenced their eating habits? Prompts: How? What foods are eaten when someone feels good? What foods are eaten when someone feels bad? How are snacks influenced by moods?
6. Let's turn to food purchasing. Would anyone share with us how he or she is doing the food shopping? Prompts: How often? How does anybody decide what to buy? Where?
7. A number of people try to follow a healthy diet. Would you like to tell us if or how important it is for you to eat healthy foods? Prompts: Are there any foods that do and do not go together? Are there any things that are bad to eat? What foods are good to eat? What are the advantages and disadvantages of eating a healthy diet? What are the barriers to eating a healthy diet?
8. Your diet might change when travelling to different countries. Would you like to tell us about your experiences? Prompts: What is different when going abroad? Do you like trying new foods? Do other cultures have an influence on your eating habits? Are there difficulties when going abroad?
9. (Only for groups with food-allergic or intolerant participants) You are here because you have a food allergy. Would anyone like to share with us what difficulties you have when it comes to buying and eating food? Prompts: Do you read food labels? How often? If not, why? Has anybody experiences of eating food that might have contained some allergen? If so, why? What was the most difficult adjustment that was made because of your food allergy? Are there any barriers when eating out in restaurants? If yes, which?

stated that they used foods to console themselves during periods of emotional stress. Ironically, comfort foods seemed to be those they suspected of causing reactions (Box 1A). Conversely, some DFA group described difficulties finding foods they could treat themselves with.

Table 2 Characteristics of participants

	Food-allergic (diagnosed) (n)	Self-reported food-allergic or intolerant (n)	Nonfood-allergic (n)
Age (years)			
19–34	4	6	6
35–49	4	6	7
50–65	4	3	4
Gender			
Female	7	11	11
Male	5	4	6
Ethnicity			
White	11	13	15
Other	1	2	2
Education			
GCSE or A-level	5	5	2
Degree level	4	4	6
Postgraduate degree level	2	6	9
Type of diet			
Omnivore	11	11	14
Vegetarian	1	2	3
Vegan	0	2	0
Culprit foods			
Peanuts	6	4	
Tree nuts	6	2	
Milk	0	4	
Eggs	1	5	
Wheat	2	2	
Crustaceans	2	3	
Fish	1	0	
Sesame	1	1	
Others*	7	7	
Avoidance			
Single foods	3	5	
Multiple foods	9	10	

*Others included fruits, lentils, onions, chilli, cream, oil, sugar, coffee, celery, cucumber, Chinese food, strawberry, wine, yeast, soya, gluten, monosodium glutamate, salicylates, barley, oats.

Box 1

Quotations from participants

A '...I find when I am comfort eating I am, I don't know, I seem to go for the foods that I know I get into that downward spiral in, and getting out of that can be very difficult, cause it's not just how your body is reaction, reacting, it's the mental, emotional with it as well...' (SFA)

B ' I don't think you enjoy your food as much as you did before you had your allergies....like you say lunch, you have a sandwich or you have your fruit, and now you have got bits of cardboard and very plain boring, so it's not something you look forward to.' (DFA)

C '...you don't go to Christmas parties because you can eat nothing on the menu. So you just make an excuse and can't go there.' (DFA)

Box 1 Continued

D 'Yes, everything is more expensive if you buy from free-from aisle, and because you can't buy ready meals or even a pizza, you have got to make everything from scratch. When you buy a pizza for £2 or whatever in [major supermarket], it's gonna cost you £6 by the time you have got all the fresh ingredients, your gluten and wheat-free bases, and the time. It is more expensive.' (DFA)

E 'I think that's why you tend to buy the same things cause you..., if you know they are safe for you, and you know... unless it has got a new improved recipe on it...' (DFA)

F 'I try and eat healthy 'cause I wanna lose weight, but it's just hard, just try and eat obviously certain healthy foods I can't eat. That's why I have kind of chosen slim fast milk shakes. That's just simple and things I can have obviously milk and stuff that's in it, so I can have those. So at the moment that's all I am eating...' (DFA)

G 'And you can't rely on the food labels cause they say maybe, may contain nuts, tree nuts, peanuts. What's the probability? It's just rubbish!' (DFA)

H '...if I am out in a pub I have something I don't have at home because I think that, that someone else has gone to the effort of making it, and with all the ingredients, that I could not bother to do at home, so I have something that's more complicated.' (SFA)

How eating makes me feel

Theme 2: 'Food, and the whole experience of eating, can be pleasurable'

Eating, and the whole experience surrounding food, was considered a source of pleasure for most participants. Among SFA participants, some would abstain from so many foods that they felt the enjoyment aspect of eating was lost. A number of DFA participants shared this opinion, especially those diagnosed as an adult (Box 1B). However, others thought that the deprivation of some foods had opened their mind to a whole range of new foods.

Sharing meals or eating with others was regarded as the most pleasant way of consuming foods. Generally, DFA group felt that they would experience many difficulties when eating with other people (Box 1C).

How do I choose what to eat?

Theme 3: 'Eat what you can afford'

Price was considered a big issue when choosing food with the emphasis on buying foods you can afford. Some felt that their food allergy did impact on their shopping bills (Box 1D).

Theme 4: 'Eating requires organization'

Participants from all groups agreed that preparing and eating food requires time and effort. While planning food shopping and meals was perceived as useful by many NFA, the majority of SFA and DFA participants experienced it as burdensome. In addition, their allergy or intolerance would limit their selection of foods in supermarkets, so sticking to famil-

iar foods was easier, and for DFA participants also safer (Box 1E).

Theme 5: 'When it comes to food, my health is an important (if not the most important) consideration'

Most participants from all groups considered a healthy diet important, although the SFA participants were the most health-conscious group. Among DFA participants, some believed their allergy increased their awareness of what they are eating, whereas others felt it was hard to get sufficient nutrients from their diet (Box 1F).

For DFA group, their food allergy remained their biggest concern when choosing food. A similar behaviour was observed within SFA groups, with the distinct difference that some SFA participants would occasionally consume the food they were avoiding.

Food labels only played a significant role for DFA. Although food labels are intended to ease the food selection process, it was often the opposite (Box 1G).

Members from both SFA and DFA groups sometimes experienced difficulties in finding foods that were safe to eat, mostly when eating out or travelling.

Theme 6: 'My cultural and social environment influences my food choices'

Participants from all groups observed that their food choices are impacted by their environment, including other people and the media.

Theme 7: 'Foods have a place and time'

There was a general agreement across all groups that eating habits would differ depending on the location (Box 1H) and time of the day.

Discussion

This is the first study to investigate the influence of food allergy on individuals' food choices. With this knowledge, gaps in this research area as recently reviewed (9) are addressed.

Interestingly, DFA group did not differ from NFA group in their motivations for eating, whereas SFA group did. Many of the SFA group observed a strong emotional link with their desire for eating. This phenomenon has never been reported before, but could indicate a potential psychological involvement with self-reported food allergy. On the other hand, DFA group reported a lack of pleasure from food, most notably those who had been diagnosed later in life.

Many DFA participants reported their food allergy compromised their social life, which is echoed in previous studies (5, 6).

In line with a previous study (10), DFA participants were divided on whether their food allergy would impact their total grocery costs or not. These results highlight that dietary advice should be given in the light of monetary constraints if present.

In terms of shopping habits, some DFA participants perceived food selection in supermarkets to be limited, and

sticking to familiar foods/brands was one strategy to reduce the risk of reactions. This has also been reported in a recent study on nut-allergic consumers (11).

A number of participants across the groups showed increased awareness about healthy eating habits, with SFA group being the most concerned. This link has been described before (12). Among DFA participants, their allergy had clear priority over other health issues. Finding safe foods was often a challenge, in particular when eating out and during travelling. Their experiences conform to those reported in the literature (13).

Diagnosed food-allergic participants consistently expressed dissatisfaction with current food labelling practice. The risk of accidental exposures because of inappropriate food labelling is well known (14), and food-allergic consumers' experiences with food labels have been comprehensively investigated (10, 11).

This study addresses a long neglected gap in a rarely studied age group within food allergy, and by using a qualitative approach, motivations for choosing food could be identified. Another strength of this study was its comparative design. By contrasting food-allergic or intolerant consumers to their nonallergic 'controls', issues that concern only these groups could be highlighted. This research further emphasizes the need to clearly distinguish between DFA and SFA in health-care and future investigations.

In terms of limitations, DFA groups were selected through a local hospital and support charity, and they might be better informed about avoidance strategies than other DFA. Also, advertisement may have attracted health-conscious,

predominantly female participants with higher qualifications. Notwithstanding, the findings are indicative of a number of factors that impact food choices in the study population.

The results from this study emphasize the importance of offering patients with food allergies or intolerances advice that goes beyond avoidance of foods by also considering personal and environmental circumstances.

Authors contributions

All authors have contributed to the design and preparation of the manuscript. IS was the principal investigator and conducted data collection, analysis and writing of the first draft of the manuscript. HM participated in data collection and analysis. CV provided allergy dietetic expertise and assisted with data collection. TD established the initial scientific questions and provided continuing intellectual guidance.

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Conflicts of interests

CV has provided education material for Danone and Mead Johnson and is a research fellow of the National Institute of Health Research. All other authors have declared no conflict of interests.

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