



# Restaurant servers' risk perceptions and risk communication-related behaviors when serving customers with food allergies in the U.S.



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## ABSTRACT

Communication between and among customers with food allergies and foodservice staff has become a concern in the restaurant industry. The purpose of this research was to explore the perceived risks and risk communication-related behaviors of restaurant servers when serving customers with food allergies in the U.S. An online survey instrument was developed based on interviews with full service restaurant managers, pilot-tested, and distributed through an online survey research firm. The results indicated that most servers lacked knowledge about food allergies and perceived that initiating communication and preventing allergic reactions were mostly the responsibilities of customers with food allergies. Servers' risk reduction and communication behaviors were affected by their perceived severity of food allergy reactions, previous training, sources of media exposure, and the perceived responsibilities of preventing food allergy reactions. Restaurateurs and foodservice educators may use these findings to develop training and strategies for food allergy risk communication in the restaurant industry.

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## 1. Introduction

A food allergy is “an adverse health effect arising from a specific immune response that occurs reproducibly on exposure to a given food” (Boyce et al., 2010, p. S8). Food allergy reactions range from mild to severe and usually appear within the first two hours after the ingestion of allergens (Chafen et al., 2010). Anaphylaxis, one of the most severe food allergy responses, can result in circulatory collapse, coma, and even death (Mandell et al., 2005).

Food allergies are prevalent in the United States (U.S.), affecting about 9 million adults (4% of the U.S. adult population) and 6 million children (8% of the U.S. children ≤18 years) (Branum and Lukacs, 2008; De Blok et al., 2007; Food Allergy Research and Education, 2016). The Centers for Disease Control and Prevention (CDC) estimates an increased number of anaphylaxis caused by food allergies (Centers for Disease Control and Prevention, 2011). Food allergy reactions account for nearly 200,000 emergency room visits, approximately one every three minutes (Clark et al., 2011) and 150–200 deaths each year (Sampson, 2003). Eggs, fish, milk, peanuts, soy, shellfish, tree nuts, and wheat are the “Big 8” food allergens, which have triggered more than 90% of the food allergy

reactions in the U.S. (Sicherer et al., 2010). For the food manufacturing industry, the Food Allergen Labeling and Consumer Protection Act (FALCPA) of 2004 requires any ingredients or proteins derived from the “Big 8” food allergens to be disclosed on all food labels that are regulated by the U.S. Food and Drug Administration (FDA).

However, for the restaurant industry, the Food Code (Food and Drug Administration, 2013) is the only federal level regulation related to the management of food allergies in restaurants. The Food Code states that the person in charge of a foodservice establishment should have knowledge about major food allergens, cross-contacts, and symptoms of food allergy reactions (Food and Drug Administration, 2013). The code also mandates that all establishments “ensure that employees are properly trained in food safety, including food allergy awareness as it relates to their assigned duties” (Food and Drug Administration, 2013, p. 31). These statements in the Food Code, however, lack practical guidelines for operations to follow in order to prevent food allergy reactions. Furthermore, food allergy legislation at the state level is limited only to Massachusetts, Michigan, Rhode Island, and Virginia, where legislation for the management of food allergies in restaurants are established (Food Allergy Research and Education, 2016).

About 33% of all the fatal food allergy reactions (n=31) that occurred in the U.S. between 2001 and 2006 were triggered by foods prepared away from home (Bock et al., 2001, 2007; Wanich et al., 2008). The existence of hidden allergens and cross-contacts

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from food allergens were the most recognized causes of food allergy reactions in restaurants, followed by miscommunication between and among restaurant staff and customers with food allergies (Furlong et al., 2001; Kwon and Lee, 2012; Leftwich et al., 2011). Communication researchers have found that risk communication plays an important role in controlling and preventing negative consequences (McComas, 2006; Parrott, 2004) such as food allergy reactions in restaurants. Establishing proper communication between and among customers and foodservice employees may be one of the first and most important steps in preventing food allergy reactions in restaurants (Leftwich et al., 2011). Proper communication among stakeholders would initiate increased attention to food preparation and service staff when serving customers with food allergies. Although there are other food allergy-related publications available, no research has been published regarding food allergy risk communication.

Therefore, the purpose of this study was to explore the perceived risks and risk reduction and communication-related behaviors of restaurant service staff when serving customers with food allergies in the U.S. The specific objectives were to examine the perceived risks of restaurant staff when serving consumers with food allergies, explore factors affecting restaurant service staff's risk reduction and communication-related behaviors, and provide recommendations for the restaurant industry regarding food allergy risk communication strategies and training needs.

## 2. Literature review

### 2.1. Food allergies and the restaurant industry

Considering the fact that the population with food allergies is increasing in the U.S., it is important for restaurant staff to be fully informed about food allergies and ways to prevent allergic reactions (Mandabach et al., 2005). The benefits of accommodating consumers with food allergies include increased sales, customer appreciation, and customer loyalty (Kwon et al., 2013; Tsai, 2013). However, serving consumers with food allergies also poses challenges given the variety of food allergens present at restaurants (Abbot et al., 2007; Ahuja and Sicherer, 2007; Kronenberg, 2012).

Researchers found that restaurant staff lacked knowledge regarding food allergens in the menu, ways to prevent cross-contact, and the severity of food allergy reactions (Abbot et al., 2007). One study from the United Kingdom revealed that about 21% of the peanut-free meals that were prepared right after peanut-containing meals were contaminated with peanut or peanut protein (Leith et al., 2005). Researchers also found that restaurant employees' confidence levels were high even though their knowledge about serving customers with food allergies was not adequate (Ahuja and Sicherer, 2007). Specifically, 70% of the respondents in this study felt that they could guarantee a safe meal, while 35% thought that fryer heat could destroy allergens and 25% thought it was safe to remove allergens from a finished meal (Ahuja and Sicherer, 2007).

Researchers have revealed that most foodservice employees did not receive food allergy training (Ahuja and Sicherer, 2007; Choi and Rajagopal, 2013; Mandabach et al., 2005). If servers lack knowledge and awareness about food allergies, they may not be able to respond to questions and requests from customers with food allergies (Kronenberg, 2012). In addition, servers may incorrectly assume that an item is allergen-free if they are not aware of the hidden ingredients (Mandabach et al., 2005). The high cost of training, high labor turnover rate, time constraints, language barriers, the lack of interest in implementing food allergy training, and the lack of commitment from employees were identified as reasons why

such training was not provided to restaurant employees (Abbot et al., 2007; Lee and Xu, 2014; Mandabach et al., 2005).

### 2.2. Dining experiences of customers with food allergies

Strict avoidance of food allergens and early recognition and response to allergic reactions are extremely important for individuals with food allergies to prevent fatal food allergy reactions (Food Allergy Research and Education, 2016; Sicherer and Teuber, 2004). To prevent potential food allergy reactions, customers with food allergies have used various strategies prior to and while dining out (Kwon and Lee, 2012; Kwon et al., 2013). For example, customers chose restaurants with which they were familiar and where they were known by the staff; avoided establishments and cuisines that are considered high-risk such as buffets or ethnic restaurants; and checked online menus, ingredients, and allergen information before dining out (Kwon et al., 2013; Leftwich et al., 2011).

Despite these prevention strategies, customers with food allergies have experienced communication challenges when dining out because some restaurant staff did not seem to have knowledge about food allergies, did not understand special requests, and were not aware of the severity of food allergy reactions (Kwon and Lee, 2012; Kwon et al., 2013). Because many customers with food allergies or parents of children with food allergies have perceived a lack of control in food preparation and service processes, they have felt anxiety or fear when dining in restaurants, especially when going to a restaurant for the first time (Kwon et al., 2013; Leftwich et al., 2011). Such anxiety and fear may also be due to a significant number of customers with food allergies experiencing allergic reactions after eating in restaurants (Bock et al., 2001, 2007; Wanich et al., 2008). In many of these food allergy reaction cases, customers believed that the food they ordered was safe (Sampson et al., 1992) and failed to notify restaurant staff about their food allergies (Mandabach et al., 2005).

Further, even though some restaurant operators or managers provide food allergy training with regard to identifying food allergens and preventing cross-contact, few of them have provided training about the proper communication between the front-of-house and back-of-house employees or between restaurant employees and customers (Lee and Xu, 2014). Considering one of the major causes of food allergy reactions is the lack of proper communication between and among restaurant employees and customers with food allergies (Furlong et al., 2001; Kwon and Lee, 2012; Leftwich et al., 2011), there is a strong need for researchers to address this risk and promote interpersonal communication among restaurant staff and customers.

### 2.3. Food allergy risk perception and risk communication

Risk perception, which refers to an individual's views regarding the risk involved in a particular situation (Schroeder et al., 2007), is a special concern in the food safety context. Food allergies pose one of the food safety risks that has been widely discussed lately throughout food and foodservice industries, as well as related consumer advocacy groups. As for the risk of food allergies in foodservice establishments, scholars contended that zero risk is not realistic or attainable (Kroes et al., 2000; Madsen et al., 2012). Risk perception, as part of the health behavior theories, includes different dimensions or determinants, such as perceived susceptibility and perceived severity (Brewer et al., 2007; Janmaimool and Watanabe, 2014). Perceived susceptibility refers to an individual's subjective perception of the risk of contracting a hazard (Janz and Becker, 1984). Perceived severity refers to an individual's feelings regarding the seriousness of contracting a hazard and reflects the extent of the harm a hazard would cause (Brewer et al., 2007; Janz and Becker, 1984). Risk perceptions can also be influenced by different

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