

ANADOLU ÜNİVERSİTESİ

Mesleki Eğitim ve Uygulama Dergisi

FROM REGULATION TO PRACTICE: A DESCRIPTIVE STUDY OF FOOD ALLERGY MANAGEMENT IN THE HORECA SECTOR

Havvanur YOLDAŞ İLKTAÇ¹

Burcu AKSOY CANYOLU²

Mustafa YAVUZ³

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ABSTRACT

Food Allergy is a public health issue. A significant proportion of food allergic reactions occur within the HoReCa sector, with one in three individuals with food allergies reporting a reaction in this context. This study aimed to ascertain the knowledge and current practices of businesses operating within the HoReCa sector with regard to allergen legislation. A total of 17 representatives from various HoReCa businesses participated in the study. The data were collected between March and June 2023 in the context of the ETDTEFA (Education and Training Development for the Treatment of Food Allergies) project, which was supported by the European Commission (Grant Number: 2022-2-HU01-KA220-HED-000094859). The results indicated a deficiency in knowledge and awareness regarding food allergens among HoReCa businesses. Moreover, businesses perceive allergen-free services as financially burdensome, and mandatory practices are often treated as optional. It is essential that legislators approach this issue with due diligence to prevent implementation disruptions and ensure adherence to the regulatory framework.

Keywords: Food allergy, HoReCa, regulations, training, food safety

¹ Assoc.Prof., PhD., Istanbul Medeniyet University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Istanbul, Türkiye, havvanur.yoldas@medeniyet.edu.tr, ORCID: 0000-0002-7433-6370.

² Assist.Prof., PhD., Istanbul Medeniyet University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Istanbul, Türkiye, burcu.aksoy@medeniyet.edu.tr, ORCID: 0000-0003-0205-4099.

³ Assoc.Prof., PhD., Istanbul Medeniyet University, Faculty of Arts and Humanities, Department of History of Science, Istanbul, Türkiye, mustafa.yavuz@medeniyet.edu.tr, ORCID: 0000-0002-7797-8459.

YÖNETMELİKTEN UYGULAMAYA: HoReCa SEKTÖRÜNDE BESİN ALERJİSİ YÖNETİMİNE İLİŞKİN TANIMLAYICI BİR ÇALIŞMA

ÖZET

Besin Alerjisi bir halk sağlığı sorunudur. Besin alerjisi reaksiyonlarının önemli bir kısmı HoReCa sektöründe meydana gelmekte ve besin alerjisi olan her üç kişiden biri bu bağlamda bir reaksiyon bildirmektedir. Bu çalışma, HoReCa sektöründe faaliyet gösteren işletmelerin alerjen mevzuatına ilişkin bilgi ve mevcut uygulamalarını tespit etmeyi amaçlamıştır. Çalışmaya çeşitli HoReCa işletmelerinden toplam 17 temsilci katılmıştır. Veriler, Avrupa Komisyonu (Hibe Numarası: 2022-2-HU01-KA220-HED-000094859) tarafından desteklenen ETDTFA (Besin Alerjilerinin Tedavisi için Eğitim ve Öğretim Geliştirme) projesi kapsamında Mart ve Haziran 2023 tarihleri arasında toplanmıştır. Sonuçlar, HoReCa işletmeleri arasında besin alerjenleri konusunda bilgi ve farkındalık eksikliği olduğunu göstermiştir. Ayrıca, işletmeler alerjen içermeyen hizmetlerin sağlanmasını mali bir yük olarak algılamaktadır ve işletmelerin üstlenmek zorunda olduğu uygulamalar bir tercih meselesi haline gelmiştir. Uygulamadaki aksaklıkları önlemek ve düzenleyici çerçeveye uyulmasını sağlamak için yasa koyucuların bu konuya gereken özeni göstererek yaklaşması elzemdir.

Anahtar Kelimeler: Besin alerjisi, HoReCa, yasal düzenlemeler, eğitim, besin güvenliği

INTRODUCTION

Food allergies are an unusual reaction of the immune system to certain proteins found in food. This response is typically caused by an antibody called immunoglobulin E (IgE). An allergic reaction can occur within minutes to an hour after eating the food. In such cases, the immune system mistakenly identifies a harmless substance as dangerous and responds by releasing histamines and IgE antibodies to defend the body. (Taylor and Baumert, 2012; Turnbull et al., 2015). There is currently no cure or reliable way to predict food allergies. The main way to prevent allergic reactions is to strictly avoid the allergen. For this reason, it is very important for people with food allergies to know the ingredients of the foods they eat at commercial food services, so they can make safe and informed choices (Sicherer and Sampson, 2018; Warren et al., 2016).

Commercial food services refer to the practice of consuming meals that are prepared and provided by others outside the home. Today, factors such as increased urbanization, industrial development, changes in socio-economic and cultural structures, and the growth of the working population have made it more common—and often necessary—for people to eat meals not only at home but also outside the home (Sezer et al., 2020; Republic of Turkey Ministry of Health, 2020). These conditions have led to an increasing scope and importance of commercial food services, which are prepared and presented by others outside the home, both in our country and worldwide, in terms of public health. Consequently, the number of institutions and organizations providing commercial food services in Turkey has also increased

(Republic of Turkey Ministry of Health, 2020). The frequency of eating out in the world is increasing every year (Edwards, 2013; Kolanowski et al., 2021). A similar increase is also seen in Turkey (Yiğit and Bucak, 2021). With the increase in eating out around the world, food and beverage establishments have become one of the places where food allergy reactions are frequently seen (Lee and Sozen, 2016). The aim of places providing commercial food services is to offer nutritional services while considering the adequate and balanced nutrition of individuals. Hospitals, schools, and nursing homes, as well as hotels, restaurants, and cafes (HoReCa), hold an important place among the institutions that provide commercial food services (Lee and Sozen, 2016; Sezer et al., 2020). Commercial food service establishments, such as HoReCa are among the most common places where food allergic reactions have happened (Dominguez et al., 2024).

Food allergies affect a small but important part of the population. Symptoms can vary from mild discomfort to severe and life-threatening reactions. The most serious risk comes from true food allergies, as even a very small amount of the allergenic food can trigger a reaction. Centuries ago, Lucretius stated, “What is food to one is bitter poison to another.” (Bahna, 2024). Considering this challenging situation, mandatory declaration of allergenic ingredients, especially for pre-packaged foods, has been integrated into the regulatory framework of most industrialized countries (Codex Alimentarius, 2020). Similarly, in 2017, the Turkish Food Codex Food Labelling and Consumer Information Regulation was adopted in Turkey. This regulation is aligned with Regulation (EU) No 1169/2011 of the European Parliament and Council, aiming to establish general principles, requirements, and responsibilities regarding food information, particularly food labelling, to protect consumers (Turkish Food Codex Regulation, 2017). Within the scope of the regulation, the Turkish Food Codex Regulation on Food Labelling and Consumer Information, enforced in 2017, on 1st of January 2020 it became mandatory to communicate the allergen information to consumer in food services. While making the allergen notification, the 14 allergen substances included in the regulation and stated below will be taken as a basis. This notification can be made through banners, blackboards, and menus. Turkish Ministry of Agriculture and Forestry was developed a poster named as “Allergen List” stating the 14 major food allergens which is for presenting to consumer in food services (Turkish Ministry of Agriculture and, 2020).

Food allergy is now recognized as a significant public health issue. Effectively addressing this problem requires not only the cooperation of the food industry but also of the

HoReCa sector, which provides an increasing number of dining-out services. Allergen management in food services aims to ensure the safety of sensitive allergic consumers. Therefore, determining the allergen control practices of food service businesses and evaluating their compliance with the law and current practices are important for public health. Although the issue of food allergy is an extremely important issue for commercial food services, we observed that there is no study examining allergen management and practices within the framework of legal legislation in commercial food services. For these reasons, this study aimed to determine the knowledge and current practices of businesses operating in the HoReCa sector regarding allergen legislation.

MATERIALS AND METHODS

Participants

A total of 20 HoReCa business representatives participated in the study. Data was collected between March and June 2023. Three businesses were excluded from the research due to incomplete responses. The research was conducted with 17 HoReCa businesses.

Data collection and analysis

A structured interview questionnaire was used in the study. The questionnaire was developed as part of the ETDTEFA – Education and Training Development for the Treatment of Food Allergies project which was supported by the European Commission (Grant Number: 2022-2-HU01-KA220-HED-000094859). The answers were compiled by the researchers. The questionnaire consists of 10 open-ended questions such as “What special dietary needs and expectations regarding allergens have appeared in your clientele?”, “What kind of hardships has compliance with the EU’s and member states’ regulations been causing?”, “What kind of internal regulations have you developed regarding allergens and informing the consumers?”, “Do you have a separate menu for consumers with food allergies or do you serve your regular dishes without allergens?”, “Have you considered applying digital devices (e.g.: QR code, tablet, tracking, etc.) to inform guests with food allergies?”. This questionnaire was applied face to face or via zoom or via e-mail to participants. All of the organisations participating in the interviews were interested in the subject of the project, participated voluntarily and gave consent. The survey results were then categorised and subjected to a descriptive analysis. The categorical variables were expressed in number (n) and percentage (%).

RESULTS

A total of 17 participants/organisation, including dietitians, food engineers, managers, executive chefs and chef de cuisine, participated in the individual interviews. Four participants are female, and thirteen participants are male as shown in Table 1.

Table 1. Participant demographics

Organisation (O)	Type	Gender	Position
1	Catering	Female	Dietitian
2	Catering	Male	Food engineer
3	Restaurant	Male	Operation manager
4	Hotel	Male	Executive chef
5	Cafe	Male	Chef de cuisine
6	Hotel	Male	Executive chef
7	Cafe	Male	Executive chef
8	Catering	Female	Food engineer
9	Hotel	Male	Executive chef
10	Restaurant	Male	Chef de cuisine
11	Hotel	Male	Executive chef
12	Catering	Male	Food engineer
13	Hotel	Male	Executive chef
14	Catering	Female	Operation manager
15	Hotel	Female	Dietitian
16	Cafe	Male	Operation manager
17	Catering	Male	Food engineer

Note: The names of the organisations were not disclosed. Each was assigned a number.

Table 2. Examination of the interview data

	Questions	Examination of the responses	n	%
1	What special dietary needs and expectations regarding allergens have appeared in your clientele? (more than one option can be selected)	All allergens Gluten free Milk free Peanuts free Tree nuts free Egg free Celery free Shellfish free No specific expectation	3 11 1 2 1 1 1 1 2	17.6 64.7 5.8 11.7 5.8 5.8 5.8 5.8 11.7
2	What kind of hardships has compliance with the EU's and member states' regulations been causing?	Not implemented No difficulties Yes, many difficulties (more than one option can be selected) Equipment, <i>financial</i> (n=6, 100%) Workforce, <i>financial</i> (n=6, 100%) New area, <i>financial</i> (n=1, 16.6%) Allergen-free food supply, <i>financial</i> (n=6, 100%)	2 9 6	11.9 52.9 35.2
3	What kind of internal regulations have you developed regarding allergens and informing the consumers?	No information, depends on customer demand Yes (more than one option can be selected) Allergen information with menus (n=12, 85.7%) Allergen information with posters (n=2, 14.3%)	3 14	17.7 82.3
4	Do you have a separate menu for consumers with food allergies or do you serve your regular dishes without allergens?	No Yes	17 0	100 0
5	Do you regularly serve allergen-free meals?	Regularly Not regularly	9 8	52.9 47.1

6	Do you receive/request feedback from the guests on their satisfaction with allergen handling?	No	8	47.1
		Yes	9	52.9
7	Have you considered applying digital devices (e.g.: QR code, tablet, tracking, etc.) to inform guests with food allergies?	No	6	35.2
		Yes	2	11.7
		Already exists / Already implemented	9	53.1
8	Do you have an organisational training programme on food allergens?	No	9	52.9
		Yes	8	47.1
9	Have you considered training your employees and leaders specifically about allergen management?	Already exists / Already implemented	8	47.1
		Yes	9	52.9
10	Who do you think should have the opportunity to take part in food allergen training?	Everyone in the organisation	10	58.8
		Kitchen and service staff	6	35.2
		Manager	1	6.0

The data presented in Table 2 comprises open-ended questions and compiled answers derived from interview data. The primary needs and expectations of customers regarding food allergies were determined as gluten-free, lactose-free, and nut/peanut-free products (question 1). The financial challenges faced by HoReCa businesses in relation to the new EU and member state regulations concerning food allergies were assessed. The analysis revealed that the challenges associated with adhering to these regulations stem from deficiencies in equipment, workforce, new areas, and allergen-free food supply (question 2). Two companies have opted for the dissemination of information regarding allergens and consumer education through poster campaigns, while 12 companies have chosen to incorporate allergen information into their menus (question 3). In response to question 4, it was found that none of the establishments had a dedicated menu for allergens. The majority of these establishments offer conventional dishes devoid of allergens. Furthermore, it is noteworthy that nine companies (52.9%) consistently offer allergen-free meal options (question 5). Question 6 reveals that 47.1% of companies did not receive feedback from guests regarding their satisfaction with allergen management. Moreover, approximately half of the companies (53.1%) have already adopted digital services (question 7). Similarly, 47.1% of the companies have implemented institutional training programs on food allergens (question 8), and an equal proportion have provided specific allergen management training to both employees and managerial staff (question 9). In question 10, the majority of companies (58.8%) advocate universal access to allergy training for all employees, while a notable proportion (35%) advocate exclusive participation of kitchen staff in such programmes.

DISCUSSION

The results showed that the regulations of the EU and member states cause some difficulties. Some companies cannot offer any allergen-free food for financial reasons. Equipment, labour, supply of allergen-free food and the need for new space, which was also mainly financial, were among the concerns. The provision of allergen-free foods may entail increased costs, which could potentially present a challenge for businesses due to the physical area and labour requirements involved. It is encouraging to note that a considerable number of businesses are willing to provide allergen-free foods, particularly gluten-free foods, provided that they are able to manage the associated costs, physical and labour issues. It would be beneficial to recognise that customer needs and expectations can vary from one situation to

another. In light of the growing trend of dining outside the home, it may be helpful for mass food systems to consider how they can better meet customer needs. This situation has highlighted the necessity for the establishment of certain standards. The Code of Practice on Food Allergen Management published by the European Union is an important guide in meeting this need and creating standards (Codex Alimentarius, 2020). In HoReCa sector, the standards that must be met at every stage of production include high-level hygiene, quality management, training for staff and development of new technologies (Dogdubay et al., 2023). Kitchens are the primary production areas that require the most effort in food establishments. Kitchens are typically the primary production sites within establishments, responsible for meeting targeted quantities, quality, and standards for food products. In establishments that provide food and beverage services, it is of great importance to make effective and well-considered plans for the kitchens in order to be able to produce the targeted quantities and quality of food, to ensure the smooth and uninterrupted running of the kitchen, to guarantee efficiency in production, and to ensure the safety and health of the workforce. In the planning of kitchens, a number of factors should be taken into account. These include the amount of food to be produced, the type of menu to be implemented, the style of service, the necessary equipment and hardware, the size of the kitchen area, storage facilities, the number of meals to be served and the available budget for the project. In a society where the provision of commercial food services is becoming increasingly prevalent, the establishment of kitchens that adhere to appropriate standards and are equipped with the necessary rules and regulations is fundamental to ensuring the provision of healthy, hygienic and quality food services. Adherence to these standards in all aspects of the kitchen will result in enhanced efficiency, increased production, and greater ease in maintaining hygiene and food safety. This will provide a more comfortable working environment for the staff and facilitate the provision of a quality food service to consumers. The planning of allergen-free food and beverage service is also a subject included in this planning. Failure to incorporate this planning increases the risk of food safety issues in the allergen-free food and beverage production process in kitchens. This research reveals that the majority of businesses do not incorporate this necessity into their planning. While the subject of allergen-free food and beverage service is not novel, it is evident that service providers in these businesses do not integrate it into their planning, such as ensuring a separate physical area, storage, and equipment. However, it is encouraging to note that the majority of businesses are willing to meet customer demands for allergen-free meals. The Turkish Food Codex Regulation on Labelling and Informing Consumers, together with the Turkish Food Codex

Regulation on Nutrition and Health Declarations, was published in the Official Gazette No. 29960 on 26 January 2017 to harmonise with the European Union approach on food labelling and nutrition information (Turkish Food Codex Regulation, 2017). Despite the long period of time that has passed, the fact that this service and/or awareness is left to the initiative of companies can be attributed to inadequate supervision and dissemination activities of policy makers.

To prevent potential food allergy reactions when dining out, customers with food allergies can use various strategies before and during dining out (J. Kwon et al., 2020; Wen, 2025). Examples of these strategies include checking menus online and proactively reporting food allergies to the service (J. H. Kwon and Lee, 2012). In this study, most companies (82.3%) are able to provide their customers with information about allergens through posters and/or menus but none of them have an allergen free separate menu. In a survey, nearly a quarter of companies reported that they had no ingredient lists or recipes for menu items (Radke et al., 2017). Ingredient lists are important to help staff identify which menu items contain common allergens. In addition, providing additional allergen information on the menu alongside the dish allows the customer to make healthier choices for themselves. The present study has revealed that a significant proportion of companies have already adopted the use of digital devices, such as QR codes and tablets, to provide guests with food allergies with the necessary information. However, it is noteworthy that a considerable number of companies, amounting to 35.2%, have not yet incorporated this issue into their agenda. People with food allergies often face challenges when dining out. The decision-making process for these individuals can be facilitated by caterers/companies or sectors that can provide comprehensive information about the foods in question. This could include information on the composition and ingredients of the food, menu options, method of preparation and potential for cross-contamination. However, despite extensive EU legislation, this study and the previous one show that such practices are still lacking (Bryan Endres et al., 2020).

The present study has revealed that 52.9% of companies do not provide employees with specific education on food allergies. Instead, food allergy training is typically included as a subtopic within broader food safety training. Furthermore, the majority of company training programmes are of a rudimentary nature and are typically administered only once at the commencement of an employee's tenure. These training programmes do not prioritise food allergy awareness and are not sustained over time. A plethora of studies have been conducted on the knowledge, attitudes, and practices related to food allergies. Research in countries such

as Turkey (Sogut et al., 2015), the UK (Common et al., 2013) and the USA (Dupuis et al., 2016; Lee and Sozen, 2016) has demonstrated deficiencies in knowledge about food allergies among restaurant employees. A study conducted in Turkey to ascertain the knowledge, attitudes and practices concerning food allergies in resort hotels found that chefs had moderate knowledge of food allergies and were familiar with eight basic allergens (milk, peanut, egg, etc.). The study also concluded that the chefs expressed a desire to acquire further information about food allergies by attending the necessary training (Eren et al., 2021).

It is widely recognised that commercial food services, such as cafes and restaurants, are common settings for food allergic reactions (Lee and Barker, 2017). The potential causative factors of food allergic reactions in these settings include cross-contact, a lack of staff awareness regarding allergies, miscommunication between restaurant staff and customers with food allergies, and food residues not listed on restaurant menus (Akoğlu and Tatlı, 2020). It is important to note that food is in constant contact with production staff during the production and control stages, on surfaces, in containers, on machines, and on equipment. Consequently, it is imperative for both production staff and managers to adhere to technical knowledge and hygiene conditions during the application process. It is also important to acknowledge the challenges posed by working conditions in commercial food services. It is imperative to recognise the necessity and significance of providing in-service training not only at the commencement of employment but also at regular intervals within organisations such as the HoReCa sector. This approach is intended to mitigate the risk of contamination and to ensure the implementation of adequate manufacturing practices with regard to food allergens. The implementation of effective practices and the delivery of quality service in HoReCa sector extend beyond the domain of kitchen planning. The availability of essential resources, including raw materials, capital and a skilled labour force, is also a prerequisite for the successful execution of production activities (Diken, 2014). The question of which of these factors is more pivotal or indispensable is a complex one, and it is unlikely that a single, universally applicable answer can be identified. In particular, the challenge of addressing the shortage of trained personnel is a significant concern, and it is essential that personnel receive comprehensive training to enhance their skills and capabilities. Some representatives of HoReCa who participated in our research indicated a lack of familiarity with allergens. They expressed a desire for more comprehensive information and training on allergens and the implementation of relevant regulations. However, it is notable that the pertinent ministry has already established a regulation this matter (Turkish Food Codex Regulation, 2017; Turkish Ministry of Agriculture

and Forestry, 2020). This observation suggests a lack of awareness of the existing regulatory requirements and highlights potential shortcomings in the effectiveness of the inspection process in ensuring compliance with the regulations.

CONCLUSION

The advent of globalisation and the associated recognition of the central role of the relationship between diet and health have led to a change in our eating habits, food preferences and eating patterns. Food allergy is a significant health problem that requires precision and attention to avoid potentially serious complications. The field of food-health relationships is dynamic in nature. Although regulations and lists of identified allergens have been published in relation to food allergens, it is the responsibility of institutions to adhere to, implement and follow the most up-to-date standards in this area. The results of this research indicate that there is a lack of knowledge and awareness of food allergens in the HoReCa sector and that food allergies are not addressed as a separate topic in in-service training. Moreover, the provision of allergen-free services is perceived as a financial burden by companies, and the practices that businesses are obliged to undertake have become a matter of preference. It is imperative that legislators address this issue with greater rigour and scrutiny, with a view to averting any disruption to the implementation process and ensuring compliance with the regulatory framework. It is recommended that allergenic foods be clearly and conspicuously labelled on menus, and that kitchen staff be made aware of the importance of avoiding cross-contact with allergens. It is further recommended that all employees involved in the organisation of the kitchen, in addition to production staff, receive training on food allergens. Such training is expected to contribute to the prevention of food allergies and allow for the implementation of regulatory standards.

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