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RELATIONSHIP AMONG FOOD SAFETY KNOWLEDGE, ATTITUDE AND BEHAVIOR OF EMPLOYEES IN KAZAKHSTAN HOTELS

The aim of this study is to determine and compare the food safety knowledge, attitude and behavior of Employees in 4-5 star hotels in Kazakhstan, and to investigate the effects of these determinants on each other. For this purpose, a survey is performed with 256 employees who work for different positions in the hotel. The collected data is analyzed by using descriptive statistics and structural equation modeling. As a result, it is determined that food safety knowledge has not a significant influence on food safety behavior. However, there is a high correlation between food safety attitude and behavior, and a medium correlation between food safety knowledge and attitude. Consequently, training, profession and experience of the employee are very important factors to be paid attention for ensuring food safety in enterprises. Thus, it is necessary to determine the training needs of the employee, and to provide training and seminars taking into account the position of each employee in the hotel.

Key words: food safety, hygiene, sanitation, hotels, hotel employee, hotel businesses.

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Қазақстандағы қонақ үй қызметкерлерінің азық-түлік қауіпсіздігі туралы білімі, ұстанымдары мен іс-әрекеттері арасындағы байланыс

Бұл зерттеу жұмысының мақсаты – Қазақстандағы қонақ үй қызметкерлерінің азық-түлік қауіпсіздігі туралы білімдерін, ұстанымдары мен көзқарастарын, іс-әрекеттері мен мінез-құлықтарын анықтау, салыстыру және арасындағы байланыстарды табу, яғни бұлардың арасындағы байланыстардың бір-біріне әсер етуін зерттеу болып табылады. Осы мақсатта, қонақ үй қызметкерлерінің азық-түлік қауіпсіздігін қамтамасыз ету кезінде қаншалықты саналы әрекет ететіндіктерін анықтау үшін қонақүйлерде әртүрлі лауазымдарда жұмыс істейтін 256 қызметкермен сауалнама жүргізілді. Жиналған деректер сипаттамалы статистика және құрылымдық теңдеулерді модельдеу арқылы талданды. Нәтижесінде қызметкерлердің азық-түлік қауіпсіздігі туралы ұстанымдары азық-түлік қауіпсіздігіне әсер етпейтіндігі анықталды. Дегенмен, азық-түлік қауіпсіздігі туралы іс-әрекеттері мен мінез-құлықтары арасында күшті байланыс, сондай-ақ азық-түлік қауіпсіздігі туралы білім мен іс-әрекеттер арасында орташа байланыс бар екендігі мәлім болды. Сондықтан, қонақ үйлерде азық-түлік қауіпсіздігін қамтамасыз етуде назар аударатын маңызды факторлар қызметкерлердің білімі, іс-әрекеттері мен мінез-құлықтары болып отыр. Осылайша, қызметкерді азық-түлік қауіпсіздігі туралы оқыту қажеттілігі анықталды. Сондықтан, қонақ үйдегі әрбір қызметкердің жағдайын ескере отырып, оларды оқыту және арнайы семинарлар өткізу қажет.

Түйін сөздер: азық-түлік қауіпсіздігі, гигиена, санитария, қонақ үйлер, қонақ үй қызметкерлері, қонақ үй бизнесі.

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Взаимоотношения между деятельностью, отношением и знаниями сотрудников о безопасности пищевых продуктов в казахстанских гостиницах

Целью данного исследования является определение и сравнение деятельности, отношения и знаний в области безопасности пищевых продуктов в гостиницах Казахстана и изучение влияния этих детерминант друг на друга. С этой целью был проведен опрос 256 различных должностных лиц отеля. Полученные данные проанализированы с использованием описательной статистики и моделирования структурных уравнений. В результате установлено, что отношение сотрудников к безопасности пищевых продуктов не оказывают существенного влияния на безопасность пищевых продуктов. Тем не менее, существует тесная связь между поведением и действиями, связанными с безопасностью пищевых продуктов, и средняя связь между знаниями и действиями, связанными с безопасностью пищевых продуктов. Следовательно, знания, действия и поведение работника являются очень важными факторами, на которые следует обратить внимание для обеспечения безопасности пищевых продуктов на предприятиях. Таким образом, необходимо проводить соответствующее обучение и семинары с учетом ситуации, сложившиеся с каждым сотрудником гостиницы.

Ключевые слова: безопасность пищевых продуктов, гигиена, санитария, гостиницы, сотрудники гостиницы, гостиничный бизнес.

Introduction

Tourism sector stays in the limelight, especially because of the economic benefits that it provides to the state. Therefore, it is observed that an important part of the literature studies on tourism is related to the economic aspects of tourism. Tourism is an industry growing in accordance with globalization and among the fastest together with automotive, petroleum and chemicals industries (Abubakirova et al., 2016). On the other hand, because of positive effects of tourism such as supporting balance of payments by creating foreign currency inflow, creating employment, and supporting foreign trade, infrastructure and superstructure; its development is encouraged by not only developing countries but also developed countries. Kazakhstan, which has a very large potential for tourism, has tried to evaluate these values as much as possible and has given place to tourism in the development plans.

Tourism is accepted as the easiest way to increase the life standard of a region and to strengthen the economy of residents. Urban and regional planners, industry and sector representatives, non-governmental organizations, and municipal corporations are responsible for providing the true development of the region and residents under the existing conditions. Tourists are foreigners for the residents; residents are also foreigners for tourists. Interaction between tourists and residents can occur in different environments and ways. Travel vehicles, hotels, restaurants, shopping centers, sightseeing areas are the areas where tourist and residents meet most.

Tourism is an essential source of revenue for all countries. In fact, the most important feature of tourism, which is a socio-economic phenomenon, is that the sector is based on the human element. Businesses showing the necessary care to their personal and offering better quality service achieve their objectives much easier; otherwise, they may face the extinction over time (Baser et. al., 2017). Experience shows that food safety is important for general public health as well as for the tourism industry of the countries. Consequently, for the future of the tourism sector, it is important to evaluate food safety knowledge, attitude and behavior of employee in the food and beverage services. It is an inevitable result for the countries, which have a lack of knowledge, attitude and behavior relating to the food safety to face decline in the tourism sector and experience large-scale scandals.

As an important part of the tourism sector, hotels are one of the most common places where food is prepared and served. In a study performed by Jevšnik et al. (2008), it is pointed out that business and its customers may seriously suffer from the unsuitable hygienic conditions of the kitchens in the hotels. In order to ensure hygienic quality in the hotels, some of the measures should be taken and the hotel manager and employee should be given training in hygiene at regular intervals (Sanlier, 2009). In various studies, consumers and food industry

workers have been revealed to have a lack of information and negligence in terms of food preparation safety (Jevšnik et al., 2008). The application errors are regarded as the most important factors in the incidence of food-borne illnesses. The necessary awareness of consumers for food safety can take place with the knowledge of food safety and ensuring necessary conditions for the health risks. Additionally, specific local and national laws for unhygienic food need to be created to protect the consumer, and continuous training of vendors could help address the lack of food quality and safety (Cortese et al., 2016). Important requirements in the legislation should be followed; adequate packaging and storage of the raw material, obtaining the raw material from registered suppliers, hygiene of the handlers and adequate management of wastes produced during the activities in question are amongst the main items deserving attention (Nunes et al., 2010).

The most common causes of food borne poisoning cases are reported as inadequate cooling, one or more hours between preparation and consumption, infected employee, incorrect heat treatment, inadequate cooking, inadequate heating, using contaminated material, cross contamination, inadequate cleaning of the equipment, using bad food materials and leftover food (Sanlier, 2009). Knowledge does not automatically lead to safe behavior, but the consumer gets the opportunity to choose how to act regarding food safety actions (Baser et. al., 2017). Several studies have indicated gaps in consumer and worker knowledge, as well as in their behavior in relation to food safety (Jevšnik et al., 2008). Unlike many consumers who were educated to at least high school level, most of the unhygienic food manufacturers were found to have low educational levels and not to have any formal food safety training, which would greatly contribute to their poor food safety knowledge levels, attitudes and unhygienic practice (Samapundo et al., 2016). In another, a study the hygienic practices of street vendors and the context of their socioeconomic and living circumstances were investigated.

Materials and Methods

The aim of this study is to determine and compare the food safety knowledge, attitude and behavior of Employees in 4-5 star hotels in Kazakhstan, and to investigate the effects of these determinants on each other. For this purpose, a survey is performed with 256 employees who work for different positions in the hotel but obtained results cannot be generalized to all the hotels which possess an important tourism potential of the country. Although the reliability coefficient was found to be high, this research is prone to bias by the participants because it measured self-reported behaviors of the employees. Because some individuals constituting the population of the study cannot be reached, the way of sampling was preferred. In this study, a probabilistic sampling method was used to represent the population. A cross-sectional study of food safety was conducted over 256 people employed at hotels, from April 2017 to September 2017. The data of the research was collected through face-to-face interviews with a questionnaire.

Hygiene, sanitation and food safety are the most important issues that need to be paid attention for the hotel management. The fact that the necessary importance to these issues are not given during service and in the kitchen constitutes a threat to the health of employee and guests of the hotel (Gomes et al., 2014). The aim of this study is to determine the level of food safety knowledge, attitude and behavior of 4-5 hotel employees in Kazakhstan. Moreover, the effects of these variables on each other using structural equation modeling are investigated. Based on the relationships illustrated in the research hypotheses are formed as follows:

H1: Food safety knowledge has a direct effect on food safety behavior.

H2: Food safety attitude has a direct effect on food safety behavior.

H3: There is a statistically significant relationship between food safety knowledge and attitude.

The questionnaire was piloted with 30 participants in April 2017 to confirm question clarity, identify response options, and gauge likely interview duration. Persons who agreed to participate in the study answered the questionnaire within 15 minutes. The revised questionnaire was divided into four sections and consisted of 66 statements:

(1) a demographic section

(2) the scale of employees' knowledge of food safety (20 questions)

(3) the scale of employees' attitudes towards food safety (20 questions)

(4) the scale of employees' behaviors towards food safety (20 questions)

In order to extract the valid items for food safety knowledge, attitude and behavior Explanatory Factor Analysis (EFA) was performed. The factor loadings of the scale items greather than 0.40 are selected. Thus, it was decided to remove 8 items from the scales of knowledge, 1 item from behavior and 7 items from attitude, respectively. With selected items the Kaiser-Meyer-Olkin (KMO) sample adequacy measure for food safety knowledge, attitude and behavior

are obtained as 0.784, 0.813 and 0.885 (>.60), respectively. Cronbach's alpha coefficients calculated to verify the reliability of these scales exceeds 0.75.

In order to evaluate whether the consistence of the model to the data for each scale is acceptable, CFA was performed. The results of CFA for food safety knowledge, attitude and behavior are given in Table 1. According to goodness of fit indices, it is determined that the factor structure (purchasing & cooking, hygiene, preservation) is within the acceptable limits.

The data collected within the scope of the research is analyses and interpreted in line with the specified purposes by utilizing descriptive statistics and several statistical analyses. Structural equation modeling (SEM) and other statistical analyses were performed using IBM AMOS (Analysis of Moment Structures) and IBM SPSS (The Statistical Package for Social Sciences). Statistical significance value is set as $p < 0.01$.

SEM, a multivariate statistical method, is used in the testing of hypotheses designed to explain the casual relationships among observed and latent variables in the constructed theoretical models (Raykov and Marcoulides, 2006). SEM that is of use in many fields of science provides researchers for the possibility of determining the direct and indirect effects between variables by including the measurement errors. Statistically, SEM represents an extension of general linear modeling such as multiple regression and analysis of variance. Byrne (2010) has published a comprehensive overview of SEM.

Table 1 – The results of CFA for the scales of food safety knowledge, attitude and behavior

	Cmin/df	GFI	AGFI	CFI	RMSEA	Cronbach-α
Knowledge	2.51	0.964	0.940	0.958	0.055	0.789
Attitude	1.97	0.962	0.941	0.963	0.044	0.710
Behaviour	2.20	0.938	0.915	0.951	0.049	0.811

Results and Reasoning

In order to reveal the demographic characteristics of the individuals who participated in the study and to evaluate food safety knowledge, attitude and behavior of hotel employees, descriptive of statistics, absolute and relative frequencies are used. According to the results of research, 69.3% and 30.7% of participants are male and female respectively, and almost half of the participants are between the age ranges 21-30. In addition, it is observed that the respondents, 36.1% high school graduates with the highest percentage, 29.3% undergraduate and higher education graduates. 44% of the respondents serve as the restaurant staff and 36.1% of the respondents serve as food handler (see Table 2).

After determination of quality requirements related to the product or service and data collected requirements related to these requirements, each requirement will be defined what phase of Kano category it belongs, in other words they are classified. Quality requirements of each of the participants in the quastionnaire, two questions of Kano type (positive and negative) based on their responses are classified according to Kano Evaluation Table (see. Table 2). According to Table 2 of the quality, requirements, which are, belong to which categories. For instance; In Table 1, sample questions a customer positive for the question "1 - I enjoy it," negative questions, "5 - I do not like answered," If such quality element categories according to Table 2 "O" is a category that is, the one-dimensional quality requirements in the category are included.

Table 3 presents the results of SEM for knowledge scale and lists standard loading of factor, standard loading of items, precentage of correct responses to knowledge questions and item expression that loaded on the factors F1, F2, F3. In this study, the score of 0.40 is used as the mark for the identification of high factor loadings. The factor F1 (purchasing & cooking) has 5 items that loaded with an absolute value score greather than 0.41. F2 (hygiene) has 4 items that loaded with an absolute value score greather than 0.58. F3 (preservation) has 3 items that loaded with an absolute value score greather than 0.62.

Table 4 presents the results of SEM for attitude scale. Accordingly, the factor F4 (hygiene) has 6 items that loaded with an absolute value score greater than 0.54. F5 (purchasing & cooking) has 4 items that loaded with an absolute value score greater than 0.56. F6 (preservation) has 3 items that loaded with an absolute value score greater than 0.52.

Table 2 – Demographic characteristics of participants (n:256)

Variable		n	%
Gender	Male Female	177 79	69.3 30.7
Age (year)	≤ 20	25	9.8
	21 – 30	127	49.8
	31 – 40	81	31.5
	≥41	23	8.8
Education level	Primary school	35	13.5
	Secondary school	92	36.1
	Two-year degree	54	21.1
	Bachelor and above	75	29.3
Marital status	Married	126	49.4
	Single	130	50.6
Position in the hotel	Restaurant Staff	113	44.0
	Food Handler	92	36.1
	Receptionist	32	12.7
	Director	9	3.4
	Accounting and Sales	10	3.8
Total		256	100.0

Table 3 – The results of SEM for food safety knowledge and the proportion of correct responses

Scale	Factor	Std. Loading of Factor	Item	Expression	True (%)	Std. Loading of Item
Knowledge	F1 (purchasing & cooking)	0.69	K11	Food should be obtained from fresh and safe places while preparing food.	91.4	0.81
			K12	Food should not be used after the expiration date.	92.8	0.67
			K17	A frequently used rags and laundry should be kept out of the kitchen.	90.2	0.73
			K18	Unaccredited, off-brand and bulk product should not be purchased.	89.8	0.41
			K20	Purchased foods may seem clean, but there are bacteria in all foods.	81.7	0.57
	F2 (hygiene)	0.84	K4	Microorganisms are frequently found in hands.	82.5	0.59
			K6	The taste of a food should be checked with a different spoon.	86.1	0.58
			K14	Cooked foods should be kept separate from other foods in refrigerator.	82.7	0.90
			K16	After touching raw product, cooked food should never be touched without cleaning hands.	85.5	0.65
	F3 (preservation)	0.41	K10	Cooked food should not be left at room temperature more than 2 hours.	69.7	0.64
			K13	Internal temperature of the refrigerator is kept below 4-5 degrees.	69.9	0.85
			K15	Cooked meat, poultry, fish, milk, eggs should not be stored between 3-63 degrees.	59.4	0.62

Table 4 – The results of SEM for food safety attitude and descriptives

Scale	Factor	Std. Loading of Factor	Item	Expression	Mean	SD	Std. Loading of Item
Attitude	F4 (hygiene)	1	A4	Raw foods and cooked foods should be kept separately.	4.37	1.007	0.58
			A5	Kitchen should not be entered with clothes and shoes which are worn outside.	4.50	0.965	0.60
			A6	Canned foods should be stored in racks in their original packages.	4.40	1.021	0.55
			A12	The food-contact surfaces should properly cleaned before preparing food.	4.55	0.925	0.57
			A18	Poultry such as chicken, turkey, etc. should be washed before cooking.	4.52	0.790	0.56
			A19	Raw and cooked meats should be stored separately.	4.59	0.724	0.54
	F5 (purchasing & cooking)	0,28	A2	There is no problem in using cracked or broken eggs.	3.57	1.365	0.87
			A3	Hard-boiled eggs that are waited more than two days at room temperature can be used.	3.40	1,412	0.61
			A7	Instead of checking the expiration date, tasting is more appropriate.	3.47	1.490	0.70
			A15	Frozen foods should be thawed over a radiator or stalls.	3.41	1.495	0.56
	F6 (preservation)	0,2	A1	Cooked foods should be kept at room temperature until cool.	4.22	1.101	0.55
			A14	Street milk, after being boiled for half an hour can be stored in the refrigerator.	3.34	1.426	0.52
			A17	Leftovers should be refrigerated within two hours.	3.95	1.147	0.79

Table 5 presents the results of SEM for behavior scale. Accordingly, the factor F7 (hygiene) has 6 items that loaded with an absolute value score greater than 0.63. F8 (purchasing & cooking) has 9 items that loaded with an absolute value score greater than 0.43. F9 (preservation) has 4 items that loaded with an absolute value score greater than 0.51.

In order to investigate whether there are statistically significant relationships among food safety knowledge, attitude and behavior, the hypotheses and obtained results are given in Table 6. The first hypothesis formed between knowledge and behavior is not approved, so food safety knowledge does not have a significant influence on food safety behavior ($\beta = 0.09$, $p > 0.01$). The second hypothesis is approved, so food safety attitude has significant influence on food safety behavior. Findings of the study support and suggests that there is a high correlation between food safety, attitude, and behavior ($\beta = 0.88$, $p < 0.01$). The last hypothesis that expresses a direct relationship between food safety knowledge and attitude is accepted. Findings support that there is a medium correlation between food safety knowledge and attitude ($\beta = 0.45$, $p < 0.01$).

Table 5 – The results of SEM for food safety behavior and descriptive

Scale	Factor	Std. Loading of Factor	Item	Expression	Mean	SD	Std. Loading of Item
Behaviors	F7 (hygiene)	0,83	B13	I wash my hands thoroughly after every single time that I use the bathroom.	4.71	0.680	0.82
			B14	I wash my hands thoroughly after touching raw food.	4.65	0.702	0.80
			B15	After washing, hands should be dried with paper towels.	4.61	0.779	0.70
			B17	I keep the lid on a pot if it contains food.	4.65	0.761	0.75
			B18	I wash vegetables and fruit under running tap water before use.	4.63	0.759	0.75
			B19	I wash chicken, fish, a piece of meat and eggs thoroughly before cooking.	4.50	0.898	0.63
	F8 (purchasing & cooking)	0,77	B1	When I prepare the food, I check the pack whether it is durable or not.	4.72	0.599	0.55
			B2	When I buy meat, I check the veterinary control character.	4.61	0.686	0.75
			B3	When cooking, I follow the instructions on the pack.	4.48	0.858	0.74
			B5	When I buy food, I read label information.	4.37	0.935	0.64
			B6	I think that food additives used in production is harmful.	4.21	1.057	0.43
			B7	I do not use out of date food.	4.41	1.082	0.50
			B10	When I prepare food, I do not allow anyone smoke around me.	4.39	0.965	0.59
			B11	I prefer places with quality certificate when I shop for food.	4.40	0.869	0.60
			B12	I use different chopping boards for meats, chickens and vegetables in my kitchen.	4.39	0.977	0.58
	F9 (preservation)	0,21	B4	Food stored in any environment can be conveniently consumed.	3.76	1.437	0.65
			B8	I think that food prepared at restaurant is healthy.	3.17	1.453	0.55
			B9	I think that food prepared at street is healthy.	3.60	1.502	0.84
			B20	I check food by tasting whether it is rotten or not.	2.97	1.567	0.51

Table 6 – Hypothesis testing of the relationship of food safety knowledge, attitude and behaviors

Hypothesis	Paths			Estimate	C.R.	p - value
H_1	Knowledge	→	Behavior	0.09	0.938	0.348
H_2	Attitude	→	Behavior	0.88	2.990	0.003
H_3	Knowledge	→	Attitude	0.45	4.441	0.000

Discussion

In this study, in order to investigate relationships among food safety knowledge, attitude and behavior. The first hypothesis formed between knowledge and behavior is not approved, so food safety knowledge has not a significant influence on food safety behavior. In contradiction to our study, Lim at al. (2016) found that there is a negative and significant relation between food safety knowledge and behavior. Meer and Misner (2000) found that the food safety knowledge score had a small, positive effect on food safety behavior score. The second hypothesis is approved, so food safety attitude has significant influence on food safety behavior. Likewise, to our study, Lim at al. (2016), Abdul-Mutalib et al. (2012), Buccheri et al. (2010) found a significant positive relationship between food safety attitude and behavior. The last hypothesis that expresses a direct relationship between food safety knowledge and attitude is accepted. Findings support that there is a medium correlation between food safety knowledge and attitude. In contradiction to our study, Lim at al. (2016) is not found a significant relationship but Ansari-Lari (2010) found positive correlation between food safety knowledge and attitude similar to our study.

Because of correlation analysis among food safety knowledge, attitude, and behavior, there are positive relationships between knowledge and attitude; attitude and behavior. However, it is determined that no relation exists between food safety knowledge and behavior (see Table 6). In addition, the results indicate that attitude has mediating effect on the relationship between knowledge and behavior. In a study of Griffith and Clayton (2005), it is suggested that improved food safety knowledge causes positive impact on behavior, but attitudes of employee prevent the improvements in practices. Baser et. al. (2017) showed that employee training enhances food safety knowledge and behavior; however, that improved knowledge may not always lead to improved food safety behavior. Therefore, in the literature, there are several studies examining the relationships among food safety knowledge, attitude, and behavior in various parts of the world (Ansari-Lari et al., 2010; Seaman and Eves, 2010). These studies emphasize the importance of the identification of training needs and evaluating the effectiveness of training, and indicate that continuing training is crucial for ensuring sustained hygienic quality of food. Baser et. al. (2017) supported this view, and showed that restaurant employees participated in the training program were better able to respond to questions about food safety knowledge and behavior than untrained employees were. Therefore, training programs should be implemented and controlled continuously regardless of whether the company is large-scale or not.

Development of tourism in a country depends firstly on the development of an educated and qualified workforce. This is why, vocational courses must be opened in order to create necessary qualified workforce and on-the-job trainings should be planned to increase the qualification of existing tourism workforce. Activities should be executed to increase tourism consciousness of both real and juristic persons. It is obvious that published academic studies and an open debate regarding the development of tourism in Kazakhstan would be very useful.

The biggest problem of tourism in Kazakhstan is "the insufficiency of demand" (Abubakirova et al., 2016). This can be explained by a lack of effective marketing. Especially, countries of the region should develop a common marketing strategy. An innovative image strategy must be initiated for Kazakhstan and product development, special marketing, pricing and security regulations must be made.

The study is significant in that it is the first study carried out specifically in Kazakhstan and in this scope. It would also be beneficial to carry out similar studies in other tourism shareholders. Additionally, considering the fact that tourism in Kazakhstan has recently started to develop, there is a necessity for similar studies in other regions that would guide tourism planners.

Conclusion

Tourism is an important source of revenue for all countries. Situated in such an important sector, hotel businesses are required to pay attention to the issue of food safety due to the competition. Food safety knowledge and professional qualification indicate that consumption of food from the hotel is safe and suitable, so this can enhance the reputation of the hotel and consumer confidence considerably. The purpose of this study is to investigate food safety knowledge, attitude and behavior of 4-5 star hotel employee in Kazakhstan.

It is revealed in this study that the level of knowledge and practice of the staff employed in the hotel is moderate. Thus, stronger regulations in training, certification and legislation, as well as ongoing evaluations for ensuring sustainable food safety programs are needed. In addition, ho-

tel employee awareness programs to improve the food safety knowledge is of importance. In this regard, public health officials should provide necessary support in order for planning, evaluation and modification of food safety education programs.

This paper emphasizes that even though the level of food safety knowledge, attitude and behavior of the hotel employee is found to be sufficient enough, the constant attention to some of the aspects of hygiene and sanitation is needed. In order to minimize food-borne hazards substantially and protect the consumer, controlling the technical and environmental sources of contamination is necessary. Regular evaluation and continuous education have to be carried out to reinforce the food handlers' knowledge that remains incomplete. Many educational programs can also utilize the information gained from this study to provide essential messages.

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