

Food Allergy-Related Quality of Life and Psychosocial Burden in the United Arab Emirates: A Cross-Sectional Study

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Research Article

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Abstract

Background

Food allergies can affect emotional well-being, social participation, and everyday functioning in addition to their physical consequences. This study aimed to examine food allergy-related quality of life and psychosocial burden among individuals aged 18 years and older in the United Arab Emirates (UAE), and to explore the psychometric performance of the Food Allergy Quality of Life Questionnaire-Adult Form (FAQLQ-AF) in this population.

Methods

A cross-sectional survey was conducted among 58 participants aged 18–70 years who reported a food allergy. Participants completed demographic and food allergy-related questions and the 29-item English-language FAQLQ-AF using a 7-point response scale. Internal consistency was assessed using Cronbach's alpha, and an exploratory principal component analysis (PCA) with Varimax rotation was used to examine the component structure.

Results

The FAQLQ-AF demonstrated high internal consistency (Cronbach's alpha = 0.971). Exploratory PCA identified four interpretable components relating to allergen avoidance, emotional impact, labelling uncertainty, and social burden, accounting for 73.07% of the variance. Participants reported moderate emotional and social burden, with prominent concerns relating to fear of reactions, unfamiliar foods, and social interactions.

Conclusions

Food allergies were associated with a multidimensional quality-of-life burden in this UAE sample, particularly in relation to emotional well-being, social interactions, and food-related decision-making. The FAQLQ-AF demonstrated high internal consistency and an interpretable exploratory component structure. Larger and more diverse studies are needed to confirm its psychometric properties in the UAE population.

Background

Food allergy is an important public health concern that can impose substantial dietary, healthcare, and quality-of-life burdens. Reactions may range from mild symptoms to severe, potentially life-threatening anaphylaxis, while strict allergen avoidance remains central to management for many affected

individuals [1, 2]. Food allergy is also common in adulthood, and adult-onset allergy is increasingly recognized [3].

Beyond physical risk, food allergy can impose a substantial psychological burden. The need for continuous vigilance and avoidance may contribute to anxiety, fear of accidental exposure, reduced perceived control, and limitations in social participation [4–6]. Everyday activities such as grocery shopping, eating in restaurants, attending social gatherings, and travelling may become sources of uncertainty and stress [4, 5, 7].

The social consequences can be similarly important. Individuals with food allergy may feel uncomfortable explaining their condition, worry that others underestimate its seriousness, or feel burdensome when accommodations are required [4, 5]. Challenges are particularly evident when eating outside the home, where uncertainty about ingredients, cross-contact, and staff knowledge can influence both safety and participation [7, 8].

Within the Middle East and Gulf region, evidence on food allergy and its psychosocial consequences remains limited. In the UAE, a school-based study in Al-Ain reported physician-diagnosed food allergy in 8% of children aged 6–9 years [9], while research among university students in Ajman has also highlighted allergy-related health concerns [10]. However, relatively little is known about food allergy-related quality of life among older adolescents and adults living in the UAE.

The UAE provides a relevant context for examining these experiences because of its multicultural food environment, frequent dining outside the home, and the social importance of shared meals and hospitality. These features may create additional uncertainty for people who need to avoid specific foods. Allergen-management requirements have also evolved, including provisions in Dubai Food Code 2.0 relating to allergen information and food-service practices [11].

Disease-specific quality-of-life measures can capture burdens that may not be reflected in clinical measures alone. The Food Allergy Quality of Life Questionnaire-Adult Form (FAQLQ-AF) was developed as a 29-item measure of food allergy-related health-related quality of life in adults and has shown high internal consistency and validity in its original development study [12]. The instrument has subsequently been adapted and evaluated in other populations [13], but evidence from the UAE remains limited.

Therefore, this study aimed primarily to examine food allergy-related quality of life and psychosocial burden among participants aged 18 years and older residing in the UAE, with particular attention to emotional and social experiences. A secondary exploratory objective was to examine the internal consistency and component structure of the English-language FAQLQ-AF in this sample.

Methods

Study design

This study employed a quantitative, cross-sectional survey design to assess food allergy-related quality of life and psychosocial burden among residents of the UAE.

Participants and sampling

The analytic sample comprised participants aged 18 years and older residing in the UAE who reported having a food allergy, whether medically diagnosed by a healthcare professional or self-identified. To strengthen the relevance of self-reported allergy status, participants were required to report allergy-related symptoms and associated dietary restrictions or food-avoidance behaviours consistent with food allergy management.

Sample size

Sample size was estimated using standard parameters for a cross-sectional survey, including a 95% confidence level, a 5% margin of error, and prevalence estimates informed by previous food allergy literature. Based on prevalence estimates of approximately 2%-10%, the estimated sample size ranged from approximately 30 to 139 participants. The final sample consisted of 58 participants. Given the exploratory nature of the psychometric analysis and the modest sample size, the component analysis was treated as exploratory rather than confirmatory. Sampling adequacy was evaluated using the Kaiser-Meyer-Olkin measure, Bartlett's test of sphericity, component loadings, and item communalities.

Recruitment

Participants were recruited using convenience and snowball sampling via WhatsApp distribution and the Zayed University student email system. The survey link was circulated electronically, and recipients could voluntarily share the study invitation with other eligible individuals within their social and professional networks. Participation was voluntary, anonymous, and non-incentivized.

Data collection

Data were collected electronically using Google Forms. The first section collected demographic and food allergy-related information, including age, gender, nationality, Emirate of residence, type and number of reported food allergies, allergy-related symptoms, and diagnosis status (medically diagnosed or self-diagnosed). Participants also reported common symptoms experienced during allergic reactions, including skin, gastrointestinal, and respiratory manifestations.

The second section comprised the 29-item English-language FAQLQ-AF [12]. Items assess the extent to which food allergy affects emotional well-being, allergen avoidance, food-related decision-making, and social functioning. In the present survey, responses were recorded on a 7-point scale coded from 0 ("Not Troubled") to 6 ("Extremely Troubled"), with higher scores indicating greater impairment in quality of life.

Participants were instructed to answer all questions based on their personal experiences of living with food allergy. Completion required approximately 10–15 minutes.

Pilot study

A pilot test involving 10 participants was conducted before the main study to assess clarity, readability, survey length, and interpretation of questionnaire items. Feedback was used to identify areas requiring clarification and to improve the wording and overall flow of the survey.

Statistical analysis

Analyses were conducted in IBM SPSS Statistics Version 30. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarize participant characteristics, food allergy characteristics, and questionnaire responses. An exploratory principal component analysis (PCA) with Varimax rotation was conducted to examine the component structure of the FAQLQ-AF. Sampling adequacy was assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity. Components with eigenvalues greater than 1 were retained as an exploratory criterion [14]. Internal consistency of the questionnaire was assessed using Cronbach's alpha, with values of 0.70 or higher considered acceptable [15].

Results

Participant and allergy characteristics

A total of 58 participants were included, with a mean age of 29.6 years (SD = 13.4; range 18–70 years). The sample was predominantly female (83%) and UAE national (83%). Most participants lived in Dubai (76%), followed by Abu Dhabi (15.5%), Sharjah (5%), Ras Al Khaimah (1.7%), and Ajman (1.7%) (Table 1). Approximately one-third of participants reported self-diagnosed rather than medically diagnosed food allergy.

Table 1
Participant characteristics (N = 58)

Characteristic	n (%)
Gender	
Female	48 (83)
Male	10 (17)
Nationality	
UAE National	48 (83)
Other nationalities	10 (17)
Emirate of Residence	
Dubai	44 (76)
Abu Dhabi	9 (15.5)
Sharjah	3 (5)
Ras Al Khaimah	1 (1.7)
Ajman	1 (1.7)
Top Food Allergens	
Milk	18 (31)
Peanut	15 (26)
Shellfish	12 (21)
Tree nuts	12 (21)
Wheat	11 (19)
Egg	10 (17)
Fish	8 (14)
Sesame	8 (14)
Number of Food Allergies	
1 food	15 (26)
2 foods	8 (14)
3 foods	8 (14)
Values are n (%) unless otherwise indicated. Percentages may not total 100% because of rounding and because participants could report more than one allergen or symptom.	

Characteristic	n (%)
> 3 foods	27 (47)
Common Symptoms	
Skin (rash, swelling, hives)	31 (53)
Gastrointestinal (cramps, diarrhea, vomiting)	22 (38)
Respiratory (wheezing, difficulty breathing)	20 (34)
Values are n (%) unless otherwise indicated. Percentages may not total 100% because of rounding and because participants could report more than one allergen or symptom.	

The most frequently reported allergens were milk (31%), peanut (26%), shellfish (21%), and tree nuts (21%). Other reported allergens included wheat (19%), egg (17%), fish (14%), and sesame (14%) (Fig. 1). Nearly half of participants (47%) reported allergies to more than three food items. Reported symptoms were primarily skin-related (53%), followed by gastrointestinal (38%) and respiratory (34%) symptoms (Table 1).

Food allergy-related quality of life

The 29-item FAQLQ-AF demonstrated high internal consistency (Cronbach's alpha = 0.971). Participants reported moderate quality-of-life burden, with item means generally ranging from 2.50 to 3.59 on the 0–6 scale (Table 2). The highest mean scores were observed for fear of a reaction despite discussing dietary restrictions (M = 3.59, SD = 1.80), feeling discouraged during a reaction (M = 3.57, SD = 1.87), and fear of accidentally eating the wrong food (M = 3.53, SD = 2.01). Other prominent concerns included explaining the allergy to others (M = 3.50, SD = 2.03), apprehension about eating unfamiliar food (M = 3.47, SD = 1.89), and the perception that others underestimated the condition (M = 3.36, SD = 1.94) (Fig. 2).

Table 2
Mean FAQLQ-AF item responses 2. Mean FAQLQ-AF Responses

How troublesome do you find it, because of your food allergy, that you...		
Item	Mean	SD
...must always be alert as to what you are eating	3.21	1.93
...are able to eat fewer products	2.78	1.79
...are limited as to the products you can buy	2.59	1.96
...must read labels	2.98	2.22
...have less control of what you eat when eating out	3.10	2.05
...must refuse many things during social activities	3.34	2.01
...sometimes frustrate people when accommodating your food allergy	2.90	2.08
...are less able to accept spontaneous invitations to stay for a meal	2.57	2.00
...are less able to taste or try products when eating out	3.21	1.98
...can eat out less	2.50	2.08
...must personally check whether you can eat something when eating out	3.17	1.93
...hesitate eating a product when you have doubts about it	3.34	2.01
How troublesome is it, because of your food allergy...		
Item	Mean	SD
...that ingredients change	2.86	1.87
...that labels are incomplete	2.91	2.15
...that lettering is too small	2.81	2.18
...that the label says "May contain (traces of)..."	2.95	2.12
...that ingredients are different in other countries	2.91	2.10
...that people underestimate your problems	3.36	1.94
...that it is unclear to which foods you are allergic	2.71	2.05
...that you must explain your allergy to others	3.50	2.03
...for your host or hostess should you have a reaction	3.02	1.99
How worried are you because of your food allergy...		
FAQLQ-AF: Food Allergy Quality of Life Questionnaire-Adult Form; M: mean; SD: standard deviation. Responses were coded from 0 (Not Troubled) to 6 (Extremely Troubled).		

How troublesome do you find it, because of your food allergy, that you...		
Item	Mean	SD
...about your health	3.31	1.99
...that reactions will become increasingly severe	3.34	1.90
How frightened are you because of your food allergy...		
Item	Mean	SD
...of an allergic reaction	3.34	1.95
...of accidentally eating the wrong food	3.53	2.01
...of a reaction even if dietary restrictions are discussed	3.59	1.80
...to what degree do you feel you are a nuisance?	3.12	1.93
...how discouraged do you feel during a reaction?	3.57	1.87
...how apprehensive are you about eating something new?	3.47	1.89
FAQLQ-AF: Food Allergy Quality of Life Questionnaire-Adult Form; M: mean; SD: standard deviation. Responses were coded from 0 (Not Troubled) to 6 (Extremely Troubled).		

Exploratory component analysis

The KMO measure of sampling adequacy was 0.872, and Bartlett's test of sphericity was statistically significant ($\chi^2(406) = 1542.17, p < 0.001$), indicating that the correlation matrix was suitable for exploratory component analysis. Using the eigenvalue-greater-than-1 criterion, four components were retained, accounting for 73.07% of the total variance.

The rotated solution yielded four interpretable components: (1) Allergen Avoidance and Dietary Restrictions, reflecting vigilance, restricted food choices, and limitations during social eating; (2) Emotional Impact and Anxiety, including fear of accidental ingestion, discouragement during reactions, and apprehension about unfamiliar foods; (3) Labelling Issues and Uncertainty, reflecting concerns about incomplete or precautionary labels; and (4) Social Burden and Misunderstanding, reflecting the interpersonal burden of explaining food allergy and feeling underestimated or burdensome. Selected rotated component loadings are shown in Table 3.

Table 3
Selected rotated component loadings (Varimax rotation)

Item	C1	C2	C3	C4
	Allergen avoidance and dietary restrictions	Emotional impact and anxiety	Labelling issues and uncertainty	Social burden and misunderstanding
Able to eat fewer products	0.769			
Must always be alert as to what you eat	0.680		0.445	
Must refuse many things during social activities	0.676	0.427		
Of accidentally eating the wrong food		0.805		
How apprehensive about eating unfamiliar food	0.418	0.738		
Labels are incomplete	0.327		0.825	
The label says "May contain..."			0.832	
People underestimate your allergy				0.762
Host inconvenience if allergic reaction	0.486	0.410		0.499
C1-C4: retained components. Loadings below 0.30 are omitted for brevity. Cross-loadings are shown where present. FAQLQ-AF: Food Allergy Quality of Life Questionnaire-Adult Form.				

Item communalities ranged from 0.455 to 0.894, indicating that a substantial proportion of variance in most items was accounted for by the retained components. Given the sample size, the component structure should be regarded as exploratory and interpreted cautiously.

Discussion

This study examined food allergy-related quality of life and psychosocial burden among participants living in the UAE. The findings indicate a moderate but multidimensional burden affecting emotional well-being, social participation, dietary behaviour, and everyday decision-making. Concerns about accidental

exposure, unfamiliar foods, and the need to explain food allergy to others were among the most prominent findings. The exploratory psychometric analysis also indicated high internal consistency and an interpretable four-component structure for the FAQLQ-AF in this sample.

Emotional and psychological burden

Participants reported notable emotional strain, particularly fear of allergic reactions despite precautions, anxiety about unfamiliar foods, and discouragement during reactions. These findings are consistent with evidence that food allergy can be associated with anxiety, hypervigilance, uncertainty, and reduced quality of life [4–6]. The continuous need to monitor food intake and assess exposure risk may contribute to anticipatory anxiety and emotional fatigue, particularly in situations where individuals have limited control over food preparation [4, 16].

In this sample, emotional and interpersonal concerns were among the highest-scoring items. This pattern suggests that the burden of food allergy extends beyond practical dietary restriction and may involve persistent concerns about safety, social understanding, and perceived control. These psychological dimensions are relevant to clinical management because food allergy care may benefit from attention to emotional well-being alongside dietary and medical advice.

Social and cultural context

Participants also reported difficulties in social situations, including refusing food, repeatedly explaining their allergy, and concern about inconveniencing others. Previous research has shown that eating outside the home can present substantial emotional and practical challenges for people avoiding food allergens [7, 17]. In the UAE, these challenges may be particularly salient in a diverse food environment where shared dishes, unfamiliar cuisines, and variability in communication about ingredients can increase uncertainty.

Hospitality, shared meals, and food offering are important features of many social settings in the UAE and wider Gulf region. Although the present study did not directly measure cultural norms, the reported social concerns may partly reflect the tension between maintaining allergen avoidance and participating comfortably in communal eating. This interpretation should therefore be regarded as a context-informed hypothesis rather than a directly tested cultural mechanism.

Labelling and food-related uncertainty

Participants reported moderate concerns about food labelling and uncertainty surrounding ingredients, including incomplete labels and precautionary wording. Similar concerns have been reported internationally, where uncertainty about allergen information can reduce confidence in food purchasing and eating outside the home [7, 8, 17]. In the UAE, evolving allergen-management requirements, including provisions in Dubai Food Code 2.0, may help support safer food-service practices [11]; however, the present findings indicate that uncertainty remains relevant to participants' quality of life.

Exploratory psychometric findings of the FAQLQ-AF

The FAQLQ-AF demonstrated high internal consistency in this UAE-based sample (Cronbach's alpha = 0.971), similar to the high reliability reported in the original development study [12]. The exploratory PCA yielded four interpretable components that reflected practical, emotional, labelling-related, and social dimensions of food allergy-related quality of life. These findings provide preliminary support for the use of the English-language FAQLQ-AF in this setting but should not be interpreted as definitive validation.

The modest sample size is particularly important when interpreting the component solution. Sample-size requirements for exploratory factor or component analyses depend on factors such as communalities and the degree to which factors are well determined, rather than on a single universal participant-to-item ratio [18, 19]. The relatively high KMO value, significant Bartlett's test, and generally substantial communalities support the interpretability of the present exploratory analysis, but replication in a larger independent sample is needed before the component structure can be considered stable.

Implications for practice and research

The findings highlight the importance of considering psychological and social well-being as part of food allergy management. Healthcare professionals may wish to ask about anxiety related to accidental exposure, social avoidance, and challenges with eating outside the home in addition to providing clinical and dietary advice. Public awareness, consistent allergen communication, and staff training in food-service settings may also help reduce uncertainty and support participation in everyday social activities.

Limitations

This study has several limitations. First, the questionnaire was administered only in English, which may have limited participation or comprehension among residents whose primary language is Arabic or another language. Second, food allergy status was self-reported, with approximately one-third of participants reporting self-diagnosed rather than medically confirmed allergy; misclassification is therefore possible. Third, convenience and snowball recruitment through academic and social networks may have produced a sample that was younger, more highly educated, or more engaged with food allergy concerns than the wider UAE population, limiting generalizability. The sample size was modest for an exploratory 29-item component analysis, and the psychometric findings should therefore be considered preliminary rather than confirmatory. Although the KMO value, Bartlett's test, component loadings, and communalities supported an interpretable solution, larger independent samples are needed to confirm its stability [18, 19]. Finally, the cross-sectional design does not allow conclusions about changes in quality of life over time or causal relationships between food allergy experiences and psychological outcomes.

Future research

Future studies should recruit larger and more diverse samples across all Emirates and should distinguish medically confirmed from self-diagnosed food allergy where feasible. Validation of an Arabic-language version of the FAQLQ-AF would improve accessibility and permit broader evaluation across the UAE

population. Longitudinal and qualitative research could also examine how allergy severity, social support, cultural practices, and food-service experiences shape psychological well-being over time.

Conclusions

Food allergy was associated with a moderate and multidimensional quality-of-life burden in this UAE sample, with prominent emotional and social concerns including fear of accidental exposure, anxiety around unfamiliar foods, and the need to explain food allergy to others. These findings underscore the importance of considering psychological and social well-being alongside clinical and dietary management. The FAQLQ-AF demonstrated high internal consistency and an interpretable exploratory component structure, providing preliminary support for its use in this setting. Larger and more diverse studies are required to confirm its psychometric properties and to better characterize food allergy-related quality of life across the UAE.

Abbreviations

FAQLQ-AF

Food Allergy Quality of Life Questionnaire-Adult Form

KMO

Kaiser-Meyer-Olkin

PCA

Principal component analysis

SD

Standard deviation

UAE

United Arab Emirates

Declarations

Ethics approval and consent to participate

The study received approval from the Zayed University Research Ethics Committee (ZU25_023_S). The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki for research involving human participants. Informed consent was obtained electronically from all participants before participation. Participation was voluntary, participants were informed that they could withdraw at any time without penalty, and no personally identifiable information was collected.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Authors' information

Not applicable.

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Author Contribution

NBH and DH contributed to the study conception and design. NBH and DH contributed to material preparation, data collection, and analysis. NBH wrote the first draft of the manuscript. Both authors reviewed and revised the manuscript and approved the final version.

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The authors thank all participants who contributed their time to this study.

Data Availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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Figures

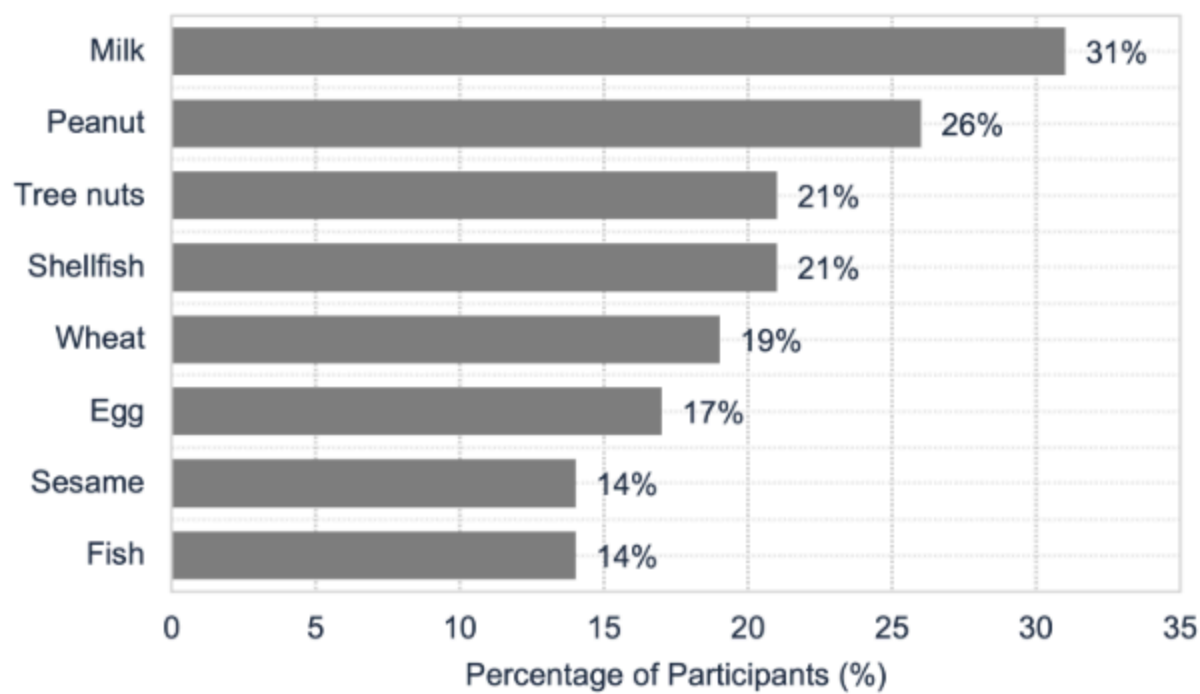


Figure 1

Top reported food allergens (N = 58). Milk (31%), peanut (26%), shellfish (21%), and tree nuts (21%) were the most frequently reported allergens, followed by wheat (19%), egg (17%), fish (14%), and sesame (14%).

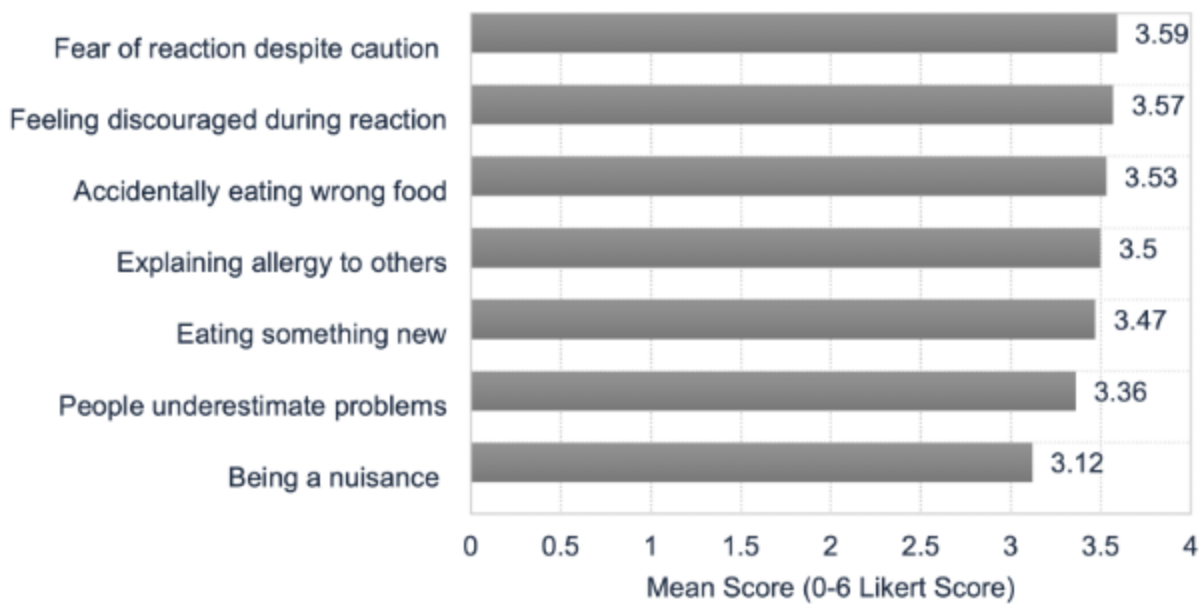


Figure 2

Highest-scoring emotional and social impact items on the FAQLQ-AF (N = 58). Prominent concerns included fear of a reaction despite precautions, accidental ingestion, discouragement during a reaction, explaining the allergy to others, and apprehension about unfamiliar foods.