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Food allergy knowledge and training among restaurant employees

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ABSTRACT

As the number of Americans with food allergies continues to increase, restaurant employees should be trained to serve customers who have this condition. This study investigated restaurant employees' food allergy (FA) knowledge and identified previous FA training, the preferred characteristics of future FA training, and the reasons why some employees were not interested in FA training. A study questionnaire was developed based on interviews with restaurateurs and previous literature and was completed by 229 restaurant employees. The results showed that the participants have some FA knowledge (20.8 ± 3.4 of 28). Many were not trained in FA but expressed interest in attending such training. The participants expressed a preference for self-paced training programs that use real-world examples and simple language. Some reasons for not being interested in attending FA training included "*time consuming*", "*not beneficial*", and "*boring*". The restaurant industry benefits from the findings of this study by gaining a greater understanding of the current food allergy knowledge and training of restaurant employees.

1. Introduction

A food allergy occurs when body's immune system overreacts to a food protein (American College of Allergy, Asthma and Immunology, 2016). Statistics shows that more than 15 million Americans have food allergies and the eight food items, including soy, milk, egg, fish, shellfish, wheat, nuts and tree nuts are accounted for 90% of all the food allergic reactions (Food Allergies Research and Education [FARE], 2015a). While the severity of food allergic reactions ranges from mild to severe, anaphylactic shocks cause 150–200 fatalities in the U.S. each year (National Institute of Allergy and Infectious Diseases, 2008). In addition to this, the monetary cost (e.g., healthcare and health insurance) and intangible cost (e.g., self-reported wellbeing) of food allergies are also significant (Voordouw et al., 2010).

Commercial foodservice establishments, such as restaurants are among the most common places where food allergic reactions have happened. Severe and fatal anaphylactic shocks prompted researchers to investigate underlying factors for these incidents. Through qualitative and retrospective studies, some of these factors have been identified, including ingestion of undeclared or hidden allergens (Knoblaugh et al., 2007), cross-contact (Eigenmann and Zamora, 2002; Kwon and Lee, 2012), lack of communication system from waiting staff to kitchen, and lack of knowledge and awareness among restaurant employees (Pratten and Towers, 2003). Restaurants, in general have preventive strategies planned for clients with food allergies (Enriquez et al., 2007). Even so, it requires high level of vigilance from both individuals with food allergies and restaurant employees to minimize the risk of food allergic reactions.

According to Bureau of Labor Statistics, no formal education is required for entry-level restaurant employees and many of them learn their skills via short-term on-job-training (Bureau of Labor Statistics, 2015). Because the employees are the key personnel to interact with the clients, it is imperative that they are aware of this health concern and are trained to accommodate their clients with this special need. This study aimed to assess food allergies knowledge of restaurant employees and training among the employees.

2. Literature review

2.1. An overview of food allergies

A food allergy is a health threat that affects more than 15 million Americans (FARE, 2015a). Food allergies occur when the body's immune system overreacts to a food protein that is supposed to be harmless to the body. Eight food items, including soy, milk, egg, fish, shellfish, wheat, nuts, and tree nuts, account for 90% of all food

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allergic reactions (FARE, 2015a). In addition, an individual could also be allergic to food additives, beef, citrus fruits, mushrooms, and many other less common food allergens (Kwon and Lee, 2012; Uguz et al., 2005). After inhaling, touching, or ingesting food allergens, an individual can experience a reaction over a wide range of time, from seconds to hours.

The severity of food allergies symptoms also varies, ranging from mild to severe (FARE, 2015a). The most severe symptom of food allergies is anaphylaxis, which can lead to death. It is estimated that anaphylaxis causes between 150 and 200 fatalities in the United States each year (National Institute of Allergy and Infectious Diseases, 2008). Food allergies are sometimes confused with food intolerances since their symptoms are similar. Even so, food intolerance response takes place in the digestive system and is usually less severe compared to a food allergic reaction (ACAAI, 2011). Patel et al. (2011) estimated that the direct medical cost associated with food allergies anaphylaxis was $225 million in 2006–2007. Of this amount, clinic visits accounted for more than 50%, followed by emergency room visits (20%) and hospitalizations (11.8%). In addition, the indirect cost associated with morbidity and mortality was estimated at $115 million.

Modern medicine has not found a cure for food allergies and only strict avoidance of food allergens through high vigilance can prevent a food allergic reaction (FARE, 2015a). Thus, individuals with food allergies must be attentive when they dine out (Kwon and Lee, 2012). Many people with food allergies have reported that their quality of life has been negatively impacted by this condition (Gupta et al., 2008). The effects of allergies can be felt in many areas of life, including the increased cost of health care, such as medications and insurance, as well as the increased amount of time spent searching for allergy-related information (Voordouw et al., 2010).

2.2. Food allergies in restaurants

Restaurants are common locations for the occurrence of food allergic reactions. Of 5149 total persons registered with the United States Peanut and Tree Nut Allergy Registry, 706 indicated that they had experienced a reaction in a restaurant (Furlong et al., 2001). In a qualitative study by Kwon and Lee (2012), eight of 17 participants in their focus groups had experienced a food allergic reaction after dining out in a restaurant. Another retrospective study, conducted by Lämmel and Schnadt (2009), indicated that of 450 surveyed individuals with food allergies, 65% of them experienced a reaction after consuming foods served at restaurants or cafeterias.

Several factors leading to food allergic reactions in restaurants have been identified, including exposure to undeclared or hidden allergens (Knoblaugh et al., 2007). One retrospective study indicated that of 530 food allergic cases reviewed over a period of five years, approximately 23% ($n = 119$) were caused by an allergen that was hidden in a food item (Anibarro et al., 2007). For example, allergic reactions to egg were triggered by hidden egg proteins found in ice cream and pastries, while hidden sources of nuts were common in desserts, including cookies, pastries, and cakes. A food allergic reaction can also be caused by lack of communication from the wait staff to the kitchen concerning orders requiring special preparation due to dietary needs (Pratten, 2003). Other evidences also showed that cross-contact may also cause food allergic reactions. Cross-contact occurs when prepared food is placed in close proximity to food allergens, cooking utensils or equipment shared between allergen and allergen-free food, or via food preparers' hands (Eigenmann and Zamora, 2002; Kwon and Lee, 2012).

In a study conducted in Philadelphia, the restaurant managers surveyed felt confident about accommodating customers with food allergies and indicated that in-house policies were in place for food allergies (Enriquez et al., 2007). Conversely, a study among 78 individuals with food allergies showed that many of them had a reaction, despite speaking to servers ($n = 58$) and the chef ($n = 41$) about their special needs and referring to the menu description ($n = 46$) (Knoblaugh et al., 2007). In addition, some of the restaurants simply turned down orders for allergen-free foods to prevent possible litigation (Leftwich et al., 2011).

2.3. Training among restaurant employees

Employees in all positions, from wait and kitchen staff to managers, should receive continuous training, including food allergy training, in order to remain competitive (Houston Chronicle, n. d.). Training should be one of the priorities of the foodservice industry, particularly as more than 16% and 24% of the workforce 16–19 years old and 20–24 years old, respectively, work in a restaurant as their first job (Bureau of Labor Statistics, 2015). Also, many restaurant employees learn these essential skills via on-the-job training and lack any previous experience in related fields (Bureau of Labor Statistics, 2015).

Food allergy training among employees in both commercial and non-commercial settings showed positive outcomes (Bailey et al., 2014; Lemons, 2004). In a study conducted in the United Kingdom, the number of restaurant employees who were able to answer food allergy questions increased from 82% to 96% ($n = 11$) following food allergy training, and both front- and back-of-the-house employees reported changes in behaviors (e.g., review ingredient lists, communicate better with customers with food allergies) one month after the training (Bailey et al., 2014). Many food allergy training programs continue to rely on traditional lecture or classroom-style training techniques as the training tools of choice (Medeiros et al., 2011). However, the traditional training methods have some drawbacks, including lack of flexibility, lack of ease to permit learners to delve into additional information on a chosen topic, trainer-controlled sessions, and only offering one learning level (Newble and Cannon, 2013).

Previous studies have typically included both restaurant managerial and employees in investigation of food allergies perceptions, in-house policies, and knowledge (Common et al., 2013; Borchgrevink et al., 2009; Mandabach et al., 2006). Limited studies have been conducted specifically among restaurant employees to explore their knowledge level, training needs, and opinions about training. These areas need to be further researched, as employee knowledge and behavior has significant impact on food allergies outcomes in restaurants. Therefore, the objectives of this study were to (1) determine the knowledge level of restaurant employees with respect to food allergies; (2) explore the level of training provided to restaurant workers regarding food allergies; and (3) investigate desirable training methods and characteristics of employee food allergy training programs.

3. Methodology

The target population included front- and back-of-the house employees working in restaurants in the United States. Respondents who did not fulfill this criterion were excluded from this study through two initial screening questions. The online questionnaire was developed based on previous food allergy studies and other literature related to food allergies (Kwon and Lee, 2012; Lee and Xu, 2015; Mandabach et al., 2006). The first section of the questionnaire was designed to collect demographic information about the participants. The second section contained 12 knowledge questions capturing various aspects of food allergy knowledge, such as common allergens, symptoms and responses to allergic reactions, and food allergy preventive measures and handling practices. These knowledge areas were identified via a thorough review of the National Restaurant Association's (NRA) ServSafe Allergen Training