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Peanut Allergy Burden Survey: Correlates of Food Allergy Quality of Life Questionnaire–Teen Form Scores

Stephen Tilles,[1] Steven L. Hass,[2] Sarah M. Donelson,[1] Dan Robison,[1] Kevin Norrett,[1*] Ann Cameron,[3*] Martine Etschmaier,[3] Amy Duhig,[3] William A. McCann[4]

[1]Aimmune Therapeutics, Brisbane, CA; [2]H. E. Outcomes, LLC, Boston, MA; [3]Xcenda, LLC, Tampa, FL; [4]Allergy Partners P.A., Asheville, NC; *At time of study

INTRODUCTION

- Peanut allergy (PA), a common type of food allergy, has become increasingly prevalent in recent years, particularly among children[1]
  - A recent large population-based survey estimated that 2.2% of all children and adolescents in the United States (US) have PA[2]
- Individuals with PA who are exposed to peanuts can develop various symptoms that range in severity and onset. The most severe allergic reaction is anaphylaxis, which may be life-threatening and requires immediate treatment with epinephrine[3]
- The standard of care for PA has been to avoid peanuts and appropriately treat the symptoms of a reaction.[3,4] With the first treatment for PA recently approved by the US Food and Drug Administration in January 2020[5] and other treatments under investigation, this may be changing
- Given the potential severity of symptoms and need for close management, living with food allergies such as PA presents day-to-day concerns and challenges for allergic individuals and their families that can negatively impact health-related quality of life (HRQL)[6-8]
- Although the burden of food allergy has been fairly well-documented, the literature on allergy-specifc HRQL among adolescent patients with PA is limited

OBJECTIVE

- The Peanut Allergy Burden Study (PABS) assessed the real-world burden of PA on patients and caregivers in the US. The objective of this analysis was to understand the relationship between differences in demographic characteristics, PA experience, and treatment on dimensions of allergy-specific adolescent HRQL

METHODS

Study Design and Population

- Data were collected via the PABS, a cross-sectional, online survey in the US[9]
- Adolescents aged 13 to 17 years with self-reported, physician-diagnosed PA were recruited for the survey using commercial research panels
- Prospective participants first completed a brief screening questionnaire; those who met inclusion and exclusion criteria were eligible to complete the 20-minute survey
  - Inclusion criteria:
    - Aged 13 to 17 years
    - (a) Had been diagnosed by a healthcare provider as having PA, and (b) had experienced a reaction to peanuts that required medication/medical care *or* have ready access to emergency medication in case of an allergic reaction to peanuts
    - Agree "completely" or "very much" with the following statement: "I avoid being around peanuts. I don't eat peanuts, things made with peanuts, or peanut oil or other things that might have touched peanuts or peanut oil"
    - Resident of the US
    - English speaker
  - Exclusion criteria:
    - Sex or age quotas had already been met
- The study protocol and survey were reviewed and approved by an independent institutional review board

Survey Measures

- Demographic characteristics, disease experience, PA-related medical and treatment history
- HRQL was measured by the validated Food Allergy Quality of Life Questionnaire–Teen Form (FAQLQ-TF)[10]
  - The FAQLQ-TF consists of 23 items measuring patient experience across 3 domains: Allergen Avoidance and Dietary Restrictions (AADR), Emotional Impact (EI), and Risk of Accidental Exposure (RAE); a Total score was also calculated
  - Each item/domain is measured on a 7-point scale (1="not" to 7="extremely"), with lower scores indicating less trouble/fright/discouragement/disappointment

Analysis

- The correlations of FAQLQ-TF scores with demographic characteristics, and PA-related medical and treatment history, were investigated by means of 2-tailed Pearson's correlation tests. Independent t-tests were conducted for dichotomous variables

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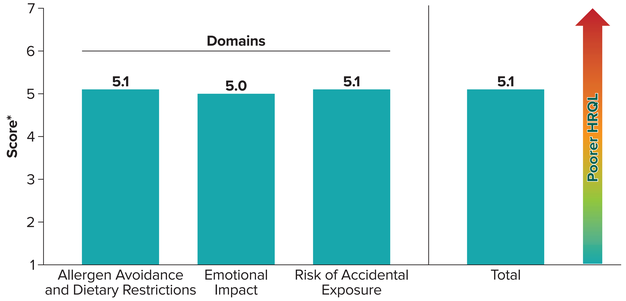
RESULTS

- 102 adolescents with PA completed the PABS; mean (SD) age was 14.7 (1.4) years, 55.9% were male, and 62.8% were white

FAQLQ-TF Scores of the Adolescent Respondents Participating in the PABS

- The score on domains of food allergy-specific quality of life as measured by the FAQLQ-TF are shown in **Figure 1**
  - Mean domain and Total scores indicated a substantial impact of PA on the allergy-specific HRQL of the adolescent respondents to the PABS survey
  - Each of the domain and Total scores were ≥5.00 on the 1–7 scale of the FAQLQ-TF, with higher scores indicating poorer HRQL

Figure 1. Food Allergy-Specific Health-Related Quality of Life: FAQLQ-TF Scores



*Higher scores indicate poorer HRQL. Food Allergy Quality of Life Questionnaire–Teen Form; HRQL, health-related quality of life.

Relationship With Demographic and Medical History Variables

- None of the 4 demographic and medical history variables (respondent's age, sex, comorbidities, the number of other food allergies) were found to be significantly related to FAQLQ-TF scores

Relationship with Psychosocial Variables

- PA was found to be significantly correlated with the 5 psychosocial variables included in the survey (**Table 1**)
  - These variables concerned how respondents perceive their ability to cope with PA:
    - Confidence in managing PA reaction
    - Degree of control over PA
    - Limitations imposed on daily life by their PA
    - Fear of reactions affecting emotional well-being
    - Worry when they have no access to an epinephrine autoinjector

Relationship with PA Reaction Variables

- The relationships of FAQLQ-TF scores to 13 variables describing the patient's experience with peanut reactions were evaluated. Only the severity of the most severe reaction in their lifetime was significantly correlated (**Table 1**). The other variables examined included differences around the number of reactions they had experienced, time since reaction, and reaction severity
  - Surprisingly, the number of reactions (regardless of severity) in the last year and in their lifetime were not significantly correlated with FAQLQ-TF scores. Nor were the age at first PA reaction, time since the most recent reaction, time since most recent severe reaction, or the severity of the most recent reaction

Table 1. Statistically Significant Correlations Between FAQLQ-TF Scores and Psychosocial, PA Reaction, and Treatment and Avoidance Behavior Variables

Correlates		AADR	EI	RAE	Total
Psychosocial variables	Confidence in managing PA reaction	–.209*	–.214*	–.211*	–.222*
	Degree of control over PA	–.212*	–.196*	–.148	–.194
	PA limitations on day-to-day life	.449*	.415*	.498*	.476*
	Fear of reactions affecting emotional well-being	.481*	.526*	.520*	.535*
	Worry when no access to epinephrine autoinjector	.478*	.485*	.387*	.474*
PA reaction variables	Severity of most severe reaction in lifetime	.251*	.302*	.212*	.270*
Treatment and avoidance behavior variables	Number of clinician interventions in lifetime	.270*	.298*	.267*	.289*
	Number of clinician interventions in prior years	.209*	.245*	.207*	.227*

*Statistically significant correlations. AADR, Allergen Avoidance and Dietary Restrictions; EI, Emotional Impact; FAQLQ-TF, Food Allergy Quality of Life Questionnaire—Teen Form; PA, peanut allergy; RAE, Risk of Accidental Exposure.

Relationship with Treatment and Avoidance Behavior Variables

- Nine variables dealing with treatment experience and allergen avoidance were evaluated for their relationship to the FAQLQ-TF. Significant correlations were observed for 2 variables on use of a clinician intervention (ie, use of emergency department, inpatient hospitalization, intravenous epinephrine, or intubation) to deal with PA reaction symptoms (**Table 1**)
- Also, respondents who had received a prescription for an epinephrine autoinjector had significantly higher scores on the Emotional Impact, Risk of Accidental Exposure, and Total scores of the FAQLQ-TF (p=0.001, p=0.032, and p=0.017, respectively)
  - The number of clinician interventions in the last year was not significantly correlated with FAQLQ-TF scores
  - Additionally, correlations with the percentage of time respondents had access to an epinephrine autoinjector, satisfaction with epinephrine autoinjector, or satisfaction with the current treatment approaches were not significant. Nor was the use of avoidance behaviors (avoiding direct contact with peanuts, avoiding indirect contact with peanuts)

CONCLUSIONS

- The PABS data indicate that adolescents experience significant allergy-specific HRQL burden due to PA
  - Variables correlated with FAQLQ-TF scores include:
    - Psychosocial variables
    - Need to modify daily activities to practice avoidance
    - Severity of the most severe PA reaction in their lifetime
    - Number of clinician interventions due to peanut exposure in their lifetime
  - Surprisingly, more recent PA reaction experience such as the number of reactions in the last year, the need for clinician interventions in the last year, and time since the most recent PA reaction were not significantly correlated with FAQLQ-TF scores
  - The respondent's age, the number of comorbid disease conditions, and the number of other food allergies experienced by the adolescent were not correlated with their FAQLQ-TF scores
- Analyses regarding the relationship of HRQL measures to other variables describing the disease experience of adolescents with PA can help us interpret the data they generate

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Disclosures **ST** is an employee of Aimmune Therapeutics. **SLH** is a consultant to Aimmune Therapeutics. **SMD** and **DR** are employees and **KN** is a former employee of Aimmune Therapeutics. **AC** is a former employee of Xcenda, LLC. **ME** and **AD** are employees of Xcenda, LLC. **WAM** received consultancy fees from Aimmune Therapeutics.