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CHALLENGES AND IMPORTANCE OF FOOD SAFETY MANAGEMENT IN HOSPITALITY INDUSTRY

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Abstract: A survey of the degree of importance consumers attach to the food safety management in accommodation facilities offering food was carried out. Consumers, that is, potential guests, without exception, attach importance to food safety comparable to the importance they attach to sensory properties of food, nutritional value of food and efficiency of service, which from the aspect of business success further emphasizes the need for transparent management of food safety in accommodation facilities offering food. With the aim of comparing the complexity, challenges and importance of food safety management in accommodation facilities that provide combined tourist accommodation and catering services depending on the type of facility, analysis of the complexity of food safety issues was performed depending on the type of facility. The obtained results suggest that the complexity of food safety management depends on the type of facility and is most pronounced in facilities such as hotels and motels. For the case of accommodation facilities with complex food offer, such as hotels, the challenges of food safety were considered through interviews with responsible staff in hotels. The challenges of managing food safety in these facilities are numerous and conditioned by various factors, starting from the diversity of the raw materials, through the compactness of the space, to the challenges related to the establishment of a traceability system. In the complex environment of food safety management in hotels, the knowledge of staff is invaluable.

Key words: *food, safety, management, hospitality industry*

INTRODUCTION

An integral part of hospitality services is the preparation and serving of food. Food is increasingly becoming a central aspect in organizing unforgettable experiences in the tourism and hospitality sector. Food can be the main factor in the determination of guests for a certain tourist destination, characterized by specific cuisine and its authenticity. Guests can

also be attracted by the application of innovations in gastronomy, such as the application of new cooking techniques or dishes prepared on the principles of molecular gastronomy (Mariani and Okumus, 2022).

However, food safety as potentially the most important aspects of serving food in hospitality

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facilities does not usually receives sufficient attention and visibility (Sun and Ockerman, 2005). Food traceability which enables distribution of responsibilities for food hazards among entities involved supply chain is of utmost importance for hospitality facilities serving food to the guests, as they represent the final linkage of food safety for the public preparation, without further monitoring or control steps involved (Zrnić, 2020).

Guest accommodation facilities that are involved in the food supply chain have a legal obligation to manage food safety as a legally defined term. In Serbia, the obligation to implement a food safety management system stems from the Food Safety Law (Zakon o bezbednosti hrane, 2009). Pursuant to this Law, subjects in the food business, and therefore accommodation facilities that offer food should ensure the fulfilment of all prescribed conditions related to food hygiene. The law also stipulates that subjects in the food business are obliged to establish a system for ensuring food safety in accordance with the principles of good production and hygiene practices as well as hazard analysis and critical control points (HACCP). The first and basic prerequisite for establishing a food safety management system is compliance with good production practices and good hygiene practices, as well as adjusting the conditions of the work space, equipment and accessories to the conditions prescribed by the Regulations governing this area (Pravilnik o opštim i posebnim uslovima higijene hrane u bilo kojoj fazi proizvodnje, prerade i prometa, 2010).

Food safety is not a negotiable category. Food is either safe or unsafe. According to the definition provided by the Food and Agriculture Organization of the United Nations (UN FAO, 2003), food safety refers to all those hazards, whether chronic or acute, that can make food harmful to the health of consumers. With the increase in the proportion of food consumed outside the home, the food industry is taking on an increasingly important role in avoiding foodborne illness and protecting consumer health. Therefore, it is of primary importance that food service establishments choose the best strategy to improve food safety performance in their own environment (da Cuncha, 2021).

In the application of management of food safety, product and service quality, there are

significant differences between facilities, from those that show a marginal level of performance that is expected to be insufficient to achieve good results, to those that show general and satisfactory results for the basic control and assurance activities, up to those who achieve outstanding marks for basic control activities (Abou Kamar, 2018). Through numerous researches, it has been shown that the management of food safety is significantly and in different ways related to guest satisfaction, the willingness of guests to choose to stay in a certain facility, to visit the facility again and through word-of-mouth marketing, promote the facility they visited (Moise, Gil-Saura & Ruiz-Molina, 2018). The extent to which measures to ensure food safety will have an effect on the consumer/guest and his perception of the measures taken by the facility will certainly depend on the degree of development of the consumer's awareness of all aspects of business (Han, Lee, Trang & Kim, 2018).

Pursuant to the Law on Hospitality (Zakon o ugostiteljstvu, 2019), article 18, the types of accommodation facilities differ depending on the organizational model, content and way of providing tourist services. The types of accommodation facilities are: hotel and subtypes of hotels, motels, tourist settlements and subtypes of tourist settlements, boarding houses, camps, campsites, hostels, lodgings, lodgings, guesthouses, houses, apartments, rooms, rural tourist households, hunting villas, hunting lodges, hunting house and hunting cabin, as well as other facilities for providing accommodation services. The existence and complexity of the possible combination of functional processes of food preparation and serving is one of the aspects by which these types of facilities differ (Sun & Ockerman, 2005). In this sense, the complexity, challenges and importance of applying the principles of HACCP and food safety management are generally, in many respects, organizationally different, that is, combined depending on the type of facility and the business of a certain model in the registered tourist activity.

When it comes to hospitality industry, there are certain specificities related to food safety and the application of the HACCP system (Popov-Raljić & Blešić, 2012/2016). First of all, as a rule, catering facilities prepare food using high-risk raw materials. Furthermore, in terms of organizational conditions, hotels should provide

all prescribed conditions for a very large number of raw materials and products in a limited space, and their position in establishing traceability and obtaining safety data from suppliers is weak (Abou Kamar, 2018) considering that they order in relation to the food industry and other food distribution chains small quantities of different products from several suppliers. Research has shown that the implementation of standard food safety systems, compliance with the food safety system and implementation of the food safety system affect the provision of safe food in catering facilities (Mutua, 2021). Among the important challenges of food safety management practices in catering facilities can be classified as financial, infrastructural and human resource issues (Megahed & Abbas, 2021). The successful and efficient implementation of the HACCP system in catering facilities largely depends on the education and motivation of employees who handle food. Research conducted in Serbia indicated that, on average, the attitudes of managers and employees towards food safety issues and their responsibility in ensuring it are positive (Borovčanin & Kilibarda, 2020).

Food safety is also proven to be an important aspect which influences travel destination choice (Yeung & Yee, 2020). It has been confirmed that food safety is considered to be among the most important issues affecting planning of travel and selection of destination (Reichel, Fuchs & Uriely, 2007). In some cases food safety risks affecting health were rated higher in comparison to other travel risks (Carter, 1998; Lepp and Gibson, 2003). Having this in mind hospitality industry must be aware of the importance of food safety management not only in terms of prevention of food safety risks and addressing legal obligations, but also from the aspect of its competitiveness.

Bearing the presented fact in mind, the aims of this study were outlined as follows: (1) to

investigate importance of food safety management from the point of view of the accommodation users and accompanied food offering services; (2) to simultaneously consider the complexity of food safety management in dependence of type of accommodation facility and (3) to systematise and analyse the challenges of food safety management in facilities with complex food offer.

MATERIALS AND METHODS

The research presented in this paper consists of three parts.

In the first part of the research, a consumer survey (see Supporting material) was conducted in which consumers evaluated the importance they attach to food safety management in hotels, the existence of officially introduced standards (HACCP), staff and inventory hygiene. Simultaneously importance attached to nutritional value of food, sensory properties of food, price and serving characteristics of food, i.e. the time required for the food to be served were evaluated for the purpose of comparative observations. The survey was conducted online, and 923 respondents from the territory of Serbia took part in the research. Only respondents who declared that they were guests in a hotel(s) were taken into account. Among the respondent majority declared that when visiting a hotel they usually choose only breakfast service (47.5%) or breakfast and supper (47.5%), while number of respondents using all three meals (4%), or not using food at all (1%) was minor. Respondents evaluated the importance of the observed aspects of food offer in accommodation facilities on a Likert scale from 1 (not important at all) to 5 (extremely important). The questionnaire also contained demographic data on the respondents: gender, age category, level of education and region (Fig. 1). Based on the obtained results, conclusions were drawn regarding the importance of food safety management in catering facilities.

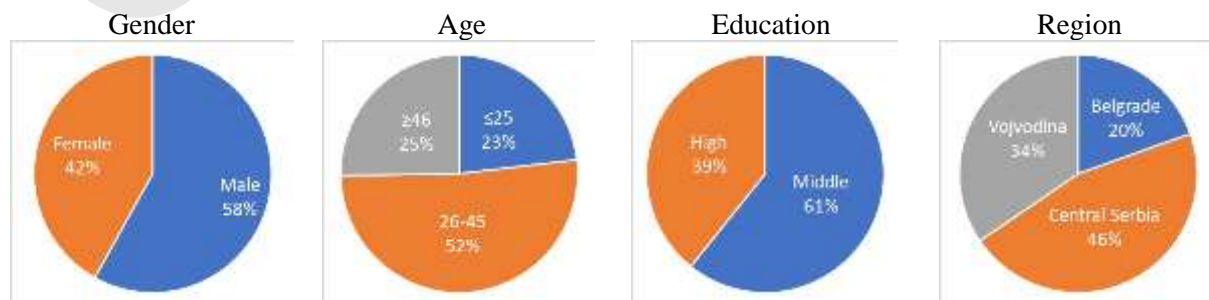


Figure 1. Demographic structure of respondents

In the second part of this study desktop research was conducted. Based on valid norms, standards and regulations of practice the main characteristics of food preparation were systematized depending on the type of accommodation facility. Accordingly, in relation to the legally required conditions, an overview of food safety management aspects of importance for certain types of guest accommodation facilities was made and the differences in the complexity of food safety management was compared among different types of facilities.

In the third part of the research, semi-structured interviews (see Supporting material) were conducted with persons responsible for food safety in hotels accommodation facility in which food offer is characterized with high complexity (7 HACCP team leaders and 5 quality system managers). A total of 12 interviews were conducted in hotels providing complete offer of meals (breakfast, dinner and supper) with 6 hotels belonging to international hotel chains, and 6 being independent business entities. Interviews were organized in Belgrade as the location with the most complex hotel offer. The data obtained through the interviews were systematized and used to review the challenges of food safety management in hotel facilities.

RESULTS AND DISCUSSION

The importance of food safety management for guests

Food safety management is a legal obligation for all subjects in the food trade, however, for accommodation facilities that directly serve food to guests, the importance given to food safety by the guests themselves is of particular importance, considering that the unfavorable perception regarding this aspect can affect the satisfaction of guests as a whole and influence their willingness to opt for the repeated use of the services of a particular accommodation facility.

The results of the research on the evaluation of food safety in hotels among consumers/potential guests in accommodation facilities are shown in Fig. 2. In addition to evaluating the importance of food safety in general, hotel guests also evaluated their attitudes in relation to the existence of a formally established HACCP

system, staff and equipment hygiene as important aspects of food safety management. The results of the assessment of the importance of the sensory properties of food, the nutritional value of food, food price and the time required for food to be served are presented in parallel. The results are presented in relation to the sex of the respondents, their age, the region the respondent is from and the level of education in order to see possible differences between stratified groups of consumers, that is, potential guests.

The first significant observation is that on the offered scale in the range of extremely important / important /moderately important / not very important / not important, there were almost no respondents that evaluated any of the observed aspects as not very important or not important. Accordingly, it can be concluded that regardless of the demographic profile of consumers, food safety with all its aspects, are to certain extent important and importance attached to food safety aspects is comparable with importance of food sensory and nutritional properties, food prices and food serving time.

Regarding the demographic characteristics, the most expressed differences in the answers were registered when it comes to the gender of the respondents. Namely, food safety and all its aspects are dominantly extremely important for females, while the importance is slightly less pronounced among male respondents. The same can be stated when it comes to sensory and nutritional properties of food, but in these cases differentiation is somewhat less pronounced. When it comes to the age of the respondents, the observed differences between the age groups are very small in all observed aspects. There are no significant differences between the observed aspects: the majority of consumers consider all the observed aspects to be significant or moderately significant, while the share of those who consider any of the aspects to be extremely significant is somewhat smaller. A similar conclusion can be drawn when comparing the responses of respondents from different regions of Serbia: the City of Belgrade, Central Serbia and Vojvodina. In this case too, there are no significant differences between the regions or between the observed characteristics of safety and quality of food and service.

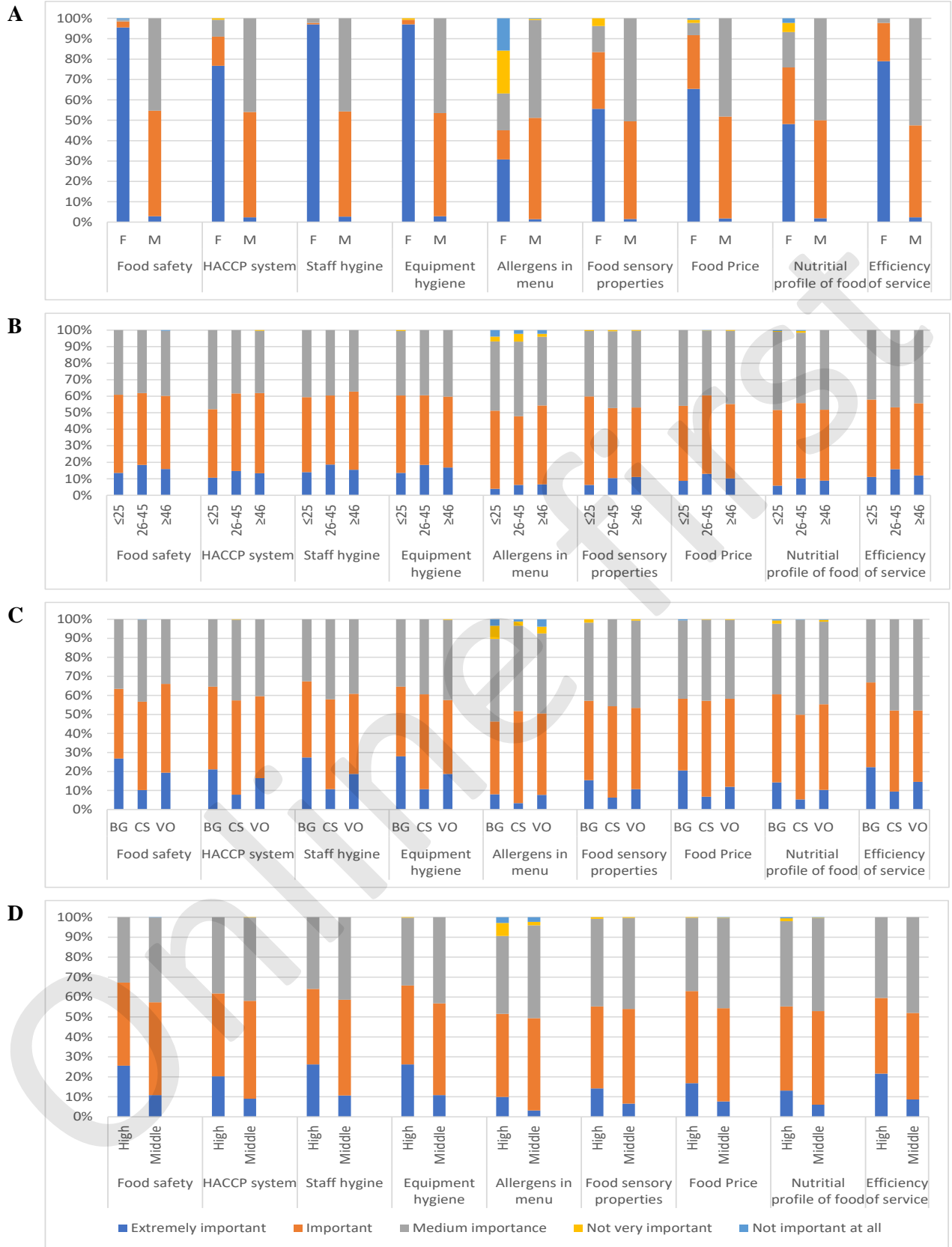


Figure 2. Assessment of the importance of food safety management in relation to other aspects of food service depending on gender (A), age (B), region (C) and education level (D)

In contrast to hotels and motels, where a variety of food is served, including all meals, there are restrictions related to food service in other types of facilities. Garni hotels are characterized by serving only breakfast, with a relatively limited selection, mostly of industrially prepared ingredients, and the process of food safety management is much simpler in such facilities. Among the facilities where food safety management system is simplified are also guest houses where the offer is far less complex, which implies a limited choice of raw materials and processes in food preparation as well as limited periods of time when food is served.

A special group consists of accommodation facilities where it is not expected that food service will be provided by the facility itself, but the infrastructure within the accommodation facility units provides the conditions for preparation of meals by the guests themselves. In this case, the guests themselves, who according to the Food Safety Law (Zakon o bezbednosti hrane, 2009) are not entities in food trade, bear responsibility for the safety of the food they prepare, as well as for the selection, purchase, proper storage and preservation of both the raw materials they use and the meals they prepare. What should be kept in mind in this case is the provision of an adequate level of hygiene of the infrastructure for food preparation as well as the need to ensure conditions for the disposal and timely removal of organic waste generated in the process of food preparation, which is the responsibility of the facility itself.

Based on this consideration, it is clear that the complexity of food safety management challenges is highly dependent on the type of accommodation facility.

Challenges in food safety management in facilities with complex food offer

In further considerations, the challenges in managing food safety were considered, primarily from the point of view of facilities with complex food offer, such as hotels, that are the most demanding in relation to this aspect of business.

The significant challenges of successfully organizing complex processes of food preparation and service from the aspect of food safety management derived from the conducted interviews with staff in hotels involved in food

safety management are systematized in relation to the prerequisite programs of food safety management (Table 2).

Based on the presented data, several important observations can be made about the prerequisite aspects of food safety management in hotels in comparison to the predominant characteristics of prerequisite programs in industrial food production. First of all, the management of food safety in hotels implies a very complex structure of raw materials with a large number of foods of different origins and different degrees and sources of risk in relation to safety, from durable industrial products to bulk fresh products in which a risk of microbiological contamination is high. Another characteristic regarding raw materials is the dynamics of procurement and acceptance of raw materials that, for numerous goods, particularly raw and fresh ones, takes place on a daily basis. Furthermore, in order to fulfill the prerequisite programs for the proper storage of a large assortment of very diverse raw materials, it is necessary to design a storage system very carefully. This implies that optimal storage conditions are provided for each group of raw materials and that cross-contamination paths are avoided in the process of joint storage of diversity of raw materials, which complicates the control process as well as the management of conditions in the storage areas.

Another significant challenge is related to the space where food is prepared. In contrast to industrial food production, in which infrastructural conditions are provided for one, or in the worst case, for a limited number of technological processes, in kitchens where food is prepared in hotels, a large number of technological operations take place in a limited space, characterized by very different conditions and process parameters, which further complicates the food safety management process. In addition, it should be borne in mind that food preparation in hotels is carried out daily and all maintenance processes must be combined with food preparation processes while taking care not to jeopardize food safety during maintenance. The processes of disinfection and application of chemical agents for these purposes, as well as the processes of destroying pests in the case of food preparation in hotels are also closely intertwined in time with the food preparation itself, and contamination from these sources should also be carefully taken into account.

Table 2.

Challenges of food safety management in catering establishments of the hotel type

Food safety management aspect	Challenges
Control of raw materials and control at acceptance	A large number of different raw materials Lots of perishable raw materials Large turnover of raw materials The need for very frequent ordering of raw materials
Facilities and infrastructure	Limited, compact space A large number of different operations in a small space Very versatile equipment Pronounced possibilities of cross-contamination
Staff	Different educational levels Limited knowledge and awareness of food safety
Pest control	Impossibility of suspending the work process Pronounced possibility of contamination by waste
Waste management	Permanent generation of various waste The need for constant waste removal
Allergens	Complex compositions of products/meals Large number and complexity of raw materials
Cleaning, washing, disinfection	Large number of areas, workers, rooms Difficult washing and disinfection in non-standard facilities
Water and air control	Many different fumes that need to be effectively removed All water must be of drinking water quality
Temperature control and recording	A large number of areas and operations where temperature records are necessary The need for a large number of measuring devices
Technical maintenance	Impossibility of suspending the work process Lots of different maintenance needs
Product tracking (traceability)	A complex system - a large number of raw materials go into a large number of different products Small lots require extensive labeling
Contamination	High possibilities of cross-contamination There is no possibility of subsequent control - serving immediately after preparation Possibility of contamination of stored semi-finished products
Management of information about products and services	A large number of specifications Creativity - tendency to deviate from specifications
Work methodology	Lots of operations in food preparation Lots of safety-oriented procedures

Through the complex processes of food preparation, in addition, raw materials enter in variable quantities into different final products, which complicates the establishment of traceability, which is further complicated by the fact that the portions, or lots in preparation, are small, numerous and daily. The large number of different products and the different raw materials that go into them requires the existence of extensive documentation related to the specifications of both raw materials and products. The complex composition of products, that is, the dishes that are prepared, both in terms of the number and origin of raw materials, and in terms of the complexity of the raw materials themselves, impose an additional challenge when it comes to the presence or absence of

allergens in the products.

Another important feature of food safety management in hotels is related to the fact that the prepared products are not packed and stored, but are served to guests immediately after preparation. In this sense, there are no possibilities to verify product safety through subsequent analyses, and the safety of the supply is completely dependent on the established food safety management system.

A special position in defining food safety is also played by the presence of allergens in food, which for the group of consumers who have allergic reactions to certain food ingredients, appear as a hidden form of threat, significantly endangering public health. Therefore, the labelling of allergens on food products,

beverages and gastronomic products is clearly defined by legal regulations, and their indication in the menus and other means of presentation of the food offer represents a special challenge (Popov-Raljić, Aleksić, Janković & Ivkov, 2017). The presentation of information about the presence of allergens to guests must to be realized through food presentation means also in accordance with the Rulebook governing product declaration (Pravilnik o deklarisanju, označavanju i reklamiranju hrane, 2013). In this sense, in the process of preparing food that will be served, it is necessary to take appropriate control measures (Aleksić et al., 2020).

Food waste is a vital concern for many catering companies with significant implications for developing competitive strategies, implementing environmental practices, and emphasizing corporate social responsibility efforts. Food waste mainly occurs during the preparation and consumption phase. The main factors that cause food waste include over-ordering of food by guests, errors in inventory management, staff errors in food preparation, and food safety practices. Possible strategies to reduce food waste include employee training, use of appropriate equipment, better menu planning practices, accurate demand forecasting and implementation of efficient storage practices, but also educating guests through attractive, informative and innovative guides on required portion sizes (Okumus, 2020). In hotel practice, the reduction of water and other energy consumption also contributes to the preservation of the environment.

Such a complex characteristics of the preconditions of food safety management in hotels require exceptional expertise of the personnel who will deal with food safety management, both from the aspect of very broad knowledge of raw materials and the food safety risks they introduce, and from the aspect of recalling the role of certain processes that are used to reduce or elimination of risk, which is not always the case in practice.

It should be borne in mind that the nature and style of organization, types of food and meals, as well as the levels of knowledge and skills of employees at all levels vary to large extent. This makes it difficult to implement food safety and quality management systems in the hospitality industry sector. Therefore, there is an increased interest among facility managers not only in

how food safety and quality are managed, but also in how the culture of the organization and the external business climate in which it operates influence the effective implementation of standards in these areas (Manning, 2018). A particularly important role in the implementation of the food safety management system is the provision of a proactive culture in relation to food safety and the creation of an environment within companies that promotes behavioural changes towards the application of all food safety management measures (da Cuncha, 2021).

Food safety culture is recognized as an important phenomenon that drives the behaviour of food handlers, so in order to manage this aspect of food safety system implementation, various tools and approaches have been developed to assess food safety culture, which include dimensions such as people profiles, communication practices, commitment, leadership, applied food safety management systems, risks, characteristics of the work environment and others (Zanin, Stedefeld & Luning, 2021).

Having the right culture, especially the culture of food safety and quality, is a key success factor for any food business, including those in hospitality industry for which food is an essential part of the offer. Food safety culture has been added as a new topic in food safety training courses (Emond & Taylor, 2018) with four categories and 20 dimensions of safety and quality culture (Taylor & Rostron, 2018).

CONCLUSIONS

For accommodation facilities providing food offer food safety management is not only legal obligation, it is also an important factor of satisfaction of gusts. Consumers, i.e. potential guests, without exception attach importance to food safety comparable to the importance they attach to sensory properties of food, nutritional value of food and efficiency of service, which from the aspect of business success further emphasizes the need for transparent management of food safety in accommodation facilities offering food. Comparative assessment of complexity of food safety management in different types of accommodation facilities indicates that the complexity of food safety management depends on the type of facility and is most pronounced in facilities with complex food offer such as hotels and motels. The challenges of food safety management in these

facilities are numerous and conditioned by various factors, starting from the diversity of the raw material base, through the compactness of the space, to the challenges related to the establishment of a traceability system. In the complex environment of food safety management in hotels, the knowledge of staff is invaluable.

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SUPPORTING INFORMATION

This article contains additional supporting material.

S1. Questionnaire

(Extract of used questions presented in this study from complex investigation)

S2. Questions for semi-structured interviews

Online first

IZAZOVI I ZNAČAJ UPRAVLJANJA BEZBEDNOŠĆU HRANE U HOTELSKOJ INDUSTRIJI

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Sažetak: Sprovedeno je istraživanje o stepenu značaja koji potrošači pridaju upravljanju bezbednošću hrane u smeštajnim objektima koji nude hranu. Utvrđeno je da potrošači, odnosno potencijalni gosti, bez izuzetka, pridaju važnost bezbednosti hrane uporedivu sa značajem koji pridaju senzornim svojstvima hrane, nutritivnoj vrednosti hrane i efikasnosti usluge, što s aspekta poslovnog uspeha dodatno naglašava potrebu transparentnosti upravljanja bezbednošću hrane. U cilju poređenja složenosti, izazova i značaja upravljanja bezbednošću hrane u smeštajnim objektima koji pružaju kombinovane turističke smeštajne i ugostiteljske usluge u zavisnosti od tipa objekta, izvršena je analiza složenosti pitanja bezbednosti hrane u zavisnosti od tipa objekta. Dobijeni rezultati sugerišu da složenost upravljanja bezbednošću hrane zavisi od tipa objekta i da je najizraženija u objektima kao što su hoteli i moteli. U slučaju smeštajnih objekata sa kompleksnom ponudom hrane, kao što su hoteli, izazovi bezbednosti hrane razmatrani su kroz intervju sa odgovornim osobljem u hotelima. Izazovi upravljanja bezbednošću hrane u ovim objektima su brojni i uslovljeni različitim faktorima, počev od raznovrsnosti sirovina, preko kompaktnosti prostora, do izazova u vezi sa uspostavljanjem sistema sledljivosti. U kompleksnom okruženju upravljanja bezbednošću hrane u hotelima, znanje osoblja je od neprocenjivog značaja.

Ključne reči: hrana, bezbednost, upravljanje, hotelska industrija

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S1: Questionnaire

(extract of used questions presented in present research from complex investigation)

<p>1. Gender:</p> <ul style="list-style-type: none"> <input type="radio"/> Male <input type="radio"/> Female <p>2. Age:</p> <ul style="list-style-type: none"> <input type="radio"/> <25 <input type="radio"/> 26-45 <input type="radio"/> >45 <p>3. Education</p> <ul style="list-style-type: none"> <input type="radio"/> Primary <input type="radio"/> Middle <input type="radio"/> High <p>4. Region:</p> <ul style="list-style-type: none"> <input type="radio"/> Belgrade <input type="radio"/> Central Serbia <input type="radio"/> Vojvodina 	<p>5. Have you used accommodation services in a hotel in last 5 years?</p> <ul style="list-style-type: none"> <input type="radio"/> yes <input type="radio"/> no <p>6. When using accommodation services in hotels what food services do you most often use?</p> <ul style="list-style-type: none"> <input type="radio"/> Only breakfast <input type="radio"/> Breakfast and supper <input type="radio"/> All meals <input type="radio"/> I don't use food services
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Rate your answers on the scale from 1 (strongly disagree) to 5 (strongly agree)	1	2	3	4	5
QUESTIONS					
To what extent is food safety in accommodation facilities serving food important to you?					
To what extent is existence of certified HACCP system in accommodation facilities serving food important to you?					
To what extent is staff hygiene in accommodation facilities serving food important to you?					
To what extent is equipment hygiene in accommodation facilities serving food important to you?					
To what extent is existence of data on allergens in food in menu in accommodation facilities serving food important to you?					
To what extent are sensory properties of food in accommodation facilities serving food important to you?					
To what extent are food prices in accommodation facilities serving food important to you?					
To what extent is nutritional quality in accommodation facilities serving food important to you?					
To what extent time needed to be served in accommodation facilities serving food important to you?					

S2: Questions for semi-structured interviews

1. What is your position in a hotel in respect to food safety management?
2. Which aspects would you emphasize as the most challenging in respect to food safety management in terms of:
 - a. Control of raw materials and control at acceptance
 - b. Facilities and infrastructure
 - c. Staff
 - d. Pest control
 - e. Waste management
 - f. Allergens
 - g. Cleaning, washing, disinfection
 - h. Water and air control
 - i. Temperature control and recording
 - j. Technical maintenance
 - k. Product tracking (traceability)
 - l. Contamination
 - m. Management of information about products and services
 - n. Work methodology