

NAZIV DISERTACIJE: Procjena rizika za pojavu oboljenja koja se prenose hranom u objektima sa različitim sistemom upravljanja**Autor:** Eldina Smječanin**Mentor:** Prof. dr. Arzija Pašalić**Datum odbrane:** 26.06.2023.**DOI:** <https://doi.org/10.17532/DD.2023.10>**SAŽETAK**

Uvod: Proaktivni sistem sigurnosti hrane HACCP prepoznat je kao vodeći javnozdravstveni instrument kojim se osiguravaju visoki standardi higijene i sigurnosti u cjelokupnom lancu hrane, no međutim njegova primjena i održavanje kod subjekata u poslovanju s hranom (SPH) često nailazi na poteškoće i barijere za njegovo uspješno funkcionisanje u praksi. Efektivnost HACCP sistema direktno zavisi od međusobne povezanosti upravljačkih, organizacionih i tehničkih komponenti kao i od ljudskih resursa.

Ciljevi ovog rada bili su ispitati znanje, stavove i praksu o sigurnosti hrane, higijeni i HACCP-u među zaposlenicima i rukovodiocima SPH, ocijeniti sanitarno-tehničke i higijenske uslove kod subjekata i temeljem istog procijeniti rizike za kontaminaciju hrane i posljedično nastanak rizika za pojavu oboljenja koja se prenose hranom kod subjekata sa različitim sistemom upravljanja.

Materijal i metode: Istraživanje je provedeno kao deskriptivno analitička, presječna studija koja je uključivala 33 SPH iz kategorije restorana na području Kantona Sarajevo, 197 zaposlenika koji dolaze u direktan i/ili indirektan kontakt s hranom i 33 rukovodioca-donosioca odluka u odabranim subjektima. U odabiru subjekata korištena je metoda snježne grudve odnosno „snow ball sampling“.

Rezultati: Zaposlenici koji ruku s hranom zaposleni kod SPH koji posluje po HACCP principima imali su statistički signifikantno bolje znanje ($Z=9,005$; $p=0,0001$) u odnosu na zaposlenike SPH bez HACCP-a. Samo 39,3% zaposlenika SPH bez HACCP-a znalo je da je HACCP zakonska obaveza u BiH. Više od 50% zaposlenika obje grupe odgovornost za sigurnost hrane pripisivalo je isključivo zaposlenicima, isključujući rukovodstvo iz odgovornosti. Loše znanje zaposlenika obje ispitivane grupe (manje od 50% tačnih odgovora) zabilježeno je u pitanjima o uticaju temperature na sigurnost hrane. Samo 19,4% ispitanika koji rade kod SPH sa HACCP-om znalo je da se termičkom obradom hrane ne uništavaju alergeni. Nizak nivo znanja među zaposlenicima zabilježen je u poznavanju mikroorganizama. Odličan nivo znanja o dobroj higijenskoj praksi pokazale su obje grupe zaposlenika. Manje od 50% zaposlenika SPH bez HACCP-a završilo je zakonski obaveznu edukaciju o sigurnosti i higijeni hrane. Edukacija o HACCP-u nije imala uticaj na znanje i stavove zaposlenika SPH koji nemaju HACCP. Visok procenat zaposlenika (92,4%) obje ispitivane grupe bio je pod zdravstvenim nadzorom. Obje grupe ispitanika imale su loše prakse o sigurnosti hrane i higijeni. Čak 70,4% zaposlenika SPH sa HACCP-om stavlja da evidencije smanjuju efektivnost rada, a 45,3% smatra da je HACCP dokumentacija previše komplikovana. Više od 90% zaposlenika obje grupe smatra da je edukacija o sigurnosti hrane važna i da bi ista unaprijedila njihova znanja i vještine. Znanje i praksa rukovodioca SPH bez HACCP-a ocijenjene su kao loše. Nijedan rukovodioc SPH sa HACCP-om nije osigurao edukaciju iz HACCP-a od kako je HACCP implementiran kod SPH. Neafirmativni stavovi rukovodioca o HACCP-u determinisani su kao jedna od barijera za uspješno upravljanje rizicima. Čak 57,3% zaposlenika i 40% rukovodioca SPH bez implementiranog HACCP sistema smatra da je HACCP sistem isključivo administrativno-tehnička mjera inspeksijskih tijela. 72,2% rukovodioca SPH sa HACCP-om i 66,7% rukovodioca SPH bez HACCP-a smatra da HACCP sistem košta previše kompaniju. Sanitarno-tehnički i higijenski uslovi SPH bez HACCP-a ocijenjeni su kao loši. Procjenom rizika, SPH sa HACCP-om rangirani su kao objekti sa srednjim rizikom, a SPH bez implementiranog HACCP sistema kao objekti sa visokim rizikom za kontaminaciju hrane i posljedično nastanak rizika za pojavu oboljenja koja se prenose hranom.

Zaključak: Implementacija i održavanje HACCP sistema treba da bude rezultat zajedničkih napora rukovodioca i zaposlenika. Specifičnosti ugostiteljske djelatnosti zahtjevaju strogo ispunjavanje prerekvizitnih programa posebno infrastrukturnih zahtjeva, predanost rukovodstva te motivaciju, privrženost i ulaganje u ljudske resurse kako bi se rizici za pojavu oboljenja koja su povezana s hranom smanjili ili u potpunosti eliminisali.

Ključne riječi: HACCP, sigurnost hrane, restorani, barijere

DISSERTATION TITLE: Risk assessment for the occurrence of foodborne diseases in food business operators with different management systems

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ABSTRACT

Introduction: The proactive food safety system HACCP is recognized as a leading public health instrument that ensures high standards of hygiene and safety in the entire food chain, however, its application and maintenance by food business operators (FBOs) often encounter difficulties and barriers to its successful functioning in practice. The effectiveness of the HACCP system directly depends on the interconnectedness of management, organizational and technical components, as well as on human resources. The objectives of this paper were to examine the knowledge, attitudes and practice of food safety, hygiene and HACCP among food handlers and managers of FBOs, to evaluate the sanitary-technical and hygienic conditions and, based on this, to assess the risks for food contamination and consequently the risk of disease occurrence which are transmitted through food in FBOs with different management systems.

Materials and methods: The research was conducted as a descriptive-analytical, cross-sectional study that included 33 FBOs / "restaurants", 197 food handlers and 33 managers/decision makers in the selected FBOs. The "snowball sampling method" was used as a method to select FBOs.

Results: Food handlers employed in FBOs operating according to HACCP principles had statistically significantly better knowledge ($Z=9,005$; $p=0,0001$) compared to food handlers employed in FBOs without HACCP. Only 39,3% of food handlers in FBOs without HACCP knew that HACCP is a legal obligation in B&H. More than 50% of food handlers in both groups, attributed responsibility for food safety exclusively to employees, excluding management from responsibility. Food handlers in both examined groups had poor knowledge (less than 50% correct answers) regarding questions about the influence of temperature on food safety. Only 19.4% of food handlers in the group of FBOs that follows the HACCP principle, knew that heat treatment of food does not destroy food allergens. A low level of knowledge among employees was recorded in the knowledge of microorganisms. Both groups of food handlers showed an excellent level of knowledge about good hygiene practices. Less than 50% of food handlers in group of FBO without HACCP completed the legally required education on food safety and hygiene. Education based on HACCP principles had no impact on the knowledge and attitudes of food handlers who are employed in FBOs without HACCP. A high percentage of food handlers (92.4%) of both interviewed groups were under health supervision/had sanitary booklets. Food handlers in both groups had bad practices on food safety and hygiene. As many as 70.4% of food handlers that work by HACCP principles consider that records reduce work effectiveness, and 45.3% think that HACCP documentation is too complicated. More than 90% of food handlers of both groups believe that education about food safety is important and it would improve their knowledge and skills. Managers of FBOs without HACCP had poor knowledge and practice. Not a single manager of FBOs with HACCP has provided education based on HACCP principles for his employees since the HACCP system was implemented. Managers' non-affirmative attitudes about HACCP have been identified as one of the barriers to successful risk management. As many as 57.3% of food handlers and 40% of managers of FBOs without an implemented HACCP system consider the HACCP system exclusively as an administrative-technical measure of inspection bodies. 72.2% of managers in the group of FBOs with HACCP and 66.7% of managers in the group of FBOs without the HACCP system believe that the HACCP system costs the company too much. The sanitary-technical and hygienic conditions of FBOs without HACCP were evaluated as very poor. According to the risk assessment, FBOs with HACCP were ranked as facilities with a medium risk, and FBOs without an implemented HACCP system as facilities with a high risk for food contamination and as a result the occurrence of foodborne diseases.

Conclusions: Implementation and maintenance of the HACCP system should be the result of joint efforts of managers and employees. The specifics of the hospitality industry require strict fulfilment of prerequisite programs, especially infrastructural requirements, motivation and devotion of employees as well as management commitment and investment in human resources in order to reduce or completely eliminate the risks of food-related diseases.

Key words: HACCP, food safety, restaurants, barriers

