

## Original Research Article

# A study on self-reported food allergy in young adults from various colleges in Kerala, India

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## ABSTRACT

**Background:** Food allergy is defined as a reproducible adverse immune reaction to food proteins. Food allergies can result in life threatening reactions and diminish quality of life. In the last several decades, prevalence of food allergy has increased in several regions throughout the world.

**Methods:** A cross sectional study was conducted among 321 young adults of the age 17 to 26 years from various colleges in Kerala. The participants were asked to fill out a pretested questionnaire. The data was collected and entered in MS Excel and analyzed.

**Results:** Adverse reactions following food consumption was experienced by 82 respondents (25.5%). Out of these 82 respondents, 38 (46%) had their condition diagnosed by a doctor. 23 respondents had only one episode of such an attack. 41 respondents took medications for the attack. 14 respondents had been hospitalized at least once for such an attack. The most common symptoms following the consumption of food were as follows: vomiting, itching and eczema. The symptoms occur after the consumption of sea food/fish and eggs mostly. 27 respondents had a family history of food allergy.

**Conclusions:** The symptoms of food allergy may vary from minor itching to even anaphylaxis. It is very important to know the causative allergen in the diet to prevent the occurrence of an episode of food allergy.

**Keywords:** Food allergy, Allergens, Self-reported, Young adults

## INTRODUCTION

Food allergy is defined as a reproducible adverse immune reaction to food proteins. Food allergy is defined as per the new US guidelines as “an adverse health effect arising from a specific immune response that occurs reproducibly on exposure to a given food.”<sup>1</sup> “Food allergens” are typically naturally-occurring proteins in foods or derivatives of them that cause abnormal immune responses. Food allergy affects “more than 1-2% but less

than 10%” of the population.<sup>2</sup> The exact prevalence of food allergies is unknown. A meta-analysis published revealed significant heterogeneity in prevalence rates due to different methodologies and population.<sup>3</sup>

Food allergy has been a medical concern since the time of Hippocrates, who described adverse reactions following the ingestion of cheese. Despite scientific advances, physicians are challenged when dealing with patients with specific or nonspecific reactions to food.

The most frequently reported reactions were skin reactions, such as hives, itching, or redness of the skin, stomach pain, throat tightness, swelling of the face, itchy throat, lips, or mouth, breathing difficulty and nasal congestion. Symptoms of food allergy can occur within minutes to hours of ingesting the trigger food and can vary in severity from mild to life-threatening.<sup>3</sup>

In patients with food allergy the ingestion of that particular food may provoke an allergic reaction which may be fatal for some patients. Most food allergens can cause reactions when ingested either in the raw form or after being cooked or even digested. Raw peanut, nuts, egg, milk, fish, crustacean shellfish, wheat, soy and mustard have been identified as some of the significant allergens. Protein-containing food additives, colouring agents, chemical additives, artificial flavours (e.g., tartrazine) and preservatives (e.g., glutamates and sulphites) might cause adverse reactions.<sup>4</sup>

Food allergic patients need to be continuously alert as to what they are eating in different situations. The daily life of these patients may constantly be disrupted by the constant need to monitor the food which is being consumed.

## METHODS

A cross sectional study was conducted from the study period June 2018 to September 2018 amongst students from various colleges in Kerala. The sample size was calculated using the formula  $n=4pq/d^2$  where  $p=46.05$  ( $p$  is the proportion of college students having food allergy)  $q=1-p$  and found to be 117. The study included Individuals of the age 17 to 26 years who are studying in various colleges in Kerala and it excluded confirmed inflammatory bowel disease, celiac disease, immunodeficient individuals, previous or current immunotherapy. The data was collected using Google forms and it was entered in Microsoft excel and analysed using SPSS version 23 software.

## RESULTS

The total number of college students who responded was 321. The mean age of the participants were 21.5 years ranging from 17 to 26. The study population consists of 198 females and 123 males.

Out of total 321 college students, 82 (25.5%) respondents had experienced symptoms suggestive of food allergy, of them 38 (46%) had their condition diagnosed by a doctor, 14 (17.07%) had got hospitalized at least once for such an attack and 41 (50%) had taken some medication for such an attack. 36 (43.9%) noticed that the symptoms that they experienced affected their normal daily activities. There was no family history of food allergy in 55 (67%) of the individuals as compared to the 27 (33%) who had a family history.

Food allergy was more prevalent amongst females 46 (56%) than males 36 (44%) and it was found that there was no association between food allergy and gender ( $p<0.005$ ) (Figure 1).

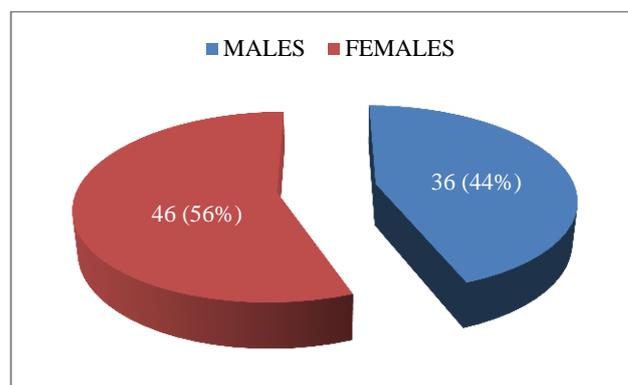


Figure 1: Food allergy and gender.

Table 1: Time taken for symptoms to manifest.

Time	Frequency	%
Immediately after intake of food	9	10.98
Within an hour	27	32.93
Within 5 hours	26	31.71
Within 24 hours	20	24.39
Total	82	100.0

Table 2: Most common symptoms experienced.

Symptoms	%
Vomiting	5.61
Itching	4.98
Eczema	4.98
Local redness	4.36
Abdominal pain	4.05
Dizziness	4.05
Headache	3.74
Swelling of lips	3.74
Swelling of tongue	3.74

Twenty seven (32.93%) individuals experienced food allergy within an hour following food consumption (Table 1).

The most common triggers for allergic reaction were fish/sea food, milk and dairy products, eggs, certain fruits, mushrooms, yam and beef (Table 2). 59 (72%) individuals experienced food allergy more than once.

Following the onset of food allergy, 53 (65%) individuals discontinued that particular food item that triggered food allergy, whereas 29 (35%) continued the consumption of the food.

Food allergy was more commonly experienced when consumed 78 (95%) as compared to those who experienced the symptoms when in close proximity 4 (5%).

## DISCUSSION

In a study conducted among Dutch population, prevalence of food allergy was 12%, whereas the present study revealed 25.50% self-reported food allergy among individuals.<sup>5</sup> Women (15%) reported food allergy more than men (9%). These results were similar as compared to this study that is 56% in females and 44% in males. A larger proportion of the surveyed Dutch population showed symptoms of food allergy to chocolates (2.2%) and vegetables (2.2%), whereas this study showed that most of the individuals were allergic to seafood (3.9%) and dairy products (2.5%).

In a study conducted in France, the most common symptoms were itching and eczema (60.3%) followed by swelling of lips (37.3%).<sup>6</sup> This study showed that the most common symptom was vomiting (5.61%) followed by itching (4.98%). The prevalence of food allergy was 3.22% within the age group of 16 to 33 years. Emergency hospitalization was seen in 5% of individuals as compared to the 17.07% individuals who got hospitalized in this study. A large proportion of the individuals got their condition diagnosed (50%) and the results were similar to this study (46.34%).

In a study conducted to assess the prevalence of self-reported food allergy in the national health and nutrition examination survey, the prevalence was 8.96%.<sup>7</sup> Maximum numbers of individuals (3.49%) were allergic to peanuts, shellfish and tree nuts as compared to those in this study that were allergic to mostly seafood (3.9%) and milk (2.5%).

## CONCLUSION

The current study has provided comprehensive estimates of the prevalence of food allergy and the study revealed a relatively high prevalence (25.50%) of food allergy among adults in various colleges across Kerala. Food allergy was found to be more common among females and majority of individuals experienced food allergy in an hour following consumption of food. The most common symptom experienced was vomiting. Majority of individuals discontinued the food item which caused a reaction.

Food labels help analyse the various contents in different foods and should be carefully scrutinised before being consumed by those with a history of food allergy. In order to prevent food allergies, it is important to know the kind of food one is allergic to, to recognise the symptoms early and have an action plan in case of an emergency.

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