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**EMPLOYEE HYGIENE MANAGEMENT AND FOOD SAFETY PRACTICES AMONG LOCAL RESTAURANTS IN THE PHILIPPINES**

**Abstract**

Food safety is crucial for both people and the food industry. Faulty food safety is one the most prevalent issues in the Philippines wherein food establishments serve as the main source and means, impacting inhabitant’s daily lives. This study aimed to explore the influence of employee hygiene management on food safety practices among local restaurant employees. This study was steered to focus on whether employee hygiene management contributed to increasing food safety practices among local restaurants. There were 100 employees in five (5) different local restaurants in Santo Tomas who were chosen through convenient sampling. Two (2) research tools were adapted for this research mean and Pearson r. The results of the study indicated that employee hygiene management in terms of hygiene knowledge and employee management was very high. Food safety practices in terms of personal hygiene, food hygiene and environmental hygiene were very high. Further analysis eventually showed that employee hygiene management significantly affects food safety practices among local restaurants. These were purposefully selected and modified to align with the study's objectives. The study reveals that there was a positive correlation between employee hygiene management and food safety practices among local restaurants with an *r-value 0.360* and a *p-value 0.05*. Therefore, this brought attention to the fact that employers, employees, consumers, local health units, and future researchers are determined to value the importance of employee hygiene management to maintain food safety practices in local restaurants. Thus, future researchers should focus on investigating the effectiveness of maintaining the food properly by the food handlers. However, future researchers can add information to the body of knowledge.

*Keywords: local restaurant employees, food safety practices, employee hygiene management, personal hygiene, Santo Tomas*

**INTRODUCTION**

As a matter of public health importance, food safety and hygienic practices employed in the food marketing sector, restaurants and hotels would play an important function in ensuring that safe food is available for consumption (Bamidele et al., 2015). Safe foods ensure minimal risks and hazards to human health by protecting and preventing edible substances from becoming hazardous in the presence of chemical, physical and biological contaminants that deteriorate or spoil the food (Singh & Singh, 2024; Faremi et al., 2018). Food safety is crucial for both people and the food industry. Thus, food handlers must be mindful of food safety procedures and practices (Al-Ghazali et al., 2020). In addition, Harris et al. (2021) stated that foodborne illness outbreaks frequently occur in restaurants due to employees’ failure to adequately control food risks during food processing. Regardless of education and industry experience, employees are not driven to lessen risks despite the evident lack of adequate food safety practices. Moreover, Azanaw et al. (2019) have emphasized that food safety remains a growing public health concern. According to the World Health Organization (WHO, 2019), inadequate infrastructure, insufficient education, and inappropriate practices in food handling make foodborne illnesses more dangerous in developing countries. This is brought on by bad food safety regulations, outdated sanitary standards, weak regulations, a lack of financial resources, etc.

In Ethiopia, eating and drinking at restaurants, hotels and snack bars is prevalent, especially in urban areas. These food establishments cater to large crowds preparing, handling, and serving large quantities of food. According to Alemaheyu et. al (2021), food handlers emerge as a significant source and mean of food contamination. Moreover, Lim et.al (2023) stated that the lack of proper hygiene within the food industry raises a great concern for public health. This issue arises from a variety of factors, such as insufficient inspections and monitoring, inadequate training and knowledge, and the deficiency of a regulatory framework. These factors contribute to the situation and need to be addressed to improve food safety standards in the Maldives. Additionally, Nizami et al. (2019)claimed that the lack of proper hygiene personally and environmentally plays a significant role in the prevalence of food contamination and the high incidence of foodborne illnesses. Furthermore, World Health Organization (WHO) revealed in 2022 that annually there are 600,000,000 individuals globally who fall ill, and 420,000 casualties are associated with the ingestion of contaminated food. In the United States of America, there are approximately 48,000 individuals suffer from foodborne diseases annually, leading to a thousands of hospitalizations and fatalities. Moreover, Fekadu et al. (2024) stated that the rise in the frequency of recurrence of foodborne illnesses has heightened global awareness regarding food hygiene and safety practices among food handlers.

Faulty food safety is one the most prevalent issues in the Philippines wherein food establishments serve as the main source and means, impacting inhabitant’s daily lives. In Siquijor, Philippines, food safety continues to be a pressing concern, as outbreaks of foodborne diseases lead to significant expenses for individuals, the food industry, and the overall economy. This study focused its investigation on the food handlers in food service establishments. Food handlers demonstrated satisfactory practices when it comes to cleaning and sanitizing utensils. However, some food handlers showed unacceptable practices such as eating and drinking at the workplace, preparing meals in advance, wearing jewellery or nail polish, and reporting to work despite being ill (Gador, 2021).Furthermore, in Población, Cateel Davao Oriental, Karenderyas (a tiny restaurant) are considered one of the factors why the people here are very productive, however, some perceive Karenderyas does not meet the food safety and sanitation standards (Empeño et al., 2023).

***Review of literature***

Several researchers conducted studies using food safety practices as their variable. Azanaw et al. (2023) stated that supervision of health professionals, training, and knowledge are the factors that affect food safety and handling practices of food handlers in food service establishments. In addition, a cross-sectional study by Abegaz (2022) revealed that handlers working in student cafeterias show inadequate safety practices in preparing food. Furthermore, Taha et al. (2020) revealed in their study that the root of foodborne illnesses was from the food worker due to incorrect food cooking and cooling. And also disclosed that inappropriate food handling in food services causes foodborne outbreaks; thus, ensuring food safety is a critical issue in food establishments. However, the researchers did not come across a quantitative study related to employee hygiene management linked to food safety practices specifically in the local restaurants in our municipality.

Thus, the researchers find emphasis to investigate to disclose the inconsistency of the previous studies. The objective of this study is to scrutinize the influence of employee hygiene management on food safety in local restaurants. Hence, the result of the study will primarily benefit food establishment owners, employees, consumers, and local health units.

On the other hand, the researcher wants to successfully report the study's results to our institution. Using both online and offline channels, the researchers hope to share the study's results. Finally, to expand the scope of our research into a larger community, the researchers hope to share the findings with the local restaurants in our municipality. This research aimed to determine the relationship between employee hygiene management and food safety practices in local restaurants in the Municipality of Santo Tomas, Philipines.

**STATEMENT OF THE PROBLEM**

Specifically, below are the following questions to which this study will seek answers:

1. What is the level of employee hygiene management in terms of:
	1. Hygiene knowledge; and
	2. employee management?
2. What is the level of food safety practices in terms of:

 2.1 personal hygiene;

* 1. food hygiene; and
	2. environmental hygiene?
1. There is no significant relationship between food safety practices and employee hygiene management among local restaurant employees.

**HYPOTHESIS**

 The hypothesis is tested at 0.05 level of significance stating that there is no significant relationship between employee hygiene management and food safety practices among local restaurants.

**THEORETICAL AND CONCEPTUAL FRAMEWORK**

This study was grounded in two prominent theoretical frameworks: the Theory of Planned Behavior (TBP), developed by (Ajzen, 1991) and the Health Action Model (HAM), developed by Tones (1990). The Theory of Planned Behavior was used by Pilling et al. (2008) to determine the key beliefs held by food service employees that influence their behavior in food safety, specifically hand washing, using a thermometer, and proper food handling. It was identified that these actions significantly affect public health. Furthermore, TBP was also utilized by Mahasuweerachai (2022) to delve into the variables that affect food service employee’s adherence to safety procedures, particularly with food and hygiene in food establishments. Moreover, our study is also anchored to HAM, which was also utilized by Harris et al. (2019). This model offers constructs that scrutinize how food safety affects individual health and well-being. In particular, it emphasizes the factors that significantly affect food safety, working environment sanitation, and personal hygiene training.

 A comprehensive analysis of the complex elements surrounding food safety practices is made possible by the integration of the Theory of Planned Behavior and the Health Action Model. In this study, the researchers intend to examine the significant relationship that exists between employee hygiene management and food safety practices in the Santo Tomas neighbourhood restaurant. By exploring the influence of employee hygiene management on food safety practices among local restaurants, the researchers aimed to provide insights that will create strategies to establish a healthier and safer food handling workplace environment.

 **Independent Variable Dependent Variable**

**EMPLOYEE HYGIENE MANAGEMENT**

* Employee Hygiene Knowledge
* Employee Management

**FOOD SAFETY PRACTICES**

* Personal Hygiene
* Food Hygiene
* Environmental Hygiene

***Figure 1:* The Conceptual Paradigm of the Study**

**Source: write source**

**SIGNIFICANCE OF THE STUDY**

The result of the study would primarily benefit to a variety of individuals. The results of this study could be beneficial to:

**Employer.** This study aimed to help them to come up with effective ways to assist the employees in performing food safety practices and use this research to discover the problem in hygiene management in restaurants. Thus, they will lead to the development of effective leadership and motivate employees to improve service quality and teamwork among the staff.

**Employees.** This investigation proposed to help them recognize the relevance of cleanliness in ensuring food safety practices. Thus, they will enhance their food handling and service quality and create a healthier working environment. Furthermore, this would enable them to achieve long-term success in the competitive food service industry. The findings of this study would reveal their perception of safety of the food and hygiene management among the employees in local restaurants.

**Consumers.** This study aimed to help them recognize the relevance of conscious food choices and dining experiences. Thus, they will be aware of food safety practices and employee hygiene management on restaurants.

**Local Health Unit.** This study aimed to help them recognize the relevance of the impact of employee’s well-being by ensuring food safety and hygiene management are met. Thus, they will investigate and improve health practices among local restaurants in our locality. The result of this study might help the local health units to develop local health policies pertaining to food safety and employee hygiene standards in restaurants and could also conduct an inspection protocol to assess food establishments.

 **Future Researcher.** The result of this study aimed to serve as guide and help them evaluate the influence of food safety practices and employee hygiene management in any food establishment. In addition, they would be able to provide information explore emerging issues and provide solutions.

**DEFINITION OF TERMS**

***Employee Hygiene Management*.** It refers to upholding the standards of cleanliness and safety to produce products and services in accordance with regulatory requirements (Morris, 2020). In this study, it refers to the awareness of employees in food safety and hygienic practices in food service establishments.

*Employee Hygiene Knowledge.* This refers to the knowledge of food handlers in terms of hygiene-sanitary state of the food service areas, equipment, and appliances in the catering industry (Skubina, et. al., 2019). In this study, it is utilized to determine the ability of employees to practice proper food safety handling and hygiene.

*Employee Management*.This is one of the strategies that the hospitality industry uses in order to enhance employee’s growth and contribute to the overall performance of the business (Jahmani, 2023). This pertains to initiatives that are performed by employees in local restaurants towards hygienic practices.

***Food Safety Practices*.** Food safety practices refer to cases and precautions in particular with the requisites throughout the manufacturing, procedure, conservation, dispersion, and development of food in order to guarantee its safety, wholesomeness, and suitability for human consumption (Alemaheyu et al., 2020). In this study, it refers to) a process carried out by food handlers to minimize the risk of food contamination and ensure a safe supply of food for the consumer.

*Personal Hygiene.* A self-care practice in maintaining one's physical hygiene to enhance general health and well-being (Nurudeen and Toyin, 2020). In this study, personal hygiene refers to the practices and habits individuals undertake to maintain cleanliness while preparing food.

*Food Hygiene.*Food hygiene includes the procedures and conditions that mitigate food contamination from manufacturing to consumption (Ehuwa et al., 2021). In this study, food hygiene refers to the practices and conditions necessary to ensure that food is safe for consumption.

*Environmental Hygiene***.** It involves a clean and sanitized working environment and proper waste disposal. It also refers to regular disinfection in order to keep the place free from bacteria-carrying insects and rodents. It also refers to the importance of cleaning food storage areas to lessen foodborne diseases (Wafukho et al., 2021). In this study, environmental hygiene refers to the cleaning and sanitation of tools and equipment in the food and preparation area.

**METHODOLOGY**

This chapter would cover numerous approaches employed in this study, including the research design, research subject, instruments used, data gathering procedures, and statistical technique of the data.

**RESEARCH DESIGN**

This study utilized a quantitative design incorporating both descriptive and correlational methods. Quantitative research methodology involves the study of numerical data and measurable aspects in a systematic approach to examine phenomena and their interconnections. Researchers could use this method to determine the data through statistics. Thus, it is utilized to address inquiries on relationships within measurable variables to explain, predict and control phenomena. This method helps researchers to analyze data through statistics (Kandel, 2020).

 In addition, according to the study of McCombes (2023) stated that the objective of descriptive research was to accurately and systematically describe a population, situation or phenomenon. It could answer what, where, when, and how questions, but not why questions. Moreover, this method was utilized to investigate relationships between variables without the researcher controlling or manipulating them is known as correlational research. In addition, this reflects the strength and/or direction of the relationship between two (or more) variables (Bhandari, 2023). The main objectives and interests of the study were addressed by the selected research design. Specifically, quantitative research, was applied to collect quantifiable data related to employee hygiene management and food safety practices among local restaurants. The descriptive approach was utilized to determine and describe the employee hygiene management and food safety practices of employees. This involved the mean test, as the study aimed to measure the level of employee hygiene management and food safety practices. Moreover, a correlational approach was employed to test and determine the relationship between food safety practices and employee hygiene management among local restaurant employees.

**RESEARCH SUBJECT**

The participants of this study were the employees in Five (5) local restaurants in the Santo Tomas Davao del Norte, working from 2022 up to this year 2024. Collectedly, the population size of the respondents for this study is 100 in total. Generally, Restaurant A consisted of 56 employees, Restaurant B consisted of 14 employees, Restaurant C consisted of 10 employees, Restaurant D consisted 10 employees, and lastly, Restaurant E consisted of 10 employees. Furthermore, this research employed convenience sampling, which, as described by Andrade (2021), means that the results derived from studies using convenience and purposive sampling can only be applied to the (sub)population from which the sample was obtained and not to the entire population. Nonetheless, the sample is conveniently accessible to the researchers.

**Table 1**: *Distribution of respondents*

|  |  |  |
| --- | --- | --- |
| **RESPONDENTS** | **Total No. Employee**  | **Percentage** |
| Restaurant A |  56 | 56% |
| Restaurant B | 14 | 14% |
| Restaurant C | 10 | 10% |
| Restaurant D | 10 | 10% |
| Restaurant E | 10 | 10% |
| **TOTAL** | **100**  | **100.00%** |

**RESEARCH INSTRUMENT**

Two (2) research tools were adapted for this research. These were purposely selected and modified to align with the study's objectives. Additionally, the panel validated these two-research instrument.

Employee Hygiene Management Scale (EHMS). The instrument for employee hygiene management was adapted from the Employee Hygiene ManagementQuestionnaire (EHM). The EHMS was considered a reliable instrument for measuring employee hygiene management (Yu-Gang Ji and Wen-Hwa Ko, 2021). The EHMS consists of 6 items including Employee Hygiene Knowledge (3 items) and Employee Management (3 items). Furthermore, the questionnaire was anchored on a 5-point Likert scale ranging from 5- strongly agree, 4- Agree, 3-Moderately Agree, 2- Disagree, and 1- Strongly Disagree. The following parameter limits, with their corresponding descriptions, were applied for the level of employee hygiene management.

|  |  |  |
| --- | --- | --- |
| **Parameter Limits** | **Equivalent Description** | **Interpretation** |
| 4.20-5.00 | Very High | This indicates that employees’ hygiene management is highly observable. |
| 3.40-4.19 | High | This indicates that employees’ hygiene management is observable. |
| 2.60-3.39 | Moderate | This indicates that employees’ hygiene management is moderately observable. |
| 1.80-2.59 | Low | This indicates that employees’ hygiene management is less observable. |
| 1.00-1.79 | Very Low | This indicates that employees’ hygiene management is least observable. |

**Food Safety Practice Scale (FSPS).** The instrument for food safety practices was adapted from the Food Safety Practice Questionnaire (FSPQ). The foundation of the tool on food safety practices would be this questionnaire (Rosmawati, 2015). This questionnaire comprises 11 items, including Personal Hygiene (4 items), Food Hygiene (4 items), and Environmental Hygiene (3 items). Furthermore, the questionnaire was anchored on a 5-point Likert scale ranging from 5-Strongly agree, 4- Agree, 3- Moderately Agree, 2- Disagree, and 1- Disagree. The following parameter limits, with their corresponding descriptions, would be applied to the level of food safety practices.

|  |  |  |
| --- | --- | --- |
| **Parameter Limits** | **Equivalent Description** | **Interpretation** |
| 4.20-5.00 | Very High | This indicates that food safety practices are much evident. |
| 3.40-4.19 | High | This indicates that food safety practices are observable |
| 2.60-3.39 | Moderate | This indicates that food safety practices are moderately observable. |
| 1.80-2.59 | Low | This indicates that food safety practices are less observable. |
| 1.00-1.79 | Very Low | This indicates that food safety practices are least observable. |

**DATA GARTHERING AND PROCEDURE**

Data collection is the process of gathering and measuring information on specific topics. Multiple data sources can be collected including surveys, focus groups, interviews, questionnaires, observations, and existing databases (Eckel, 2023). Additionally, according to Bhandari (2023) stated that data collection allows you to gain first-hand knowledge and original insights into your research problem.

In gathering the data, the researchers adhered to the following procedures; first the researchers sought permission to conduct the study from the Focal, Vice-President for the Research and Development Office. Right after the questionnaires were approved, the validity and reliability of the study were tested to ensure the suitability for data collection. Subsequently, after the validation process, the researchers submitted the validated questionnaires, the revised manuscript, the informed consent, and the letter of permission to conduct the study to the research committee. Upon receiving the validation certificate from the research committee, the researchers can commence their study. Furthermore, the researchers asked permission from the restaurant managers to formally execute the study. After receiving the manager’s approval, the questionnaire was distributed after the researchers conducted an orientation session. The questionnaire was physically distributed to the participants after the orientation. To ensure the efficacy and dependability of the study, the researcher would ensure that all distributed survey questionnaires are returned in full. Finally, after collecting the data, the researchers would seek assistance from designated statisticians for data analysis and tabulation.

**STATISTICAL TREATMENT OF DATA**

The statistical methods listed below will be utilized to analyze the data and assess the hypothesis at a significance level of alpha 0.05.

**Mean.** The mean or the average is a widely used and most popular method of identifying the center of distribution (Bozonelos, 2020). This is used to conclude the level of employee hygiene management and food safety practices among local restaurants. This will be addressed in research questions 1 and 2.

**Pearson r.** This method is the most often utilized for determining a linear correlation. As per Weisburd et. al., (2020), this will examine the positioning of subjects on both variables in relation to the mean and assess the degree to which the scores moved in tandem or in opposite directions relative to the mean. This will be adopted to conclude the homogeneity between employee hygiene management and food safety practices. Among local restaurants that will be addressed in research question 3.

**RESULTS AND DISCUSSION**

This chapter presents and discusses the findings and results from the data gathered. The researcher also tested the null hypotheses formulated in the study.

**Level of Employee Hygiene Management in terms of Employee Hygiene Knowledge**

Table 2 shows the level of employee hygiene management in terms of employee hygiene knowledge. The item *“I am aware of food (or catering) safety and hygiene”* has the highest mean of 4.97 with a descriptive equivalent of very high and a SD of 0.22. It is followed by the item *“I am aware of food (or catering) methods”* with a mean of 4.93 and a descriptive equivalent of very high and a SD of 0.33. The item *“I am aware of food (or catering) risks and hazards”* get the lowest mean of 4.85 but with a descriptive equivalent of very high and a SD of 0.44.

**Table 2**

*Level of Employee Hygiene Management in terms of Hygiene Knowledge*

|  |  |  |  |
| --- | --- | --- | --- |
| **Items** | **Mean** | **SD** | **Descriptive Equivalent** |
| 1. I am aware of food (or catering) safety contamination prevention and hygiene. | 4.97 | 0.22 | Very High |
| 2. I am aware of food (or catering) methods. | 4.93 | 0.33  | Very High |
| 3. I am aware of food (or catering) risks and hazards. | 4.85 | 0.44 | Very High |
| **Average**  | 4.92 | 0.33 | Very High |

The overall average of the level of employee hygiene management in terms of employee hygiene knowledge has an average of 4.92 with a descriptive equivalent of very high. This shows that employee hygiene management in terms of employee hygiene knowledge is very high. This indicator has a standard deviation of 0.33 which signifies similarities of the responses. Furthermore, the results show consistency in terms of employee hygiene knowledge as all items that indicate awareness of safety contamination, prevention, methods, and risks and hazards are highly observable. It also signifies that employee hygiene knowledge would maintain employee hygiene management to practice food safety in restaurants.

The results support the idea of Kwol, et. al., (2021) who states that the knowledge in terms of food safety of an individual who handles food encompasses their comprehension of procedures and practices involving proper food handling, methods of preparing food as well as storing. Additionally, food service employees should have substantial knowledge when it comes to food safety to be able to lessen the risk of foodborne disease outbreaks. Moreover, Taha et al. (2021) also support the idea associating with the primary concern is not about food handlers having inadequate knowledge about safe food handling but their inability to apply their knowledge to real-life situations efficiently. Furthermore, the results are anchored to the idea of Rivarola, et al. (2020) incorporating practical demonstration boosts positive attitude towards hygienic practices among food handlers with the ultimate goal of reducing foodborne hazards frequency and prevalence**.**

**Level of Employee Hygiene Management in terms of Employee Management**

Table 3 shows the level of employee hygiene management in terms of employee management. The item *“I follow the establishment’s hygiene practices such as washing hands and disinfection, clothing and appearance, wearing masks and gloves, talking as little as possible”* has the highest average of 4.95 with the descriptive equivalent of highly observable and it has a SD of 0.22. Followed by items *“I am familiar with food**(or catering) safety and sanitation and operating specifications”* and *“I strictly observed good personal hygiene before, during and after operation”* get the lowest mean of 4. 89 with the descriptive equivalent of highly observable and a SD of 0.31.

The level of employee hygiene management in terms of employee management has a total average of 4.91 with a descriptive equivalent of very high. This shows that employee management is highly observable. This indicator has a standard deviation of 0.28 which indicates the homogeneity of the responses. In addition, the results show consistency in the level of employee hygiene management in terms of employee management. The employees show highly observable management in terms of safety, sanitation, and operating specifications. Furthermore, the results also reveal that the employees are maintaining and adhering to their establishment's standard hygiene practices such as clothing and appearance and washing hands before, during and after working hours.

**Table 3.**

*Level of Employee Hygiene Management in terms of Employee Management*

|  |  |  |  |
| --- | --- | --- | --- |
| **Items** | **Mean** | **SD** | **Descriptive Equivalent** |
| 1. I am familiar with food(or catering) safety and sanitation and operating specifications. | 4.89 | 0.31 | Very High |
| 2. I follow the establishment’s hygiene practices such as washing of hands and disinfection, clothing and appearance, wearing masks and gloves, talking as little as possible. | 4.95 | 0.22 | Very High |
| 3. I strictly observed good personal hygiene before, during and after operation. | 4.89 | 0.31 | Very High |
| **Average**  | 4.91 | 0.28 | Very High |

This result was anchored to the idea of Mama and Alemu (2021) that food service employees contribute a significant impact on the production and serving of food. He also added that the likelihood of food contamination is largely based on the well-being of employees in the food service industry including their awareness of being hygienic personally and how they adhere to the rules of food hygiene. Also, the result supports the idea of Ehuwa et. al., (2021) where compliance with the establishment’s hygiene practices is highly observable. Thus, the worker of food establishments is expected to comply with the food establishments hygiene protocol. Lastly, as stated by Kandari, et. al., (2019) reveals that most of food service employees had adequate awareness in food safety specifically in personal hygiene.

**Summary on the Level of Employee Hygiene Management**

Table 4 presents the summary on the level of employee hygiene management. The indicator “Hygiene Knowledge” gt the highest mean of 4.92 with a SD of 0.33 and the indicator “Employee Management” has the lowest mean of 4.91 with a SD of 0.28. These indicators both have a descriptive level of very high.

**Table 4.**

*Summary on the Level of Employee Hygiene Management*

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicators** | **Mean** | **SD** | **Descriptive Equivalent** |
| 1. Hygiene Knowledge |  4.92 | 0.33 | Very High |
| 2. Employee Management | 4.91 | 0.28 | Very High |
| **Overall**  | 4.92 | 0.31 | Very High |

 As presented in the table, the overall mean of employee hygiene management is 4.92 which has a descriptive equivalent of very high. It positively signifies that employee hygiene management in local restaurants is highly observable. These indicators have a standard deviation of 0.31 which indicates homogeneity of the responses. The given result suggests a positive indication that employees of local restaurants possess a higher level of hygiene knowledge, which means that they possess a higher level of food safety and hygienic practices in food service establishments. It also implies that employees have good initiative when it comes to upholding hygienic practices in the workplace.

This result was anchored to the study of Al- Ghazali (2021) which expound the idea that adequate education about food safety knowledge and hygiene is significant and crucial among food handlers. Additionally, he stated that adequate knowledge in the food industry should be linked with proper hygienic practices in order to lessen the cases of foodborne diseases specifically originating from food establishments. Additionally, it supports the idea of Girmay, et. al., (2020) who stated that training positively affects employee’s understanding of making sure that the cleanliness and condition of food establishments hygienically and safety practices decrease the risk of foodborne diseases. Therefore, food handlers are expected to possess a high level of expertise and demonstrate an ability to deal with food in hygienic manner (Musakala, et. al., 2022)

**Level of Employee’s Food Safety Practices in terms of Personal Hygiene**

Table 5 shows the level employee’s food safety practices in terms of personal hygiene. The item *“I wash hands with soap and water after went to toilet”* has the highest mean of 4.98 with the descriptive equivalent of very high and a SD of 0.14. It is followed by the item *“I wash hands when touching meat/raw chicken”* with a mean of 4.97 and a SD of 0.17. On the other hand, the item *“I wash hands with soap and water after touching my face (such as nose, ears and mouth)”* got the lowest mean of 4.89 but with a descriptive equivalent of very high and has a SD of 0.14.

**Table 5**

*Level of Food Safety Practices in terms of Personal Hygiene*

|  |  |  |  |
| --- | --- | --- | --- |
| **Items** | **Mean** | **SD** | **Descriptive Equivalent** |
| 1. I wash hands with soap and water after touching my face (such as nose, ears and mouth). | 4.89 | 0.31 | Very High |
| 2. I wash hands when touching meat/raw chicken. | 4.97 | 0.17 | Very High |
| 3. I wash hands with soap and water after went to toilet. | 4.98 | 0.14 | Very High |
| 4. I cover my hair during preparation. | 4.96 | 0.20 | Very High |
| **Average** | 4.95 | 0.21 | Very High |

The level of employee’s food safety practices in terms of personal hygiene has an average of 4.95 with a descriptive equivalent of very high. This means that the food safety practices of employees in terms of personal hygiene are highly observable. This indicator has a standard deviation of 0.21 that illustrates signifies homogeneity of the responses. Furthermore, the results show consistency in terms of employee’s personal hygiene as all items are highly observable.

The result was anchored to the study of Tuncer, et. al., (2020) that food handlers are responsible for applying hygienic practices as the most efficient way to lessen the risk of food contamination in restaurants. Among this variety of practices hygienically, the most effective method is hand hygiene which aids in preventing foodborne diseases in comparison to ensuring cleanliness and sanitization of places that come in contact with food. Moreover, Nyawo et al. (2020) stated that food handlers emphasize the vital role of ensuring safety and hygienic practices towards food including personal hygiene. This involves maintaining cleanliness at work, keeping your hair tidy and covered, regularly washing your hands, and maintaining a clean working environment. Furthermore, personal hygienic practices guarantee the production of harmless food for consumers (Hashanuzzaman, et. al., 2020).

**Level of the Food Safety Practices in terms of Food Hygiene**

Presented in table 6 is the employee’s food safety practices in terms of food hygiene. As shown in the table, the item *“I clean the kitchen area right after cleaning raw meat prior to cooking process”* has the highest mean of 4.98 with a descriptive equivalent of very high and has a SD of 0.14. It is followed by the three items *“I clean raw meat first before cooking”*, *“I wash hands before handling food”*, and *“I always cover cooked foods”* with a mean of 4.96 which has descriptive equivalent of very high and has a SD of 0.20. The item that has the lowest mean of 4.93 is the item *“I wash hands before handling food”* but it has a positive descriptive equivalent of very high with a SD of 0.52.

 The level of employee’s food safety practices in terms of food hygiene has an average of 4.96 with a descriptive equivalent of very high. This shows that the employee’s food safety practices in terms of food hygiene is highly observable. Food hygiene has a standard deviation of 0.26 that indicates the uniformity of the responses of employees.

**Table 6**

*Level of the Food Safety Practices in terms of Food Hygiene*

|  |  |  |  |
| --- | --- | --- | --- |
| **Items** | **Mean** | **SD** | **Descriptive Equivalent** |
| 1. I clean raw meat first before cooking. | 4.96 | 0.20 | Very High |
| 2. I clean the kitchen area right after cleaning raw meat prior to cooking process. | 4.98 | 0.14 | Very High |
| 3. I wash hands before handling food. | 4.93 | 0.52 | Very High |
| 4. I always cover cooked foods. | 4.96 | 0.20 | Very High |
| **Average** | 4.96 | 0.26 | Very High |

It was anchored to the study of Klingbeil (2022) stated that the understanding of food handlers towards food security and their willingness to adhere to the rules and regulations relating to food safety plays a crucial role in improving safety practices to be able to serve safe food to consumers. Additionally, it supports the idea of Ndu, et. al., in their study wherein findings revealed that food hygiene management had a considerable and strong direct association with safe food production. Furthermore, Kamboj, et.al., (2020) stated that creating a social and physical environment that promotes the utilization of proper food handling techniques can also help to enhance food hygiene standards.

**Level of the Food Safety Practices in terms of Environmental Hygiene**

 Table 7 shows the level of food safety practices in terms of environmental hygiene. The item *“I wash the food utensils using sanitizer”* has the highest average of 4.95 with a descriptive equivalent of highly observable and a SD of 0.30. Followed by item *“I wash the cooking area using sanitizer”* which has an average of 4.94 with a descriptive equivalent of highly observable and a SD of 0.37. Lastly, item *“I clean the refrigerator once every two weeks”* has the least average of 4.89 with a descriptive equivalent of highly observable and a SD of 0.35.

**Table 7**

*Level of the Food Safety Practices in terms of Environmental Hygiene*

|  |  |  |  |
| --- | --- | --- | --- |
| **Items** | **Mean** | **SD** | **Descriptive Equivalent** |
| 1. I wash the food utensils using sanitizer. | 4.95 | 0.30 | Very High |
| 2. I clean the refrigerator once every two weeks. | 4.89 | 0.35 | Very High |
| 3. I wash the cooking area using sanitizer. | 4.94 | 0.37 | Very High |
| **Average** | 4.93 | 0.34 | Very High |

The level of food safety practices in terms of environmental hygiene has a total average of 4.93 with a descriptive equivalent of highly observable. This shows that the environmental hygiene is very high. This indicator has a standard deviation of 0.34 which indicates the similarity of the responses. Furthermore, the results show consistency in the level of food safety practices in terms of environmental hygiene.

This result is anchored to the idea of Wafukho, et. al., (2021) who stated that to reduce food-borne illnesses, cleaning of food storage areas should be done. He also added that to ensure compliance for safe food production and service, food handlers should use environmental hygiene practices in food establishments. Additionally, Cumhur (2021) stated that the cooking area where food production happens, and the hygiene and usage patterns of tools and equipment utilized in the preparation, cooking, and service of food and beverage significantly affect food safety. Furthermore, Odipe, et. al., (2019) stated that sanitation regulations and enforcement play vital role in ensuring good environmental sanitation condition.

**Summary on the Level of the Food Safety Practices**

Shown in table 8 is the summary of the level of food safety practices. Based on the table, the indicator “Food Hygiene” get the highest overall mean of 4.96 with a SD of 0.26 while the indicator “Environmental Hygiene” get the lowest overall mean of 4.93 with an SD of 0.34. These indicators have both a descriptive equivalent of very high. In addition, as shown in the table, the level of food safety practices has an overall mean of 4.95 with a descriptive equivalent of very high. This positively indicates that the food safety practices of employees in local restaurants are highly observable. These indicators resulted to a standard deviation of 0.27 that indicating the consistency of responses

**Table 8**

*Summary on the Level of the Food Safety Practices*

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicators** | **Mean** | **SD** | **Descriptive Equivalent** |
| 1. Personal Hygiene | 4.95 | 0.21 | Very High |
| 2. Food Hygiene | 4.96 | 0.26 | Very High |
| 3. Environmental Hygiene | 4.93 | 0.34 | Very High |
| **Overall**  | 4.95 | 0.27 | Very High |

This result supported the idea of Wafukho, et. al., (2021) who stated that to ensure safe food production and service, food handlers should practice hygiene measures involving being hygienic when it comes to food, personally and environmentally. In addition, this result is also supported by the idea of Alemaheyu (2020) who stated that strict adherence to food safety guidelines is largely dependent on food handlers understanding and food handling strategies. Furthermore, it is essential to practice food safety in order to ensure the security of food and lessen the risk of food contamination resulting in food poisoning. (Nyawo, et.al, 2020).

**Significance of the Relationship Between Employee Hygiene Management and Food Safety Practices**

 Presented in table 9 is the relationship between employee hygiene management and food safety practices of employees among local restaurants.

**Table 9**

*Significance of the Relationship Between Employee Hygiene Management and the Food Safety Practices*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables Correlated** | **r** | **p-value** | **Decision on Ho** | **Decision on Relationship** |
| Employee Hygiene Management and the Food Safety Practices | 0.360 | 0.000 | Rejected | Significant |

 Based on the table above, the employee hygiene management and food safety practices among employees of local restaurants has a correlation. Specifically, an overall value of 0.360 and a p-value of less than 0.05 means that the null hypothesis is rejected. The correlation between the two variables is a weak positive correlation according to the overall value. In addition, the probability value shows that there is a significant relationship between the two variables. These results emphasize the valuable relationship between employee hygiene management and food safety practices among employees of local restaurants. Based on the result presented above, employee hygiene management significantly influences their food safety practices. Conversely, food safety practices significantly affect employee hygiene management among employees of local restaurants.

This outcome is anchored to the idea of Kamboj et al. (2020) who stated that reinforcement of the food handler’s hygiene notes in the working environment is crucial in sustaining the proper food handling practices. Furthermore, various research studies emphasize that food handler’s understanding towards food safety practices and hygiene is crucial in order to ensure that there is a reduced risk of food contamination by executing proper food preparation and food processing for safe consumption and lessen the risk of foodborne illnesses (Tuglo et. al, 2021). Furthermore, Sanlier, et. al., (2020) stated that as food handlers and customers are the last points of contact with food, foodborne disease outbreaks are greatly influenced by their understanding of and adherence to food safety practices. He also added that food handlers need to learn about safe food handling procedures.

**SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

This manuscript presented the summary, it also displays the conclusions and recommendations.

**SUMMARY**

The major findings of the study were the following:

1. For the level of employee hygiene management, hygiene knowledge had the highest average of 4.92 with a descriptive equivalent of very high and a SD of 0.33. It was followed by employee management which had a mean of 4.91 with a descriptive equivalent of very high and a SD of 0.28. Furthermore, it had an overall mean of 4.92 and an overall SD of 0.31 with a descriptive equivalent of very high.
2. For the level of food safety practices, food hygiene had the highest mean of 4.96 and a SD of 0.26 with a descriptive equivalent of very high. It was followed by personal hygiene with an average of 4.95 and a SD of 0.21 with a descriptive equivalent of 0.21. On the other hand, environmental hygiene had the lowest mean of 4.93 and a SD of 0.34 with a descriptive equivalent of very high.
3. The relationship between employee hygiene management and food safety practices showed a low positive correlation with an an r-value of 0.360 and a p-value of 0.000 denotes the rejection of the null hypothesis.

**CONCLUSION**

Based on the findings of the study, the following statements are constructed:

1. The level of employee hygiene management are very high. This indicates that employee hygiene management among local restaurants was highly observable. The results of this study show that employee hygiene management greatly influences food safety practices among local restaurants. It is one of the important factors resulting in a higher level of food safety practices. This indicates that the local restaurants place a significant emphasis on employee hygiene knowledge and employee management, which are crucial factors in maintaining hygiene standards within the workplace. Regarding the two factors, hygiene knowledge contributes to enhancing employee hygiene management to practice safe food handling in food service establishments.
2. The level of food safety practices is very high. This means that the food safety practices of employees in local restaurants are highly observable. It indicates that a higher level of food safety practices depends on the employee’s awareness and demonstrated personal hygiene, food hygiene, and environmental hygiene. Food safety practices contribute to successful, efficient, and safe food preparation and handling, which elevates the establishment's standing as a restaurant.
3. There is a significant relationship between employee hygiene management and food safety practices. This means, the higher level of employee hygiene management, the higher the food safety practices. Based on the results of this study, the relationship between employee hygiene management and food safety practices was found significant.

**RECOMMENDATIONS**

 Based on the findings and conclusions of this study, the following recommendations are recommended:

1. The employer should assist the employee in performing food safety practices to maintain service quality and teamwork with the staff.
2. Based on the result, the level of employee management is very high. The employee must maintain safety and sanitation in handling food. Thus, they will sustain their adherence to their establishment standard hygiene practices such as clothing, appearance and washing hands before, during and after working hours to provoke the presence of foodborne bacteria.
3. Consumers should be conscious in terms of their food choices and dining experience in the restaurant. They should ensure that they are knowledgeable about how their food is being prepared. Furthermore, they should strive to maintain the optimal quality of service they desire.
4. The summary suggests a positive indication that employees of local restaurants possess a higher level of hygiene knowledge, which means that they possess a higher level of food safety and hygienic practices in food service establishments. Thus, the local health unit should develop local health policies pertaining to food safety and employee hygiene standards in restaurant and could also conduct an inspection protocol to assess food establishments.
5. The result shows that there is a significant relationship between employee hygiene management and food safety practices. Thus, future researchers must focus on investigating the effectiveness of handling food properly by food handlers. However, future researchers can add information to the body of knowledge.

**Disclaimer (Artificial intelligence)**

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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Details of the AI usage are given below:

1.

2.

 3.

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