

Research Paper

Investigating Motivators for Managing Customers with Food Allergies in Ethnic Restaurants

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ABSTRACT

Food allergic reactions frequently occur in ethnic restaurants. However, effective training materials specific to food allergies have not been readily available to employees. The objectives of the study were to investigate employee self-efficacy, perceived susceptibility, and commitment on the basis of individual and operational factors and what variables, among self-efficacy, perceived susceptibility, and commitment, are associated with the employee's intention to reduce risky behavior when handling food allergies in ethnic restaurants. A total of 256 employees who had or are currently working in ethnic restaurants and had direct contact with food or customers participated in this study through the Amazon Mechanical Turk Web site from October 2020 to April 2021. The statistical analysis results showed that employee self-efficacy, perceived susceptibility, and commitment vary on the basis of gender, food safety certification, training, and availability of menu items for customers with food allergies. In addition, employee self-efficacy, perceived susceptibility, and commitment are positively correlated with employee's risk reduction behavior for food allergies. The results of the study will provide practical guidelines for developing more multidimensional training programs specific to food allergies in ethnic restaurants.

HIGHLIGHTS

- Self-efficacy, perceived susceptibility, and commitment differ on the basis of individual factors.
- Self-efficacy, perceived susceptibility, and commitment differ on the basis of operational factors.
- Self-efficacy, perceived susceptibility, and commitment were identified as motivational factors.

Key words: Ethnic restaurant; Food allergy management; Food safety; Motivators

The growing popularity of global cuisine in the United States is driven by an increase in the number of immigrants seeking traditional foods, as well as by a trend among young people wishing to experience exotic ingredients and even cultures through food (41). Accordingly, ethnic restaurants, defined as those serving food from, or representing the culture of, an ethnic group different from that of the host country, have become a staple of most American diets (1). However, a number of previous studies found that food allergy reactions frequently occur in ethnic restaurants (2, 22). Furthermore, customers with food allergies hesitate to dine out at ethnic restaurants because they consider them a high risk due to the unfamiliar ingredients used (28). Unknown ingredients, different cooking methods, and imported products all can increase the risk of ingesting something unknown. Given the relatively higher risk factors increasing the incidence of food allergies in ethnic restaurants, the role of ethnic restaurants in reducing the potential risks along with food allergy management is

particularly essential to ensure a customer's health and safety (29).

Several barriers to safe handling practices for customers with food allergies in ethnic restaurants were identified. For example, many independently operated ethnic restaurants are small scale and lack the financial resources to support employee-training programs specific to food allergies and the proper use of equipment (45). Also, food allergy training is voluntary for food service professionals, including food service managers, so employee training depends on a manager's interest in providing it (4). In addition, the difference between an employee's prior cultural understanding of food preparation and state or other regulatory standards in the United States may make it difficult for staff to properly adhere to guidelines (20). Moreover, a number of studies identified various causes of food allergic reaction events in the restaurant industry, including miscommunication between staff and customers (39), unexpected or hidden food allergens (27), and cross contact, which is the transfer of an allergen from a food containing an allergen to a food that does not contain the allergen (28, 39). Regarding Chinese restaurants, for example, multiple ingredients in sauces in a typical Chinese

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dish make it difficult for individuals with food allergies to identify foods containing items to which they are allergic (28). In other words, as ingredients in ethnic dishes become less obvious or common, the potential for a consumer to encounter an unexpected allergen increases, putting them at risk. A number of studies (43) found that simply increasing staff knowledge related to food safety does not necessarily lead to an appropriate handling practice for meeting the needs of customers with food allergies. Thus, an affective factor beyond knowledge, which contributes to encouraging (or discouraging) employee's safe handling practice for customers with food allergies, plays a significant role and should be further investigated.

Importantly, an affective factor that influences employees' safe food handling practices is self-efficacy. Derived from social cognitive theory (5), self-efficacy is related to an individual's level of confidence in the ability to carry out a specific behavior and the understanding of the expected consequence resulting from the behavior (5). The concept of self-efficacy was applied to workplaces in the food service industry, especially in the area of food safety. For example, individuals with a high degree of self-efficacy tend to effectively use adaptive behavioral strategies, including self-regulation, and voluntarily resolve their own and coworkers' work-related problems (5, 6). As previous studies (7, 17) found that regarding food allergies, individuals with high levels of self-efficacy tend to adopt and sustain positive health behaviors, as well as avoid negative health behaviors, self-efficacy could be closely related to employees' beliefs regarding the expected outcomes of adhering to appropriate food safety practices. Therefore, an understanding of self-efficacy in a food allergy context may provide a key to sustainable positive behavior when an employee is faced with customers with food allergies or food allergens.

Another factor associated with employee's risk-reducing behaviors in food allergies is perceived susceptibility, which refers to an individual's belief that they can be affected by a specific condition or disease (10). Because perceived susceptibility is closely associated with severity and leads to a more serious evaluation of condition severity (23), for food allergies, it can be hypothesized that the more susceptible an employee perceives he or she is to a food allergic reaction, the more severe consequences he or she will expect (on the basis of the health model suggested by Cho et al. (11)). Conversely, as Chow and Mullan (13) reported, when employees do not perceive a risk as serious, they are less likely to follow proper food safety practices. In addition, although food service managers and employees showed confidence in the capability to provide allergen-safe meals, they were not aware of the severity of negative consequences resulting from food allergy reactions (2). Such significant disparities between self-efficacy and perceived susceptibility could put customers with food allergies in danger in a food allergic situation.

Several studies (35, 36, 44) found employee's commitment to food safety to be a strong element in enhancing food safety performance and establishing a good food safety culture. To establish effective food safety culture, commitment plays a role in directing employee behavior in a

planned direction (46). For example, committed and competent employees willingly contribute to building and implementing an organization's strategies (44). For food allergy training, an employee with high commitment is more likely to actively participate in food allergy training and model good behavior, including volunteering to be a mentor for new employees or providing suggestions for food safety-related problems, especially for food allergies (15, 16).

After reviewing previous literatures, the following hypotheses were proposed:

H_1 , the level of self-efficacy varies, depending on food allergy training (H_{1a}), food safety certification (H_{1b}), menu for customers with food allergies (H_{1c}), and gender (H_{1d}).

H_2 , self-efficacy is positively associated with an employee's intention to reduce risky behavior for food allergies.

H_3 , the level of perceived susceptibility varies, depending on food allergy training (H_{3a}), food safety certification (H_{3b}), menu for customers with food allergies (H_{3c}), and gender (H_{3d}).

H_4 , perceived susceptibility is positively associated with an employee's intention to reduce risky behavior for food allergies.

H_5 , the level of commitment toward food safety varies, depending on food allergy training (H_{5a}), food safety certification (H_{5b}), menu for customers with food allergies (H_{5c}), and gender (H_{5d}).

H_6 , commitment toward food safety is positively associated with an employee's intention to reduce risky behavior for food allergies.

Some studies emphasized the need for effective training materials, especially relating to ethnically specific foods, which will be a valuable resource for food service professionals to learn about food allergies in a particular type of cuisine (28). Most research tended to focus on food handlers' general knowledge and beliefs or attitudes toward food allergies (29, 30). A gap between employee knowledge and safe food handling practice was also reported in a number of previous studies (43). For example, in some cases, employee knowledge in of itself does not necessarily result in safe food handling practices (42). A possible explanation for the inconsistency between the knowledge level of food allergies and actual compliance of safe handling practices for food allergies is lack of employee motivation (12). Therefore, there is a clear need to consider the motivators that influence allergen-related food handling practices to develop more multidimensional training programs, particularly in ethnic restaurants.

Building on the fact that previous studies have addressed the need for developing behavior-based training specific to food allergies, this study identified several affective motivating factors that influence food allergy-related risk-reducing behavior in ethnic restaurants, including self-efficacy, commitment, and perceived susceptibility. In addition, understanding individual and operational factors associated with food allergy risk management in restaurants will help restaurateurs establish culturally diversified training resources and customize them to

accommodate individual and operational needs. From a long-term perspective, these findings will contribute to the food service industry's ability to identify and reduce potential risks faced by consumers who are suffering from food allergies and protect them from any adverse events. Thus, the purpose of this study is to examine (i) employee self-efficacy, perceived susceptibility, and commitment, depending on several individual and operationally related factors, including food allergy training, food safety certification, menus for customers with food allergies, and gender; and (ii) which factors among these three, including self-efficacy, perceived susceptibility, and commitment, are related to an employee's intention to reduce risky behavior when facing customers with food allergies and food allergens in ethnic restaurants.

MATERIALS AND METHODS

Sample. Before the collection of data, the university's human subjects institutional review board approved the study materials, including the survey questionnaire, and research protocol. The target population for this study is employees who had job tasks requiring food handling activities, such as preparation or serving foods and directly contacting customers in ethnic restaurants. To screen eligible study participants, respondents were asked if they had been or were currently working in ethnic restaurants in the United States for at least 6 months within the last 5 years and had direct contact with food or customers. Before asking about eligibility for participation in the study, the definitions of ethnic restaurants and ethnic foods were given to respondents along with examples (e.g., Ethiopian, Korean, Vietnamese, Mediterranean, Thai). Respondents who met the required criteria were eligible to continue to answer the remaining survey questions. If not, they were asked to stop answering the questions.

Instrument development. The questionnaire consisted of five parts. In the first part of the questionnaire, six statements related to employee self-efficacy toward handling food allergies were included (25). Part 2 covered five statements measuring the employee's perceived susceptibility related to food allergic reactions (37). Part 3 included five items of measuring employees' commitment toward following safe rules for food allergies in the workplace, adopted from Fatimah et al. (21). In part 4, two items to measure employees' food safety behavior intention to reduce risky behavior were adopted and modified for the food allergy setting (38). These items, including employee self-efficacy, perceived susceptibility, commitment, and intention to reduce the risky behaviors, were all measured by using a 7-point Likert scale, where 1 = strongly disagree and 7 = strongly agree (Table 1). At the end of survey, part 5 asked the employee's demographic and work-related characteristics, including gender, ethnicity, age, education level, work position, menu for customers with food allergies, work position, and type of ethnic foods served in their workplace. For food allergy training and food safety certification, respondents were asked whether they have ever received training specific to food allergies and are currently certified for food safety.

Data collection. This study used Qualtrics, which is a survey software to develop a survey, and then the developed survey was distributed to individuals through the Amazon Mechanical Turk (MTurk) Web site from October 2020 to April 2021. Because MTurk is known as an effective sampling tool for demographic diversity (9), it was chosen as the sampling frame for data

collection. Furthermore, MTurk features a diverse nationwide pool of people compared with standard Internet samples for gender, age, and ethnicity, which may increase the generalizability of the findings (31). As an incentive to participate in the research, US\$0.50 was deposited into each participant's MTurk account upon successful completion of the survey.

Data analysis. Statistical analyses were performed by using IBM SPSS version 28. Descriptive statistics, including mean, standard deviation (SD), and percentage were used to summarize the data. An independent sample *t* test was conducted to identify differences in the mean of self-efficacy, perceived susceptibility, and commitment, depending on organizational (e.g., food allergy training, availability of menu for customers with food allergies) and individual factors, including food safety certification and gender. To verify the reliability of the items, Cronbach's α coefficients of self-efficacy, perceived susceptibility, commitment, and intention to reduce risky behavior for food allergies were computed. Multiple linear regression analysis was conducted to test the relationships between self-efficacy, perceived susceptibility, and commitment as independent variables and behavior intention to reduce the risky behavior for managing food allergies (dependent variable).

RESULTS

Descriptive statistics. Table 2 presents the demographic profile of respondents. A total of 256 respondents participated in the study. A cross-sectional study to collect data from large pool of subjects was conducted through MTurk from October in 2020 to April in 2021. An approximately equal number of males (53.5%) and females (46.5%) participated in this study. Most respondents were Caucasian (48.2%), had a bachelor's degree (59.8%), and reported annual household incomes between US\$20,000 and \$79,999 (71.8%). For age, most participants (68.6%) were between 18 and 34 years old. Respondents represented various positions, including food workers (44.9%), servers (35.5%), and managers (19.6%). As shown in Table 1, the mean and SD for each construct item were provided. To verify the reliability of the items, Cronbach's α coefficients of self-efficacy, perceived susceptibility, commitment, and behavior intention were calculated and were found to be 0.84, 0.71, 0.88, and 0.80 (>0.70).

The *t* test of self-efficacy, perceived susceptibility, and commitment. A series of *t* tests were performed to identify factors associated with employee self-efficacy, susceptibility, and commitment toward the following safety rules for food allergies in an ethnic restaurant. As shown in Table 3, employees who have received food allergy training displayed higher level of perceived susceptibility ($M = 5.49$) and commitment toward following a food allergy rule ($M = 5.71$) compared with employees who have not received training ($M = 5.26$ for perceived susceptibility; $M = 5.25$ for commitment), supporting H_{3a} and H_{5a} (Table 3). For food safety certification (Table 3), employees with food safety certification showed a higher level of perceived susceptibility ($M = 5.46$), and commitment ($M = 5.58$) than employees without food safety certification ($M = 5.22$ for perceived susceptibility; $M = 5.29$ for commitment),

TABLE 1. Construct items of self-efficacy, perceived susceptibility, commitment, and behavior intention

Construct item	Mean ^a	SD
Self-efficacy ($\alpha = 0.84$)		
It is easy for me to stick to my aims and accomplish my goals to serve customers with food allergies safely.	5.322	1.129
Thanks to my resourcefulness, I know how to handle unforeseen food allergic situations.	5.347	1.179
I can solve most food allergic problems if I invest the necessary effort.	5.431	1.185
I can remain calm when facing difficulties of handling customers with food allergies because I can rely on my coping abilities.	5.270	1.198
When I am confronted with a problem about handling customers with food allergies, I can usually find several solutions.	5.261	1.067
I can usually handle customers with food allergies whatever comes my way.	5.387	1.062
Perceived susceptibility ($\alpha = 0.71$)		
Food allergic reactions can be fatal.	5.508	1.113
I think it is very unlikely for food allergic reactions to occur at the restaurant.	4.938	1.491
There is a bigger probability of food allergic reactions at the restaurant compared with home.	5.488	1.091
I know how to handle food, so customers will not be faced with any food allergic reaction at the restaurant.	5.394	1.904
I believe that my knowledge in the field of food handling for food allergies can be further improved for preventing food allergic reactions.	5.557	1.096
Commitment ($\alpha = 0.88$)		
I follow food safety rules for food allergies because it is my responsibility to do so.	5.418	1.148
Food safety for food allergies is a high priority to me.	5.447	1.017
I follow food safety rules for food allergies because I think they are important.	5.422	1.218
I am committed to following all food safety rules for food allergies.	5.577	1.065
I keep my work area clean because I care about food safety for food allergies.	5.520	1.109
Intention to reduce risky behavior ($\alpha = 0.80$)		
I plan to reduce the risk of food allergy adverse events at the restaurant when serving (or preparing) foods for customers with food allergies.	5.540	1.080
I am willing to reduce the risk of food allergy adverse events at the restaurant when serving (or preparing) foods for customers with food allergies.	5.694	1.057
I intend to reduce the risk of food allergy adverse events at the restaurant as much as I can while handling customers with food allergies.	5.633	1.079

^a Scale for statements: 1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = neutral; 5 = somewhat agree; 6 = agree; and 7 = strongly agree.

supporting H_{3b} and H_{5b} (Table 3). Regarding the existence of menu items for customers with food allergies in the operation, employees working in the establishment offering menu items for customers with food allergies showed a higher level of self-efficacy, perceived susceptibility, and commitment ($M = 5.58$, $M = 5.53$, and $M = 5.74$, respectively) compared with those of employees in the operation without menu options for customers with food allergies ($M = 5.07$, $M = 5.20$, and $M = 5.16$), supporting H_{1c} , H_{3c} , and H_{5c} (Table 3). Finally, females ($M = 5.54$) showed higher levels of susceptibility compared with males ($M = 5.24$), supporting H_{3d} . Conversely, males ($M = 5.46$) showed higher levels of self-efficacy compared with females ($M = 5.22$), supporting H_{1d} (Table 3).

Multiple linear regression to identify factors accounting for intention to reduce risky behavior for food allergies. The assumptions required for the regression analysis were evaluated. For example, normality, constant variance, linearity, and outliers were examined to verify assumptions (34). The results met the requirements, and no assumptions were violated. The absolute value of the

correlation coefficient (r) between self-efficacy, perceived susceptibility, commitment, and intention to reduce the risky behavior is 0.84. The resulting model was significant ($F = 207.745$, $P < 0.001$), with an adjusted explanatory power of $r^2 = 0.713$. As shown in Table 4, the variables related to employees' intention to reduce risky behavior regarding serving customers with food allergies were the self-efficacy ($\beta = 0.288$, $P < 0.001$), perceived susceptibility ($\beta = 0.202$, $P < 0.001$), and commitment ($\beta = 0.516$, $P < 0.001$), supporting H_2 , H_4 , and H_6 .

DISCUSSION

Employee self-efficacy, perceived susceptibility, and commitment regarding food allergies in relation to demographic profile and operation characteristics. First, we found that employees who received food allergy training and food safety certification showed a higher level of perceived susceptibility and commitment to managing food allergies compared with employees who did not receive the training. This confirms the argument of Mandabach et al. (30), who noted that food allergy training and food safety

TABLE 2. Demographic characteristics of employees (n = 256)

Variable	Item	Frequency	Percentage (%)
Gender	Male	137	53.5
	Female	119	46.5
Ethnicity	Caucasian	119	48.2
	African American	21	8.5
	Native American	26	10.5%
	Hispanic	18	7.3
	Asian	57	23.1
	Other	6	2.4
Age (yr)	18–24	29	11.6
	25–34	143	57.0
	35–44	41	16.3
	45–54	29	11.6
	55–64	9	3.6
Education	High school	28	11.2
	Associate degree	20	8.0
	Bachelor’s degree	149	59.8
	Master’s degree	50	20.1
	Doctoral degree	2	0.8
Income	Under US\$20,000	44	17.5
	US\$20,000–49,999	87	34.7
	US\$50,000–79,999	93	37.1
	US\$80,000–99,999	19	7.6
	Higher than US\$100,000	8	3.2
Position	Manager	50	19.6
	Server	91	35.5
	Food worker	115	44.9

certification are positively related to increased employee knowledge about handling customers with food allergies. Of course, knowledgeable employees are more aware of the potentially dangerous and life-threatening consequences resulting from a food allergy. Thus, those employees are more likely to perceive themselves as potentially susceptible to a food allergy, which leads to a more critical evaluation of condition severity (23, 47). Furthermore, in the same line as previous studies (24), the current study results found that training is positively correlated with an employee’s commitment toward following correct procedures for safely handling food allergies. On the basis of previous studies’ findings that knowledge-based training is not always effective in leading to safe handling practices relating to customers with food allergies, these results verified the need for behavioral-based training specific to food allergies, with incorporation of other components (commitment, risk-taking behavior).

The current study results found no statistically significant difference in the level of self-efficacy regarding food allergies between employees who received food safety training and those who did not. This can be explained by food handlers reporting relatively higher levels of confidence in the ability to provide allergen-safe meals (14), even though a majority of employees did not receive food allergy training in ethnic restaurants. Although there are a few food allergy-specific training programs available for

TABLE 3. Self-efficacy, perceived susceptibility, and commitment, depending on food allergy training, food safety certification, menu availability for customers with food allergies, and gender

Parameter	Self-efficacy	Perceived susceptibility	Commitment
Training (mean ± SD)	5.27 ± 0.812	5.49 ± 0.773	5.71 ± 0.891
No training (mean ± SD)	5.42 ± 0.870	5.26 ± 0.840	5.25 ± 0.887
<i>t</i> Test for equality of means			
<i>t</i>	-1.420	2.251	4.099
Degrees of freedom	253	254	254
Significance (two tailed) ^a	0.157	0.025*	0.000***
Certification (mean ± SD)	5.35 ± 0.787	5.46 ± 0.776	5.58 ± 0.932
No certification (mean ± SD)	5.34 ± 0.948	5.22 ± 0.867	5.29 ± 0.857
<i>t</i> Test for equality of means			
<i>t</i>	0.055	2.284	2.443
Degrees of freedom	146.03	254	254
Significance (two tailed) ^a	0.957	0.023*	0.015*
Menu offer (mean ± SD)	5.58 ± 0.765	5.53 ± 0.814	5.74 ± 0.820
No offer (mean ± SD)	5.07 ± 0.849	5.20 ± 0.778	5.16 ± 0.926
<i>t</i> Test for equality of means			
<i>t</i>	5.051	3.305	5.258
Degrees of freedom	252	253	253
Significance (two tailed) ^a	0.000***	0.001**	0.000***
Male (mean ± SD)	5.46 ± 0.804	5.24 ± 0.800	5.43 ± 0.921
Female (mean ± SD)	5.22 ± 0.873	5.54 ± 0.804	5.53 ± 0.911
<i>t</i> Test for equality of means			
<i>t</i>	2.249	-3.007	-0.860
Degrees of freedom	253	254	254
Significance (two tailed) ^a	0.025*	0.003**	0.390

^a * *P* < 0.05, ** *P* < 0.01, *** *P* < 0.001.

TABLE 4. Results for regression analysis

	Coefficient β	t	P value ^a	95% confidence interval (lower)	95% confidence interval (upper)
Self-efficacy	0.288	6.718	0.000***	0.221	0.404
Perceived susceptibility	0.202	4.805	0.000***	0.134	0.319
Commitment	0.516	12.348	0.000***	0.432	0.597

^a *** $P < 0.001$.

the restaurant industry, such as the ServSafe food allergen training program and “Welcoming Guests with Food Allergies” developed by Food Allergy Research Education, the basic ServSafe course mentions allergens as a potential hazard but does not provide detailed information about how to minimize the risks of food allergy adverse events (17). Furthermore, it is unknown how many restaurant employees and managers complete food allergy-specific training. A number of previous studies found that only a few states mandate such training or require food allergy educational materials to be displayed in restaurants. This study suggests the need for systematic appraisal and rigorous assessment of policies and practices of public health professionals and food service professionals to protect the growing population of customers with food allergies.

This study found that males showed a higher level of self-efficacy in handling customers with food allergies compared with females. This could be explained by social role theory (18), which posits that male employees tend to take on challenging situations due to socially determined expectations, roles, and behaviors. It seems that confidence in caring for customers with food allergies is necessary, to a certain degree. However, without proper specialized knowledge regarding food allergies, high self-efficacy alone will not necessarily reduce the risk of food allergy adverse events (48). As expected, this study’s results are consistent with a previous study (37) that found that male employees have relatively lower levels of perceived susceptibility regarding illnesses related to foods when compared with females. This suggests that gender should be considered in the development of food allergy training programs, specifically tailored to the various needs of different groups of employees (19, 21).

Factors related to employees’ willingness to participate in risk-reducing behaviors related to customers with food allergies. These results suggest that self-efficacy is associated with risk-reducing behavior among ethnic restaurant staff, a finding supported by previous studies (13). However, as Choi and Rajagopal (12) emphasized, simply increasing employee confidence is not enough; in fact, doing so without well-developed protocols for food allergies could actually put customers with food allergies at risk. The current study results suggest that consistent encouragement combined with adequate resources, including an effective training program with allergy-specific components and regular reminders to employees (40), can help food handlers build confidence and increase self-efficacy when handling food allergies (15).

On the basis of these findings that perceived susceptibility is a powerful motivator in food allergies, another effective strategy is to educate employees about the potential consequences of unsafe food handling related to allergens (26). In ethnic restaurants, how food is prepared is often associated with cultural traditions, which may influence the degree to which staff are willing to follow standard safe handling practices related to food allergies (8). In addition, the multiple ingredients used in cooking in ethnic restaurants may prevent employees from identifying the presence of food allergens and thus lead to accidental cross contact. These results suggest that a variety of methods, including posters, newsletters, videos, and site visits, can be used to educate staff on the potential life-threatening risks of allergic reactions and increase awareness of the severity of food allergic adverse events.

The current study supports the results of Nyarugwe et al. (35), who found that employee commitment is a key element in enhancing performance related to food safety. For food allergies, commitment plays a role in guiding employees in the desired direction (i.e., understanding how, and being willing, to accommodate customers with food allergies) (17). Employees with a strong commitment are more likely to exert the fullest efforts to reduce risks of an allergic event among customers (35, 36). Thus, for an organization whose goals include serving safe meals to customers with food allergies, committed employees are an absolute necessity (44). The current study results, thus, imply that organizational support will be positively related to employees’ commitment and create a motivated workforce, which, in turn, will yield better outcomes for staff adherence to allergen-safe food handling practices (3, 32). For example, managers could provide detailed and customized training specific to food allergies for ethnic restaurants, incorporate employees’ concerns about cultural differences, provide culturally sensitive training materials, and seek out or develop training material written in an employee’s native language (33).

Although the findings of the current study offer academic and practical benefits, this study was not free from limitations. First, we used an English language questionnaire for this study, which means the study has an inherent language bias. Future investigations might consider replicating the study with a variety of languages, to increase the generalizability of the results and reflect a higher degree of cultural diversity in the sample. Second, this study considered participants who had worked in an ethnic restaurant for at least 6 months within the last 5 years in the United States, regardless of how recent that employment

was. This could lead to recall bias among those whose employment was months or years ago. To minimize this issue, we recommend that future studies need to identify the nature of participants regarding how long ago they worked or employment status. Third, an online survey distribution protocol was used for this study. Therefore, the results may not be generalizable to employees who do not have Internet access. Future studies could explore employees' food allergy-related behaviors through on-site visits, so as to unite a larger sample size with a more diverse population. Fourth, this study relied on self-reporting, which may lower construct validity and introduce measurement errors; although preliminary surveys were conducted to minimize such errors, some still could be present. To overcome this, future studies could use other methods, such as interviews and/or direct observation.

The United States has seen a steady increase in the popularity of ethnic restaurants; at the same time, a rising number of food allergic events have been reported in ethnic restaurants. Customers with food allergies perceive ethnic restaurants as high-risk places. Finally, there is evidence that the traditional knowledge-based approach to training may not be particularly effective and does not guarantee the proper practice among food service employees. Thus, the current study focused on how to motivate employees to adhere to safe handling procedures for food allergies. By identifying affective motivating factors, including perceived susceptibility, self-efficacy, and commitment, this study provides solid evidence that adopting a new behavior-based training approach will make restaurants safer for consumers with food allergies and reduce the risk of food allergic reactions.

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