

Level of Implementation of Food Sanitation Practices in School Cafeterias as Rated by UPHSL Students

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Abstract

A survey on food sanitation practices and its level of implementation as rated by 100 students from different colleges in school cafeterias from a university in the city of Binan, Laguna was done. A two-part standardized survey tool was used which included questions on demographic profile of the respondents in terms of gender and year level. The second part was a four-point Likert-scale statement, composed of eighteen (18) statements in three categories, namely: Food Handlers, Environmental Concerns, and Food Preparation, to determine the level of perception of implementation of food sanitation practices of food establishments by the select students. From the summary of findings of the study, the following conclusions were drawn: all year levels were equally represented, and there were more females than males. The rating of select students on the level of implementation of food sanitation practices in school cafeterias was high. The respondents have the same mark in the level of implementation of food sanitation practices in school cafeterias in regardless of their gender and year level.

Keywords: Food sanitation, practices , level of implementation, cafeterias

Introduction

Each year, millions of people are affected by foodborne illness, although the majority of cases are not reported and do not occur at restaurants or foodservice establishments. However, the cases that are reported and investigated help the industry understand some of the causes of illness. (ServSafe, 2012).

Food can be contaminated in many different ways. Some food products may already contain bacteria or parasites. The germs can be spread during the packaging process if the food products are not handled properly. Failure to cook or store the food properly can cause further contamination. Properly handling and preparing food greatly reduces the risks of getting foodborne illnesses (Al-Khatib, 2009).

Food safety is an important issue that has been given global attention, mainly due to several occurrences of food poisoning cases around the world that are a threat to the health of consumers. A study carried out in Al Bireh district of Palestine about the knowledge and practices of food safety by food handlers in restaurants. Results showed a high proportion of workers in the restaurants had no previous experience in other restaurants, and 63.4% had received no training on food sanitation and safety. Restaurants lacked basic conditions for food sanitation and safety. Training is needed for restaurant owners and staff to improve food handling practices and standards. (Al Khatib et al., 2009). million

Every year 11 to 13 million Canadians suffer from a foodborne illness, at an estimated annual cost of \$12 to 14 billion (Canadian Partnership for Consumer Food Safety Education, 23006). According to a Food and Drug Administration (FDA) report published in 2000, the most common foodborne illness risk factors in the food service industry are improper holding times and temperatures for potentially hazardous food, contaminated equipment and cross-contamination, and poor employee hygiene. Todd et.al (2007) stated that more recent studies have revealed that food handlers are the most important source of food contamination. This findings are highlighted by the large number of foodborne outbreaks in which infected food handlers have been implicated as the likely source (CDCP, 2001and 2008, Frankhauser et. Al 2002, Hetwood et.al 2007) .

In the Philippines incidents of food poisoning were also reported in news papers- In Caraga region most of them school children, in Surigao del Sur fell sick after eating durian candies which tested positive for staphylococcus bacteria, a bacteria commonly found in human skin. More recently students in Quezon City school were also brought to the hospital after experiencing vomiting and stomachache following the consumption of macapuno candies Jee Y. Geronimo (Rappler.com, 2015)

Poor food handling and inadequate food safety can cause infection (foodborne illness). Symptoms of foodborne illness vary, but usually include stomach problems. Foodborne illness may be severe and life-threatening, especially in young children, older adults, pregnant women, and people with weakened immune systems (Anderson JB et al., 2005).

According to WHO, in theory, food poisoning is 100% preventable. The five key principles of food hygiene are the following. First is, prevent contaminating food with pathogens spreading from people, pets, and pests. Secondly, separate raw and cooked foods to prevent cross-contamination. Third, Cook foods for the appropriate length of time and at the appropriate temperature to kill pathogens. Fourth, store food at the proper temperature. And lastly, do use safe water and cooked materials. (WHO, 2012).

Good sanitation practices in restaurants are important not only to reduce direct and cross-contaminations of food but also to increase the morale and efficiency of workers and to satisfy the customers from an aesthetic point of view.

Food handlers need proper hygiene practices concerning cleanliness of hands and work clothes and correct methods of handling food and utensils. They must not smoke cigarettes while preparing or serving food, or work in any are of a food service establishment while sick.

Buildings, fixtures, and other physical facilities of the plant shall be maintained in a sanitary condition and shall be kept in repair so that food does not become adulterated within the meaning of the act. Cleaning and sanitizing of utensils and equipment shall be conducted in a manner that protects against contamination of food, food-contact surfaces, or food-packaging materials. (b) Substances used in cleaning and sanitizing; storage of toxic materials. Cleaning compounds and sanitizing agents used in cleaning and sanitizing procedures shall be free from undesirable microorganisms and shall be safe and adequate under the conditions of use. Compliance with this requirement may be verified by any effective means including purchase of these substances under a supplier's guarantee or certification, or examination of these substances for contamination. (Texas Law of Sanitation 2005; Code of Sanitation in the Phil, 1975).

School canteens and other school food services are provided by n organization such as college for its students or staff . It is an important educational resources, providing a model that guide students food choices.

Since more students prefer to eat inside the campus, proper health and safety is a relevant issue. To properly implement these said factors that would affect one's well-being, one should be aware of the safety of the food they consume in home and public food establishments. That's why this study was conducted, to determine and ensure safety of the consumers of school canteens.

Methodology

This survey research study included 100 students from different colleges who are customers of the school cafeterias inside the University of Perpetual Help System Campus in Binan Laguna. The instrument that was used by the researcher was a two part self-made questionnaire. The first part consisted of the introductory letter of the researcher, and the demographic profile of the respondents in terms of gender and year level. The second part was a four-point Likert-scale statement, composed of eighteen (18) statements categorized into three categories, namely: Food Handlers, Environmental Concerns, and Food Preparation, to determine the level of perception of implementation of food sanitation practices of food establishments by the select UPHSL students.

To determine the level of implementation of food sanitation practices in school cafeterias the scale below was used:

Scale	Range	Verbal Interpretation
4	3.51-4.00	Very High
3	2.51-3.50	High
2	1.51-2.50	Low
1	1.00-1.50	Very Low

The questionnaire prepared by the researcher was validated by soliciting the opinions and suggestions of experts. The researcher secured a letter of endorsement from the Dean of the College of International Hospitality Management, for the establishment owners to allow the researcher to conduct the survey. After the researcher was given permission to conduct the survey, the researcher personally went to the said food establishments to give the survey questionnaires to the respondents who were available at that time. The researcher assured to the respondents that their answers will remain discreet, confidential, and used for research purposes only. The researcher spent the whole day administering the survey; the researcher went to the three different food establishments from time to time, to administer the questionnaire properly and equally. The researcher waited right after it was answered by the respondents, to collect it. The answered questionnaires were tallied, tabulated, and subjected to appropriate statistical treatments for further analysis and interpretation. The problems of the study were subjected to the following statistical treatments:

Percentage was used to describe the profile of the respondents ; Weighted Mean was used to determine the level of implementation of food sanitation practices of food establishments; Mann-Whitney U test was used to determine if there was a significant difference in the level of implementation of food sanitation practices of food establishments when the respondents are grouped according to gender; And Analysis of Variance was used to determine if there was a significant difference in the level of implementation of food sanitation practices of food establishments when the respondents are grouped according to year level.

Results and Discussion

1. Profile of the Respondents

Gender	Frequency	Percentage
Male	33	33.00
Female	67	67.00
Total	100	100.00

Year Level	Frequency	Percentage
First Year	25	25.00
Second Year	25	25.00
Third Year	25	25.00
Fourth Year	25	25.00
Total	100	100.00

Table 1 shows the frequency and percentage of the respondents according to gender, and year level. As seen from the table, there were sixty-seven (67) females and thirty (33) males among the respondents. All year levels were equally represented since twenty-five (25) respondents represent each year level. Twenty-five respondents from the first year level, twenty-five respondents from the second year level, twenty-five respondents from the third year level, and twenty-five respondents from the fourth year level.

2. Level of Implementation of Food Sanitation Practices of Food Establishments In terms of Food Handlers as Rated by Select UPHSL Students

Indicators	Weighted Mean	Verbal Interpretation	
1. Wears proper uniform. (Hairnet, Apron, Plastic Gloves, Mask)	2.71	High	4
2. Washes hands frequently with soap and water.	2.46	Low	5
3. Uses gloves and proper utensils when handling food (Not bare hands)	2.31	Low	6

4. Refrains from tasting food themselves.	2.82	High	2
5. Refrains from smoking.	2.89	High	1
6. Refrains from sneezing or coughing when handling food.	2.75	High	3
Average Weighted Mean	2.66	High	

Table 2 presents the level of implementation of food sanitation practices of food establishments in terms of food handlers.

As seen in the table, indicator number 5 which states, “refrains from smoking.” obtained the highest rank with a weighted mean of 2.89. Ranked number 2 was indicator number 4 which states “refrains from tasting food themselves.” with a weighted mean of 2.82. On the third rank was indicator number 6 which states “refrains from sneezing or coughing when handling food.” with a weighted mean of 2.75, and fourth rank was indicator number 1 which states “wears proper uniform. (Hairnet, Apron, Plastic Gloves, Masks)” with a weighted mean of 2.71, all of these indicators had an interpretation of high level of implementation.

Indicators that had an interpretation of low were indicators number 2 and 3 having weighted mean that ranged from 2.31-2.46. This suggests that food handlers rarely wash their hands with soap and water. And rarely use gloves and proper utensils when handling food.

With an average mean of 2.66, this means that the level of implementation of food sanitation practices of food establishments in UPHSL as perceived by select UPHSL students was high, in terms of food handlers.

Hertzman and Barrash (2007) reinforced this result by observing that foodservice workers are generally knowledgeable about personal hygiene when questioned but do not necessarily practice proper handling and personal hygiene when working at catering functions.

3. Level of Implementation of Food Sanitation Practices of Food Establishments In terms of Environmental Concerns

Indicators	Weighted Mean	Interpretation	Rank
1. Establishment floor is clean.	2.73	High	3
2. Tables are clean.	2.71	High	4
3. Hand-washing facilities with soap and running water are available.	2.27	Low	7
4. Establishment is free from vermin (rats and mice) and other pests.	2.75	High	2

5. All wastes and garbage are kept in properly covered containers.	2.96	High	1
6. Trashcans are located around the area.	2.68	High	5
7. Sanitary permits are posted in strategic areas.	2.34	Low	6
Average Weighted Mean	2.63	High	

Table 3 presents the level of implementation of food sanitation practices of food establishments in terms of environmental concerns.

As seen in the table, indicator number 5 which states, “all wastes and garbage are kept in properly cover containers.” obtained the highest rank with a weighted mean of 2.96. Ranked number 2 was indicator number 4 which states “establishment is free from vermin (rats and mice) and other pests.” with a weighted mean of 2.75. On the third rank was indicator number 1 which states “establishment floor is clean.” with a weighted mean of 2.73, fourth rank was indicator number 2 which states “tables are clean.” with a weighted mean of 2.71, and fifth rank was indicator number 6 which states “trashcans are located around the area.” with a weighted mean of 2.68.

Indicators with an interpretation of low were indicators 3 and 7 with weighted means that ranged from 2.27 - 2.34. This suggests that there are not enough hand-washing facilities around the food establishment, and there are not enough sanitary permits posted around the food establishments. With an average mean of 2.63, this means that the level of implementation of food establishments in UPHSL as perceived by select UPHSL students was high, in terms of environmental concerns.

In a survey study of 29 food safety or personal hygiene experts, washing hands with warm, soapy water before handling foods was ranked highest in importance (Redmond & Griffith, 2003)

4. Level of Implementation of Food Sanitation Practices of Food Establishments In terms of Food Service/Preparation

Indicators	Weighted Mean	Interpretation	Rank
1. Condiments & Sauces are stored in appropriate and covered containers.	2.89	High	2
2. Food is served newly prepared or newly cooked.	2.73	High	5
3. All displayed foods are covered properly & protected from insects, dusts, sneezes, etc.	2.74	High	3.5
4. Temperature of food products is correct and appropriate.	2.74	High	3.5
5. Plates, Spoons and Forks, and Glasswares are clean.	2.93	High	1

Average Weighted Mean	2.81	High	
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Table 4 present the level of implementation of food sanitation practices of food establishments in terms of food service/preparation.

As seen in the table, indicator number 5 which states “plates, spoons, and glasswares are clean.” obtained the highest rank with a weighted mean of 2.93. Ranked number 2 was indicator number 1 which states “condiments and Sauces are stored in appropriate and covered containers.” with a weighted mean of 2.89. On the third rank was both indicators 3 and 4 which state “all displayed foods are covered properly & protected from insects, dusts, sneezes, etc.” and “Temperature of food products is correct and appropriate.” with a weighted mean of 2.74, and fifth rank was indicator number 2 which states, “Food is served newly prepared or newly cooked.” with a weighted mean of 2.73.

All of the indicators had an interpretation of high level of implementation with weighted means ranging from 2.73-2.93

With an average mean of 2.81, this means that the level of implementation of food sanitation practices of food establishments in UPHSL as perceived by select UPHSL students was high, in terms of food service/preparation.

The result is a good indication to prevent foodborne illness which is further justified by the study of Lynch et.al., (2006) and Sanlier (2009) which stated that safe keeping of food (time/temperature), contaminated equipment, food from unsafe sources, poor personal hygiene and inadequate cooking are the most common factors contributing to foodborne disease outbreaks.

5. Summary Table for the Level of Implementation of Food Sanitation Practices of Food Establishments in UPHSL as Perceived by Select UPHSL Students

Indicators	Weighted Mean	Interpretation	Rank
Food Handlers	2.66	High	2
Environment	2.63	High	3
Food Service/Preparation	2.81	High	1
Overall Weighted Mean	3.41	High	

As shown in Table 5, for the summary level of implementation of food sanitation practices of food establishments. These show that the level of implementation of food sanitation practices of food establishments in terms of food handlers, environment, and food service/preparation were all high. This means that the respondents’ perception on the level of implementation of food sanitation practices of food establishments in terms of food handlers, environment, and food service/preparation was high.

These results are contradictory to the study carried out in Al Bireh district of Palestine about the knowledge and practices of food safety by food handlers in restaurants. Results showed a high proportion of workers in the restaurants had no previous experience in other restaurants, and 63.4% had received no training on food sanitation and safety. Restaurants lacked basic conditions for food sanitation and safety. Training is needed for restaurant owners and staff to improve food handling practices and standards. (Al Khatib et al., 2009).

6. Difference in the Level of Implementation of Food Sanitation Practices of Food Establishments When the Respondents Are Grouped According to Profile Variables

Indicators	Mean	Mann-Whitney U	z value	p value	Interpretation
Food Handlers	Male = 2.69	932.50	1.27	0.204	Not Significant
	Female = 2.66				
Environment	Male 2.52	974.50	0.96	0.337	Not Significant
	Female = 2.72				
Food Service/Preparation	Male = 2.73	991.00	0.84	0.401	Not Significant
	Female = 2.85				

0.05 level of significance

As shown in Table 6, for the difference in the level of implementation of food sanitation practices of food establishments in terms of food handlers, environment and food service/preparation when the respondents are grouped according to gender, p values of 0.204, 0.337 and 0.401, respectively were obtained which were higher than the significance level of 0.05. These show that there is no significant difference in level of implementation of food sanitation practices of food establishments when the respondents are grouped according to gender. This means that both male and female respondents have the same rating on the level of implementation of food sanitation practices of food establishments in terms of food handlers, environment and food service/preparation.

7. Difference in the Level of Implementation of Food Sanitation Practices of Food Establishments When the Respondents Are Grouped According to Year Level

Indicator	Mean	Computed F value	Interpretation
Food Handlers	Mean (1 st year) = 2.60	0.691	Not Significant
	Mean (2 nd year) = 2.69		
	Mean (3 rd year) = 2.61		
	Mean (4 th year) = 2.79		

Environment	Mean (1 st year) = 2.82 Mean (2 nd year) = 2.69 Mean (3 rd year) = 2.44 Mean (4 th year) = 2.68	1.656	Not Significant
Food Service/Preparation	Mean (1st year) = 2.99 Mean (2nd year) = 2.90 Mean (3rd year) = 2.55 Mean (4th year) = 2.78	1.854	Not Significant

0.05 level of significance

Critical F value = 2.68

As shown in Table 7, for the difference in the level of implementation of food sanitation practices of food establishments in terms of food handlers, environment and food service/preparation when the respondents are grouped according to year level, computed F values of 0.691, 1.656 and 1.854, respectively, were obtained which were lower than the critical F value of 2.68 at 0.05 level of significance. This shows that there is no significant difference in the level of implementation of food sanitation practices of food establishments in terms of food handlers, environment and food service/preparation when the respondents are grouped according to year level. This means that all groups of respondents have the same rating on the level of implementation of food sanitation practices of food establishments regardless of their year level.

Conclusions

All year levels were equally represented which included a high number of female compare to males. The perception of select UPHSL students on the level of implementation of food sanitation practices of food establishment in UPHSL was high except for presence of hand washing facilities, posting of sanitary permits in strategic area and frequently washing of hands. All groups of the respondents have the same rating of level of implementation of food sanitation practices of food establishments in UPHSL regardless of their gender or year level.

Directions for future use

Include other demographic profile that can contribute to better results and findings of this study such as age and also involve other students under medical programs. This study can be used as a basis for sanitary guidelines more particularly on food handlers to improve the perception of consumers on the level of implementation of food sanitation practices. Conduct trainings or seminars for the owners and food handlers on proper sanitation standards for school cafeterias.

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