

Effects of Employee Behavioral Factors on HACCP System Practices in Four and Five Star Rated Hotels in Nairobi County, Kenya

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Abstract

Hazard Analysis and Critical Control Point (HACCP) is a globally recognized food safety program advanced as a suitable program to minimize or eliminate the risk of food contamination. Successful implementation of HACCP System requires appropriate employee support. This study sought to determine the influence of employee behavioral factors on HACCP system practices in four and five star-rated hotels in Nairobi County. A total of 255 hotel cooks and 33 chefs participated in the study. Analysis of the data utilized a set of descriptive statistics that provided detailed description of the study variables. To establish the statistical significance of the hypothesis, multiple linear regression analysis was conducted at 95 percent confidence level ($\alpha = 0.05$). The study established the existence of a statistically significant positive relationship between employee behavioral factors and HACCP system practices. Recommendations to hotel managers and other food production industry practitioners on enhancement of employee behaviour for effective HACCP system implementation are provided.

Keywords: Employee Behavioral Factors, Food Safety, HACCP System Practices, Star- Rated Hotels

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1. Introduction

According to Taylor (2008), HACCP is an internationally recognized food safety management system whose utilization has been expanded to take control of the complete range of chemical, physical as well as biological hazards. Al kaabiet *et al* (2015) observe that given the enormous food safety hazards across the world, an efficient food safety system is invaluable and suggests that HACCP is a highly appropriate system for food safety management. In addition to being a tool for addressing food borne health threats, Steffen *et al*. (2012) state that adoption of the HACCP system presents a number of benefits to the hospitality sector such as providing safeguards against hygiene disease outbreaks and arising legal suits. Further, Mariam *et al* (2015) observe that adopting of HACCP system increases buyer and consumer confidence. It also gives a step to step account of all parts of the process that relate to food safety. According to Anon (1997) commitment to food safety of food via compliance to HACCP can enhance the brand positioning of hotels and serve as an efficient market entry strategy.

Whereas the use of appropriate HACCP practices in food establishment kitchens is important, its execution relies heavily on the behaviors, skills and knowledge of both staff and management (Al Yousuf *et al* 2015). Catherine *et al* (2014) observe that whereas employees may know the behaviors considered proper to ensure food safety, habits that are not compatible with safe food practices serve as an obstacle to safe food. An improved routinization of safe food handling practices in a work culture to decrease the food borne ill health risk is therefore essential. Nada (2016) observed that the system of food safety in Serbia required improvements in the area of efficiency and effectiveness of inspection services and control of food safety, expertise and food safety consultants as well as auditor's knowledge.

A further study by Reda and Mostafa (2016) on 433 food handlers' beliefs and intended attitudes towards food safety training and knowledge related to ISO 22000 and HACCP systems in 15 five star hotels and eight four star hotels in Egypt with the aim of investigating the impact of food safety training on improving food handlers' behaviors and knowledge found that the majority of food handlers declared positive attitudes towards safe food handling. However, failures were found in the application of personal hygiene practices in both hotel categories. It was also noted that there were significant correlations among effective food safety training and improving food safety knowledge and behaviors. In addition, it was also revealed that there were no significant differences among: educational levels of food handlers and food handlers' work experience on one side and food safety behaviors on

the other side. This has implications on food safety training provided in the food industry and its effect on enhancing food handlers' behaviors and knowledge. In the same vein, Nada *et al* (2019) examined food safety knowledge and practices of food service staff in Al Madinah hospitals, Saudi Arabia and established that there was a significant linear relationship between food safety practice and food safety knowledge, and that food safety knowledge significantly predicts food safety practices. The research revealed the importance of education and consistent training of food service staff in improving knowledge and thereby better and safe food handling practices which could contribute to apply food safety in the hospitals.

A study by Habeeb *et al* (2018) to assess the compliance with HACCP system in standard hotels in Ilorin metropolis at Kwara State in Nigeria established that the concept of HACCP was not understood and that this could be impacting on the general food hygiene standards and food-handling practices of personnel. As a result, the researchers recommended the need to implement HACCP system to prevent food poisoning outbreaks and suggested that hotels could easily adapt the strategy only if law enforcers could put strict monitoring in place. Management must also provide required infrastructure for successful implementation of HACCP system in hospitality sector. In the same vein, Christos *et al* (2009) observes that factors such as attributes of a company and human are critical in executing a successful HACCP system.

Dawkins (2015) conducted a study in the United Kingdom to determine factors constraining the implementation of Hazard Analysis in small and medium sized food business in the London Borough of Camden and established that constraints existed that hindered the implementation of food safety management systems. The constraints reflected the general shortcomings amongst food business operators (FBOs) in relation to their capacity to understand HACCP based concepts and their unwillingness to implement a concept that they generally considered alien to them.

1.1 State of Food Safety in Kenya's Hotel Sector

The system of food safety control in Kenya pronounced under various regulatory frameworks and is executed by different government ministries and agencies. There are over 20 different legislations for food. The Kenya Bureau of Standards (KEBS) which is a certification body, provides ISO 22000:2005 Food Safety Management Systems and FSSC 22000 Food Safety Systems Certification for adherence by establishments to ensure food safety for the customers (Muinde, 2012).

However, Kenya lacks a definitive national food safety policy and enforcement of the existing fragmented food safety legislations is also weak. As a result, Oloo (2010) observes that food borne illnesses are still a key crisis in Kenya within the food production sector.

In the same vein, a study by the Kenya Medical Research Institute (2014) reported that majority of the chicken vended in butcheries and retail outlets especially supermarkets within Nairobi posed a severe health risk to customers. A similar study carried out by Wandolo (2016) in training institutions in Kenya established that the institutions were not adequately equipped to ensure food safety and in particular HACCP system prerequisites were not in place in most of the institutions. The study also established that lack of resources posed serious threat to food safety and hygienic practices.

1.2 Objective of the Study

The objective of the study was to determine the influence of employee behavioral factors on HACCP system practices in four and five star-rated hotels in Nairobi County.

1.3 Conceptual Framework and Hypothesis

The key variables of the study are depicted in the conceptual framework in Figure 1.

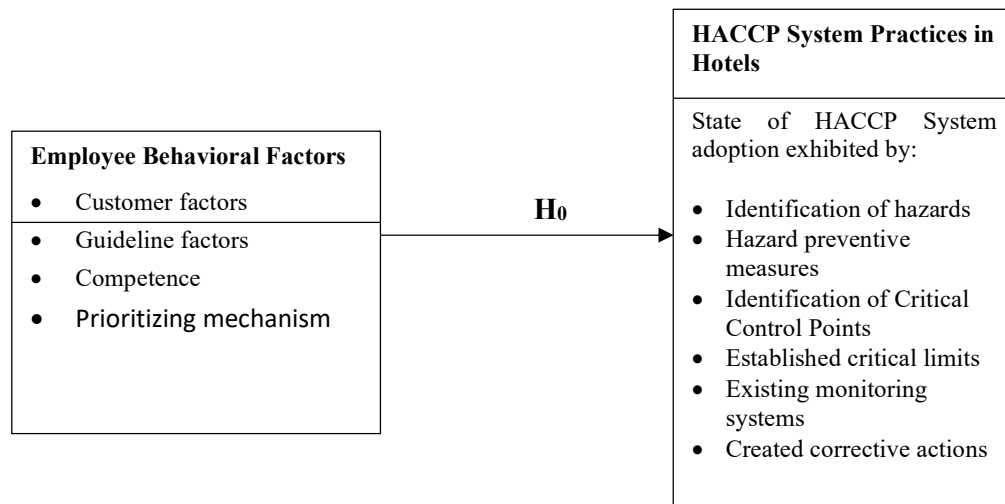


Figure 1: A Conceptual Framework of Employee Behavioral Factors and HACCP System Practices in Hotels

Arising from the conceptual framework in Figure 1, the following null hypothesis guided the study:

H₀: There is norelationship between employee behavioral factors and HACCP system practices in four and five star-rated hotels in Nairobi County.

2. Methodology

The study adopted a cross-sectional survey research design and was conducted in the Nairobi City County since the county has a higher number of star-rated hotels in Kenya. All the hotels classified by the Tourism Regulatory Authority (TRA) as either four or five star-rated were targeted. According to the 2016 TRA classification (Appendix III) there were 22 classified hotels in Nairobi City County of which ten were 5-star and twelve 4-star. The target study units were the chefs and cooks from all the 22 hotels classified as 4 and 5-star in Nairobi County.

A purposive and stratified sampling technique was used to select the study units who constituted the respondents for the study. The study units/respondents were classified into two strata namely the chefs and cooks. A self-administered structured questionnaire was used to collect the primary data. The close-ended questions were used in the questionnaire to gather the requisite information. In addition, an interview schedule targeting one manager in each hotel was personally administered by the researcher to obtain the hotel managers' views and cross-validate the answers given on the key questions covered by the questionnaires targeting on the respondent chefs and cooks.

Given the limited number of chefs usually engaged in hotels, a sample of three chefs from each of the 22 hotels constituting the population of study were randomly selected thus totaling to 66 chefs targeted as the respondents of the study. On the other hand, given that hotels engage a sizeable number of cooks, the size of the sample constituting the hotel cooks from the entire study population of 22 hotels was computed to be 384 cooks. The average number of cooks targeted for interview from each of the 22 hotels was therefore 17 (that is: 384/22) and this number were selected randomly from each of the hotel. The total study units/respondents targeted for the study were therefore 450 (66 chefs and 384 cooks). However, data was successfully collected from a total of 16 hotels from the studypopulationof 22 hotels with a total of 255 hotel cooks and 33 chefs from the 16 surveyed hotels successfully responding to the administered questionnaires totaling to 288 respondents, a response rate of 64%.

Measures for the study variables were adopted from well-established scales in the existing literature for validity with measures for HACCP practices being adopted from the principles of HACCP implementation by Codex Guidelines (2008) and Semos and Kontogeorgos, (2007) and employee behavioral factors from the Behavioral Adherence Model advanced by Gilling, Taylor, Kane, & Taylor, J (2001); Taylor, E. (2008). An analysis of the reliability of the multiple measures of the respective variables revealed their Cronbach's alpha coefficients exceeded the 0.7 lower level of acceptability. Hence, the internal consistency reliability of the measures used was considered to be sufficiently high and to have adequately measured the study's variables.

Analysis of the data utilized a set of descriptive statistics that provided detailed description of the study variables. To establish the statistical significance of the hypothesis, simple linear regression analysis was conducted at 95 percent confidence level ($\alpha = 0.05$). The following sections highlight the relevant results

3. Results and Discussions

3.1 Descriptive findings of the Study

3.1.1 The Nature of Hotels' Employees Behavior towards HACCP System

The respondents were asked to rate the various measures of behavioral actions exhibited by employees towards HACCP system in their hotels on a scale of 1 to 5 (where 5 = all the time and 1= not at all). The percentage responses to the questions as well as computed individual and aggregate means and standard deviations are shown in Table 1.

Table 1: Hotels' Employees Behavior towards HACCP System

| Behavioral actions exhibited by employees towards HACCP uptake | 5 | 4 | 3 | 2 | 1 | Mean | SD |
|--|----------|----------|----------|----------|----------|-------------|--------------|
| Employees blame customers for insisting on a different system of food safety other than HACCP | - | - | 12.5% | 43.8% | 43.8% | 1.69 | .683 |
| Employees see HACCP system guidelines as difficult to use | - | - | 6.3% | 37.5% | 56.3% | 1.50 | .613 |
| Employees blame lack of personal capacity for their inability to successfully execute HACCP system | - | - | 12.5% | 50.0% | 37.5% | 1.75 | .663 |
| Employees have more pressing issues to address than HACCP system execution | - | - | 12.5% | 37.5% | 50.0% | 1.63 | .697 |
| Aggregate Scores for Employee Behavioral Factors | | | | | | 1.64 | 0.664 |

Notes: N = 288, 5 = All the time, 4 = Quite Often, 3 = often, 2 = Sometimes, 1 = Not at all, SD = Standard Deviation

Source: Research Data

The results in Table 1 on the specific behavioral actions exhibited by employees towards HACCP uptake reveal that the majority (43.8%) of the employees do not at all perceive customers as insisting on a different system of food safety other than HACCP while only 12.5% perceive that customers prefer alternative systems of food safety other than HACCP. The majority of the employees (56.3%) do not at all consider HACCP system guidelines as difficult to use as opposed to a mere 6.3% who regard HACCP system guidelines as difficult to use. The large majority of employees sometimes blame lack of personal capacity for their inability to successfully execute HACCP system (50%) compared to 37.5% of the employees who don't at all consider it an issue. Finally, most of the employees (50%) regard HACCP system highly and not as a waste of their time compared to only 12.5 % of the employees who often have more pressing issues to address than HACCP system execution.

The results in Table 1 show that the aggregate mean score for employee behavioral factors is 1.64 which rounds off to 2 on the used scale 1 to 5. This implies that, overall, the employees' behavior towards HACCP system was sometimes unfavorable, with a standard deviation of 0.664. The highest unfavorable employee behavior towards HACCP system was registered where employees blame lack of personal capacity for their inability to successfully execute HACCP system (mean = 1.75; standard deviation = 0.663) while the least was recorded on employees see HACCP system guidelines as difficult to use (mean = 1.50; standard deviation = 0.613).

This finding is consistent with the results of a study by Nicola and Antonella (2016) who found that the key factors influencing HACCP applications in Italian hotels was the inaction of managers blamed on lack of training and skilled labor in the catering sector which led to an increase in food safety risks. The results of the study also support the need to make the guidelines for HACCP implementation more realistic and simple if they are to be adopted by a larger proportion of hospitality practitioners as advocated by Forte (2002) who argues that many caterers are not qualified to identify the many hazards present in their operations and they cannot be expected to produce their own individual plans.

The above findings also show the need for guidance that reflects the working conditions of hospitality operations which should be produced by professional caterers with operational experience, not scientists and enforcers, and must deal with all the possible hazards involved in producing food for immediate consumption, from the source to the customer's plate.

The study findings also collaborate with the recommendation by Tripney (2007) who suggested that effective and relevant food hygiene training could have some effect on food handlers' behavior that would ensure that proper food safety practices are attained. Effectively, HACCP must be seen as a useful management tool and not a burdensome blunt instrument designed to give enforcement officers evidence that procedures are not being followed if it has to elicit positive behavior towards its adoption among hotel employees.

3.1.2 The Extent of HACCP System Practices in the Hotels

The extent of the HACCP system practices was assessed using six measures. Respondents were asked to confirm which of the six measures of HACCP system practices were being executed by their hotels (where 2 = Yes; 1 = No). Table 6 indicates the relevant findings.

Table 2: HACCP System Practices in the Hotels

| State of HACCP System Practices | Yes | No | Mean | SD |
|--|-------|-------|-------------|--------------|
| There is a clear checklist of possible food hazards facing the hotel | 93.8% | 6.3% | 1.94 | .242 |
| There is a list of steps to be undertaken by the hotel for food safety hazard prevention | 87.5% | 12.5% | 1.88 | .331 |
| There is a clear checklist of food safety critical control points | 87.5% | 12.5% | 1.88 | .331 |
| There are set threshold levels to be adhered to for existing food safety | 81.3% | 18.8% | 1.81 | .391 |
| There exists a surveillance mechanism to ensure adherence to the established food safety systems | 56.3% | 43.8% | 1.56 | .497 |
| There are remedial measures in existence in the event of lapses to ensure adherence to food safety | 68.8% | 31.3% | 1.69 | .464 |
| Aggregate Scores for HACCP System Practices | | | 1.79 | 0.376 |
| Notes: N = 288, 2 = Yes, 1 = No, SD = Standard Deviation | | | | |

Source: Research Data

The detailed results in Table 2 show that a large proportion of the employees indicated a high incidence of existence of HACCP system practices in the star rated hotels with 93.8% indicating that there is a clear checklist of possible food hazards facing their hotels; 87.5% confirmed that there is a list of steps to be undertaken by the

hotel for food safety hazard prevention with a similar proportion of 87.5% indicating that there is a clear checklist of food safety critical control points within the hotels.

A further 81.3% of the hotel employees were of the view that there are set threshold levels to be adhered to for existing food safety while 56.3% indicated that there exists a surveillance mechanism to ensure adherence to the established food safety systems. Finally, 68.8% of the employees confirmed that there are remedial measures in existence in the event of lapses to ensure adherence to food safety within the hotels.

The results in Table 2 show that the aggregate mean score for the HACCP system practices in hotels was 1.79 which approximates 2 on the scale 1 to 2 thus indicating that the employees were generally in agreement that the listed HACCP system practices existed in their hotels at a standard deviation of 0.376. The practice of there being a clear checklist of possible food hazards facing the hotel was the highest rated (mean = 1.94; standard deviation = 0.242) and the least was observed on the statement that there exists a surveillance mechanism to ensure adherence to the established food safety systems (mean = 1.56; standard deviation = .497. These results contrast the findings by Taylor (2008) who observed a general lack of capacity food handlers in implementing the HACCP system practices.

3.2 The Effects of Employee Behavioral Factors on HACCP Systems Practices

To assess the effect the hotels' employee behavioral factors on HCCP system practices the study had the following null hypothesis:

H₀: There is norelationship between employee behavioral factors and HACCP system practices in four and five star-rated hotels in Nairobi County.

The mean scores of the hotels' employee behavioral factors (independent variable) were regressed against the aggregate mean scores of their HACCP system practices (dependent variable) using simple linear regression. The relevant results are presented in Table 3, 4 and 5.

Table 3: Results of the Goodness-of-Fit Model of the Regression of Employee Behavioral Factors against HACCP System Practices

| Model Summary | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .327 ^a | .107 | .104 | .26509 |

a. Predictors: (Constant), Mean score of employee behavioral factors towards HACCP Food System

Source: Research Data

The results in Table 3 indicate that employee behavioral factors had a moderate explanatory power on HACCP system practices as it accounted for 10.7 percent of its variability (R square= 0.107).

Table 4: Results of the Overall Significance of the Regression of Employee Behavioral Factors against HACCP System Practices

| ANOVA ^a | | | | | |
|--------------------|----------------|-----|-------------|--------|------------------------|
| Model | Sum of Squares | df | Mean Square | F | Significance (p-value) |
| Regression | 2.402 | 1 | 2.402 | 34.183 | .000 ^b |
| Residual | 20.098 | 286 | .070 | | |
| Total | 22.500 | 287 | | | |

a. Dependent Variable: Mean score of HACCP System Practices

b. Predictors: (Constant), Mean score of employee behavioral factors towards HACCP Food System

Source: Research Data

The regression results in Table 4 reveal a statistically significant relationship between employee behavioral factors and HACCP system practices since overall significance p-value = 0.000. The null hypothesis of equal population means is thus rejected indicating that the 4 and 5-star categories of classified hotels have different mean values for employee behavioral factors that differently affect their HACCP system practices. Alternatively, since the calculated value of F (34.183) is larger than the critical value of $F_{0.05}$ (which is 3.84 from the F Distribution Table with 1 and 286 degrees of freedom), the null hypothesis is rejected.

Table 5: Results of the Individual Significance of the Regression of Employee Behavioral Factors against HACCP System Practices

| Model | Coefficients ^a | | | t | Significance (p-value) |
|---|-----------------------------|------------|---------------------------|--------|---------------------------|
| | Unstandardized Coefficients | | Standardized Coefficients | | |
| | B | Std. Error | Beta | | |
| (Constant) | 1.487 | .054 | | 27.339 | .000 |
| Mean score of employee behavioral factors towards HACCP Food System | .186 | .032 | .327 | 5.847 | .000 |

a. Dependent Variable: Mean score of HACCP System Practices

Source: Research Data

Table 5 shows a moderate positive linear relationship between employee behavioral factors and HACCP system practices ($\beta = 0.327$, p-value = 0.000).

Hence, based on the above results, we reject H_{02} since p-value < 0.05 and conclude that there exists a relationship between employee behavioral factors and HACCP system practices in star rated hotels in Nairobi County. The implications of these results are that the hotels' employees' need to be encouraged not to blame customers for insisting on a different system other than HACCP and that employees need not see HACCP system guidelines as difficult to use. In addition, there is need for the hotel employees not to blame lack of personal capacity for their inability to successfully execute HACCP system and that they should give HACCP system implementation a priority instead of considering that they have other pressing matters to address than HACCP system execution.

The results of the study collaborate with the findings of Matias et al. (2013) who sees lack of skilled labor in the catering sector as the weak point that leads to increased food safety risks and argues that managers, supervisors and operators all have important roles to play in HACCP system implementation. The findings of the study also concur with Oscar (2014) who established that proper training of employees helps in the performance of the correct procedures by developing habitual behavior towards food safety.

4. Conclusions and Recommendations

This study sought to determine the influence of employee behavioral factors on HACCP system practices in four and five star-rated hotels in Nairobi County. The study established the existence of a positive relationship between employee behavioral factors and HACCP system practices thus indicating that it is important for employees to exhibit positive behavior towards customers insistence on the HACCP food safety system, not to regard HACCP systems guidelines as difficult to use and to improve on their capabilities to enhance their ability to not only successfully execute HACCP system but also regard it as one of their key duties to do so in order to safeguard food safety standards.

The results of this study have significant policy and practical implications to hospitality industry regulators and managers of star rated hotels that implement HACCP system practices. It is important for the management of the hospitality industry to ensure that employees' behaviour towards HACCP system is positive as this greatly enhances the level of HACCP system practices in the hotels.

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