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Food Safety Practices among Employees of Casual Dining Restaurants

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Abstract. Food handlers play a crucial role in ensuring food safety, as mishandling and negligence can lead to food contamination and the transmission of diseases. This study determined the food safety awareness and observance among employees of casual dining restaurants in Bacolod City, Negros Occidental in four key areas: food sourcing, preparation, handling, and storage. Utilizing a descriptive correlational research design, the study employed a questionnaire comprising 24 statements, each based on a 4-point Likert scale, to measure both the level of awareness and the extent of observance. A total of 19 casual dining restaurants participated, with consent from the relevant agencies secured prior to data collection. Convenience sampling was employed due to the fast-paced nature of the food service industry, yielding 422 employee respondents. The results revealed that most participants were aged 18-30, with 63% being male. The majority worked in operational roles such as front-of-house (42%) and kitchen staff (38%). Most participants (68%) had over two years of work experience. Findings indicated that participants rated their food safety awareness as "Very Aware". Observance levels were rated as "Very Large Extent", demonstrating adherence to food safety. Significant differences were found in observance levels based on age and years of experience, indicating that older and more experienced employees presented better observance. A significant, positive relationship was also identified between awareness and observance. This means that the higher the level of awareness, the more likely food handlers observe food safety practices. The study recommends regular refresher training and collaboration with government agencies and academic institutions to enhance food safety practices further. Future researchers could conduct observational studies to validate these findings. They could also explore additional demographic factors and extend studies to other dining establishments.

Keywords: Food handling; Food preparation; Food safety awareness; Food storage; Food sourcing; Observance of food safety practice.

1.0 Introduction

Food and water contamination lead to approximately 1.8 million deaths annually worldwide, making it a significant public health concern and a persistent threat to the socio-economic development of many countries. In the Philippines, food- and waterborne diseases (FWBDs) are among the leading causes of diarrhea and rank prominently among the top causes of morbidity and mortality (Department of Health, 2020). To address these concerns, the Food and Drug Administration of the Philippines continues to implement and enforce food safety regulations to ensure that restaurants serve food that is both safe and of high quality.

The Food Safety Act of 2013 (2015) defines food safety as the assurance that food will not cause harm to consumers when prepared and consumed according to its intended use. For food handlers, this encompasses practices such

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as handwashing, personal and work hygiene, proper attire, illness management, training, and workplace safety. The role of food handlers is critical, as their mishandling of food or failure to follow established protocols can lead to food contamination and outbreaks of foodborne illness. In developing countries like the Philippines, where enforcement of safety protocols may be inconsistent, public concern regarding food safety remains evident.

In recent years, food safety awareness among food handlers has gained increased attention, particularly in light of global health concerns and the growing emphasis on public hygiene. You et al. (2023) found that those individuals who frequently acquired food safety information online showed better risk perception and preventive behavior. The lack of such information, however, led to poor decision-making and inappropriate responses to food safety risks.

Numerous studies have identified gaps in food safety knowledge among handlers, particularly in areas such as handwashing, temperature control, and cross-contamination (Azanaw et al., 2020; Alemayehu et al., 2021; Mussama, 2021). Awareness related to food sourcing has also been shown to influence safety outcomes. Halabi et al. (2023) found that employees trained in sourcing practices adhered more closely to food safety standards. Booth et al. (2021) and Van Bussel et al. (2022) supported this by linking traceability and sustainable sourcing to heightened accountability and safer practices. Similarly, awareness in food preparation and storage remains critical. Research underscores the importance of knowledge on foodborne illnesses, proper cooking temperatures, and hygienic handling techniques (Kanarat et al., 2020). Chauhan et al. (2024) and Afriyie et al. (2022) observed that gaps in food storage knowledge—particularly regarding temperature control and the classification of perishable goods—persist across both developing and developed nations.

In the context of the Philippines, studies by Gamido et al. (2024) and Pontino (2024) found that food handlers in certain cities in the Philippines possess general knowledge of food safety, but often fall short in areas such as preventing cross-contamination and proper food storage. However, these studies were region-specific and may not reflect food safety awareness and practices nationwide. Alemayehu et al. (2021) emphasized the importance of spreading awareness to cultivate the right attitudes and practices across all food handlers. The studies by Ncube et al. (2020) and Yenealem (2020) demonstrated that favorable food handling practices are more likely to occur among food handlers who have a better understanding than those who do not.

Given the global and local findings, as well as the geographic limitations of existing Philippine studies, this research assessed the level of awareness and extent of observance of food safety practices among food handlers in casual dining restaurants in Bacolod City, Negros Occidental. Specifically, it focuses on four core areas of food safety: food sourcing, preparation, handling, and storage. Through this, the research identified key knowledge-practice gaps and provided future interventions that promote safer food environments in the region.

2.0 Methodology

2.1 Research Design

This research employed a descriptive-correlational research design. Descriptive research was employed to describe the various socio-demographic variables examined in this study, as well as the level of awareness and the extent of adherence to food safety practices. Correlational research was employed to identify the differences in awareness levels and food safety practices among participants grouped by profile, as well as the relationship between awareness and the extent of observance.

2.2 Research Locale

The study covered the casual restaurants in Bacolod City, Negros Occidental, Philippines.

2.3 Research Participants

The study only covered employees of the homegrown casual dining restaurants listed by the Bacolod City Government. The study employed convenience sampling due to the time constraints of the study and the fast-paced nature of the food service industry. Since the population size is unknown, the minimum number of responses required to achieve a 95% confidence level was 386. Participants should be of legal age, spend at least 90% of their time working in either dining or kitchen areas, and have been employed at the restaurant for a minimum of 3 months. Additionally, employees must have exposure to at least two out of the four areas: preparation, sourcing, storage, and handling. In this study, employees from casual dining restaurants in Bacolod City who met the criteria and expressed interest were invited to participate.

Out of the 171 restaurants in Bacolod City, only 19 establishments expressed their intent to participate in the study. Additionally, the study included 422 responses that met all the inclusion criteria.

2.4 Research Instrument

To address the objectives, a researcher-designed survey questionnaire was used and distributed to qualified participants. Only the participants who provided consent were asked to answer the survey questionnaires. The questionnaire included two sections. The first section solicited information about the profiles of employees at casual dining restaurants. This included age, sex, positions, area of exposure, and number of years employed. The second section assessed the awareness level and extent of observance. Table 1 presents the various constructs that measure specific areas of food safety, derived from multiple literature sources.

Table 1. *Variables Measured by Each Statement*

Variables	Statement	Source
Food Sourcing	1, 2, 3, 4, 5	The BC Cook Articulation Committee (2015)
Food Preparation	6 and 7	Letuka et al. (2019)
	8	Ulusoy and Colakoglu (2018)
	9, 10, 11	Borbon and Tolentino (2020)
	12 and 13	Mengeda et al. (2020)
Food Storage	14 and 15	Ulusoy and Colakoglu (2018)
	16	Borbon and Tolentino (2020)
	17, 18, 19	Ulusoy and Colakoglu (2018)
Food Handling	20	Letuka et al. (2019)
	21	Borbon and Tolentino (2020)
	22	Alsultan et al. (2023)
	23 and 24	Putri and Susanna (2021)

A 4-point Likert scale was utilized to measure both the level of awareness and the extent of observance. Table 2 presents the interpretation of each rating according to the measured variable.

Table 2. *Likert Scale Interpretation*

Rating	Level of Awareness	Extent of Observance
1	Very Poor	No Chance to Observe
2	Poor	Sometimes
3	Good	Often
4	Excellent	Always

The survey questionnaire underwent validation using the Good and Scates method, as assessed by a panel of experts. It passed the evaluation with a score of 4.37. Additionally, a pilot test was conducted to assess the questionnaire's reliability using Cronbach's alpha. The pilot test initially involved 34 restaurants that were excluded from the primary survey. Participants were required to complete the Agency and Informed Consent form before the reliability test was administered. Of the 34 restaurants, only six agreed to participate, resulting in 79 respondents. The questionnaire demonstrated strong internal consistency, with Cronbach's alpha scores of 0.88 for the level of awareness and 0.84 for the extent of observance.

2.5 Data Gathering Procedure and Analysis

Data gathering started upon the issuance of the ethics certificate. Agency consent was obtained through an invitation letter distributed to all restaurants, pending approval from the owner or general manager. This also included a section where the manager filled out information related to the profile of their restaurant, which helped answer the second objective of this study. Informed consent was personally administered to each restaurant employee by the researcher before distributing the survey questionnaire. The researcher provided an outline of the study, including its benefits and risks, while emphasizing confidentiality and anonymity of responses.

The survey instrument was designed to be completed within 15 to 20 minutes. Following completion, the researcher ensured that all questions were answered and that the survey forms were appropriately filed. The data was encoded in an Excel sheet and was encrypted with a password. Data will be retained for at least 2 years after the survey was administered. Unused data and invalid survey questionnaires were immediately disposed of. Physical copies were shredded, and digital copies were permanently deleted. Various statistical tools were used in the study to answer the research objectives. To determine the profile of the employees and casual dining restaurants, frequency and percentage were used. To identify the employees' level of awareness and extent of

observance, frequency and mean ratings were utilized. Table 3 exhibits the mean ranges used to interpret the level of awareness and extent of observance.

Table 3. *Mean Range Interpretation*

Mean Range	Level of Awareness	Extent of Observance
1.00 - 1.49	Not at all Aware	Very Little Extent
1.50 - 2.49	Less Aware	Little Extent
2.50 - 3.49	Aware	Large Extent
3.50 - 4.00	Very Aware	Very Large Extent

To evaluate the differences in awareness and observance of food safety practices when grouped by profile, a one-way ANOVA test was used. To determine the relationship between food safety awareness and practices among the sampled employees, the Chi-square test or Spearman's Rho correlation was used. This study utilized SPSS as its statistical software.

2.6 Ethical Considerations

Data collection commenced only upon securing Ethics clearance. Prior to gathering sensitive information, participants received a comprehensive briefing covering the study's purpose, their participation, associated benefits and risks, confidentiality measures, and data usage protocols. Participation was entirely voluntary, and participants could withdraw without justifying. No form of coercion or threats was employed throughout the data collection phase. Participants were assured of the confidentiality of responses provided by the sampled restaurants.

To mitigate the risk of power outages, participants completed the questionnaire outside the restaurant premises. They were assured that their responses would remain confidential and would not be disclosed to their employers or managers. Responses were aggregated, meaning that individual restaurant data were not shared with relevant government agencies or the public. Access to the collected data was restricted to the researcher, authorized data encoders, and the statistician. Additionally, a Non-Disclosure Agreement was provided to the parties handling the data. Access to the data encoders ended as soon as all the data was entered into the file. The statistician's access was terminated immediately after the paper was published. Any additional risks encountered during the research process were promptly addressed through the implementation of appropriate mitigation measures.

3.0 Results and Discussion

3.1 Profile of Participants

In terms of age, the majority (49%) are aged 18-30, which is the entry-level age range for many individuals. In terms of sex, most of the restaurant workers were male, accounting for 63% of the total participants. For job positions, the majority (42%) work in front-of-house roles, followed by kitchen staff at 38%. For years of employment, 42% of the participants have been employed for 2 to 5 years.

3.2 Level of Awareness and Extent of Observance of Food Sourcing Practices

The participants rated their level of awareness and extent of observance of food sourcing practices as 3.77 (Very Aware) and 3.66 (Very Large Extent), respectively (Table 4).

Table 4. *Level of Awareness and Extent of Observance of Food Sourcing Practices*

Statement	Level of Awareness		Extent of Observance	
	Mean	Interpretation	Mean	Interpretation
1. All perishable and nonperishable food ingredients are sourced from trusted suppliers (The BC Cook Articulation Committee, 2015).	3.73	VA	3.60	VLE
2. The business provides the correct ingredient specifications to ensure consistent food quality and flavor (The BC Cook Articulation Committee, 2015).	3.78	VA	3.71	VLE
3. The restaurant maintains sufficient ingredients to prevent unwanted spoilage and avoid unavailable menu items (The BC Cook Articulation Committee, 2015).	3.75	VA	3.63	VLE
4. The procured ingredients arrive on time to avoid delays in the food production (The BC Cook Articulation Committee, 2015).	3.78	VA	3.71	VLE
5. The quality and quantity of ingredients are being monitored constantly (The BC Cook Articulation Committee, 2015).	3.83	VA	3.64	VLE
Overall Mean	**3.77**	**VA**	**3.66**	**VLE**

Note: Level of Awareness: 1.00 - 1.49 Not at all Aware (NA), 1.50 - 2.49 Less Aware (LA), 2.50 - 3.49 Aware (A), 3.50 - 4.00 Very Aware (VA);
Extent of Observance: 1.00 - 1.49 Very Small Extent (VSE), 1.50 - 2.49 Small Extent (SE), 2.50 - 3.49 Large Extent (LE), 3.50 - 4.00 Very Large Extent (VLE)

All statements on the level of awareness were rated as "Very Aware" and on the extent of observance as "Very Large Extent". For the level of awareness, the statement on the constant monitoring of the quality and quantity of ingredients had the highest mean rating of 3.83. The statement on sourcing all perishable and nonperishable ingredients from trusted suppliers had the lowest mean rating of 3.73. For the extent of observance, the statement on the business providing the correct ingredient specification and the on-time arrival of ingredients to prevent delays in the food production had the highest mean rating of 3.71 for both. The statement on sourcing food ingredients from trusted suppliers had the lowest mean rating of 3.60.

The findings suggest a consistently high level of awareness and observance among food handlers regarding food sourcing practices. Participants demonstrated a strong understanding of the importance of procuring ingredients that meet the restaurant's established quality and safety standards. This awareness is evident in their recognition of the need to source from trusted suppliers, maintain proper inventory levels, and ensure timely delivery of ingredients. The adherence to specified ingredient standards reflects the food handlers' commitment to upholding product consistency, which is essential for preserving the restaurant's brand identity and customer satisfaction. Moreover, their familiarity with inventory and supply chain processes highlights the alignment between frontline staff and management goals. This alignment ensures that food production is uninterrupted, waste is minimized, and high-quality ingredients are consistently available.

This highlights the effectiveness of current training and operational procedures in promoting food safety, supply chain efficiency, and quality control. Restaurants that invest in educating their staff about sourcing protocols are more likely to maintain consistent product quality and meet customer expectations. Furthermore, the strong alignment between food handlers and sourcing standards suggests that frontline employees can play a strategic role in quality assurance. Their ability to identify, handle, and monitor ingredients that meet specific criteria reduces operational risks. This can ultimately lead to improved customer satisfaction, reduced costs, and a stronger brand reputation. Also, maintaining partnerships with reliable suppliers is not only a managerial concern but also a shared responsibility throughout the food service hierarchy. Empowering food handlers with knowledge and accountability supports a culture of compliance and continuous improvement.

The findings reflect a proactive effort to meet quality and safety standards, thus minimizing health risks associated with contaminated or substandard ingredients (Machado Nardi et al., 2020). Their commitment extends to sound inventory management, which prevents both overstocking and understocking, reducing waste and cost inefficiencies while ensuring menu availability and customer satisfaction (Gill, 2021). The active implementation of inventory and supply chain protocols across food sourcing activities shows a deliberate effort to uphold quality benchmarks and guarantee ingredient availability. Additionally, the use of food safety management systems, such as HACCP, plays a key role in maintaining these standards (Lee, 2021). Practices such as setting ingredient specifications ensure that only products meeting defined criteria for safety, composition, and consistency are used (Gilbert & Prusa, 2021), which contributes to delivering a consistent flavor and overall customer experience. These sourcing and inventory practices not only promote food safety and efficiency but also reflect a strong ethical commitment to customer well-being and satisfaction (Okpala & Korzeniowska, 2021).

3.3 Level of Awareness and Extent of Observance of Food Preparation Practices

The participants rated their level of awareness and extent of observance of food preparation practices as 3.83 (Very Aware) and 3.64 (Very Large Extent), respectively (Table 5). All statements on the level of awareness were rated as "Very Aware" and on the extent of observance as "Very Large Extent". Regarding the level of awareness, the statement on the use of fully sanitized and clean food equipment received the highest mean rating of 3.85. The statement on minimizing food contamination through proper handwashing had the lowest mean rating of 3.79. For the extent of observance, the statement on ventilation and well-illuminated food preparation areas had the highest mean rating of 3.67. The statement on the proper washing of fresh produce to minimize food-related illnesses had the lowest mean rating of 3.61.

Table 5. *Level of Awareness and Extent of Observance of Food Preparation Practices*

Statement	Level of Awareness		Extent of Observance	
	Mean	Interpretation	Mean	Interpretation
1. Proper handwashing before work reduces the risk of food contamination (Letuka et al., 2019).	3.79	VA	3.66	VLE
2. Proper cleaning and sanitation of utensils for food preparation (Letuka et al., 2019).	3.83	VA	3.66	VLE
3. Cooked and uncooked foods are prepared with separate equipment (Ulusoy & Colakoglu, 2018).	3.84	VA	3.65	VLE
4. The food preparation area is well-lit and ventilated (Borbon & Tolentino, 2020).	3.84	VA	3.67	VLE
5. Food equipment is clean and sanitized, without food debris, molds, dirt, and dust (Borbon & Tolentino, 2020).	3.85	VA	3.63	VLE
6. All staff on duty are always wearing clean and complete uniforms (Borbon & Tolentino, 2020).	3.84	VA	3.62	VLE
7. Thorough washing of fruits and vegetables is performed to reduce the risk of foodborne diseases (Mengeda et al., 2020).	3.83	VA	3.61	VLE
8. The shelf life of the ingredients is consistently checked before use (Mengeda et al., 2020).	3.84	VA	3.65	VLE
Overall Mean	**3.83**	**VA**	**3.64**	**VLE**

Note: Level of Awareness: 1.00 - 1.49 Not at all Aware (NA), 1.50 - 2.49 Less Aware (LA), 2.50 - 3.49 Aware (A), 3.50 - 4.00 Very Aware (VA);
Extent of Observance: 1.00 - 1.49 Very Small Extent (VSE), 1.50 - 2.49 Small Extent (SE), 2.50 - 3.49 Large Extent (LE), 3.50 - 4.00 Very Large Extent (VLE)

The findings highlight a strong awareness and consistent observance of food preparation practices among food handlers. Participants demonstrated an understanding of important hygiene protocols, particularly in the areas of hand hygiene, equipment sanitation, and the physical layout of the kitchen. This reflects both the effectiveness of the training and the commitment to safety protocols. Moreover, food handlers were knowledgeable about the proper cleaning and sanitizing procedures for kitchen utensils and equipment. This awareness extended to the proper use of separate tools for cooked and raw foods, a crucial measure in preventing cross-contamination. Their vigilance in differentiating equipment based on food type is indicative that food safety culture is embedded in their routine. The participants also recognized how the physical conditions of the kitchen—such as lighting, cleanliness, and layout—affect both food safety and worker performance. Adequate lighting, for instance, was noted to facilitate proper inspection of ingredients, accurate label reading, and thorough cleaning of equipment, all of which are crucial in maintaining food safety standards. Compliance with dress codes and hygiene protocols suggests that food handlers understand the link between personal cleanliness and the risk of foodborne illness. This extends to their involvement in washing fresh produce correctly and avoiding the use of expired ingredients, which demonstrates both regulatory compliance and a genuine concern for consumer safety. The high level of awareness and diligence displayed by food handlers contributes to a safe, hygienic, and efficient food preparation environment. Their active role in observing safety standards not only protects public health but also fosters a culture of accountability and professionalism in food service operations.

This aligns with previous literature emphasizing the critical role of hygiene practices in ensuring food safety. Amegah et al. (2020) and Ehuwa et al. (2021) similarly identified that poor personal hygiene, including inadequate handwashing and failure to check expiration dates, increases the risk of foodborne illnesses. The findings of Sharma et al. (2018) and Little and Sirsat (2024) support the significance of surface and utensil sanitation, as improper cleaning promotes microbial growth. Kanaan et al. (2023) emphasize the importance of separating raw and cooked food during preparation to prevent contamination. In terms of environmental conditions, Deng et al. (2024) and Hon and Agababova (2024) found that proper lighting, ventilation, and temperature control are essential for both food safety and employee performance. Lastly, studies by Manko and Aseweh Abor (2023) and Possas and Perez–Rodriguez (2023) demonstrate that awareness of environmental sanitation and fresh produce handling practices significantly contributes to safer food handling. With this knowledge, attitudes, and consistent hygiene practices, contamination risks are reduced and safer dining experiences are ensured.

3.4 Level of Awareness and Extent of Observance of Food Storage Practices

The participants rated their level of awareness and extent of observance of food storage practices as 3.87 (Very Aware) and 3.66 (Very Large Extent), respectively (Table 6). All statements on the level of awareness were rated as "Very Aware" and on the extent of observance as "Very Large Extent". Regarding level of awareness, the statement on the close monitoring of expiration dates of perishable, high-risk food products received the highest mean rating of 3.90. The statement on storing uncooked and cooked foods separately had the lowest mean rating of 3.85. For the extent of observance, the statement on storing uncooked and cooked foods separately had the

highest mean rating of 3.68. The statements on proper storage temperatures for both raw and cooked foods, as well as the constant calibration and function of the food thermometer, received the lowest mean rating of 3.65 for both.

Table 6. *Level of Awareness and Extent of Observance of Food Storage Practices*

Statement	Level of Awareness		Extent of Observance	
	Mean	Interpretation	Mean	Interpretation
1. Cooked and uncooked foods are stored separately (Ulusoy & Colakoglu, 2018).	3.85	VA	3.68	VLE
2. Maintaining the appropriate storage temperature for both cooked and uncooked foods is crucial (Ulusoy & Colakoglu, 2018).	3.86	VA	3.65	VLE
3. The food thermometer is functioning and is regularly calibrated (Borbon & Tolentino, 2020).	3.86	VA	3.65	VLE
4. Cold foods are kept at 5°C or below (Alsultan et al., 2023).	3.87	VA	3.66	VLE
5. Hot foods are kept at 60°C or above (Alsultan et al., 2023).	3.88	VA	3.67	VLE
6. The shelf life of high-risk, perishable food products such as milk, meat, poultry, and eggs is closely monitored (Alsultan et al., 2023).	3.90	VA	3.67	VLE
Overall Mean	**3.87**	**VA**	**3.66**	**VLE**

Note: Level of Awareness: 1.00 - 1.49 Not at all Aware (NA), 1.50 - 2.49 Less Aware (LA), 2.50 - 3.49 Aware (A), 3.50 - 4.00 Very Aware (VA);
Extent of Observance: 1.00 - 1.49 Very Small Extent (VSE), 1.50 - 2.49 Small Extent (SE), 2.50 - 3.49 Large Extent (LE), 3.50 - 4.00 Very Large Extent (VLE)

The findings reflect the participants' strong awareness and consistent observance of safe food storage practices. Participants demonstrated a clear understanding of the importance of separating raw and cooked food items. They showed competence in monitoring and maintaining appropriate storage temperatures for both hot and cold foods. Moreover, regular use of food thermometers highlights their commitment to accuracy in temperature regulation and their proactive stance in ensuring compliance with safety standards. Additionally, participants demonstrated a strong commitment to monitoring expiration dates and ensuring that perishable items are consumed within their best-before dates. This demonstrates not only technical competence but also a high level of accountability in preventing spoilage-related foodborne risks. Such observance reflects a food safety culture grounded in awareness, responsibility, and adherence to best practices.

Proper food storage is a fundamental aspect of food safety, as it prevents cross-contamination between raw and cooked foods and significantly reduces the risk of foodborne illnesses (US Department of Agriculture, 2022). The use of a food thermometer is essential, as it is the most reliable method for confirming that the internal temperatures of meat and poultry reach safe levels (Langsrud et al., 2020). Adherence to temperature guidelines ensures compliance with health standards, promoting food quality and safety. While Makhunga et al. (2023) noted that many food handlers practice the separation of raw and cooked items, ongoing improvements in handling and storage are still needed. Proper refrigeration, as described by Pniewski et al. (2023), can preserve food quality for up to two weeks, whereas higher temperatures lead to spoilage. Moreover, regular thermometer calibration, as emphasized by McDonald (2021), prevents both overcooking and undercooking, which can compromise flavor and safety. As Awuchi (2023) and the Department of Health and Human Services (2024) stress, consistent monitoring of expiration dates, temperature management, and adherence to storage protocols are critical steps to ensure food remains safe for consumption and is free from contamination.

3.5 Level of Awareness and Extent of Observance of Food Handling Practices

The participants rated their level of awareness and extent of observance of food handling practices as 3.91 (Very Aware) and 3.66 (Very Large Extent), respectively (Table 7). All statements on the level of awareness were rated as "Very Aware" and on the extent of observance as "Very Large Extent". For the level of awareness, the statement on the use of a mask to cover the mouth and nose during food handling had the highest mean rating of 3.94. The statement on the usage of gloves while food handling had the lowest mean rating of 3.88. Regarding the extent of observance, the statement on the use of a mask to cover the mouth and nose during food handling received the highest mean rating of 3.73. The statements on the usage of gloves during food handling and consistently following the correct handwashing procedure during food handling had the lowest mean rating of 3.64 for both.

Table 7. *Level of Awareness and Extent of Observance of Food Handling Practices*

Statement	Level of Awareness		Extent of Observance	
	Mean	Interpretation	Mean	Interpretation
1. The use of gloves while handling food helps reduce the risk of food contamination (Letuka et al., 2019).	3.88	VA	3.64	VLE
2. Staff consistently observe proper handwashing procedures while handling food (Borbon & Tolentino, 2020).	3.91	VA	3.64	VLE
3. Staff use of color cutting boards to minimize cross-contamination (Alsultan et al., 2023).	3.92	VA	3.66	VLE
4. Kitchen staff should never perform any food handling tasks when suffering from infectious diseases (Putri & Susanna, 2021).	3.91	VA	3.65	VLE
5. Kitchen staff should use a mask covering the nose and mouth when handling food items (Putri & Susanna, 2021).	3.94	VA	3.73	VLE
Overall Mean	**3.91**	**VA**	**3.66**	**VLE**

Note: Level of Awareness: 1.00 - 1.49 Not at all Aware (NA), 1.50 - 2.49 Less Aware (LA), 2.50 - 3.49 Aware (A), 3.50 - 4.00 Very Aware (VA);
Extent of Observance: 1.00 - 1.49 Very Small Extent (VSE), 1.50 - 2.49 Small Extent (SE), 2.50 - 3.49 Large Extent (LE), 3.50 - 4.00 Very Large Extent (VLE)

The findings suggest that food handlers demonstrate a high level of awareness and consistently observe critical food handling practices, particularly in personal hygiene and contamination prevention. Proper hand hygiene, especially handwashing, significantly reduces the transmission of harmful pathogens, which are often the source of foodborne illnesses. The consistent implementation of hand hygiene routines reflects both individual responsibility and organizational support for maintaining sanitary conditions in food service environments. Moreover, the use of color-coded cutting boards to prevent cross-contamination is widely practiced and understood among food handlers. This indicates awareness of the need for physical separation between raw and ready-to-eat foods, which is a key component in preventing foodborne illnesses. Similarly, the practice of avoiding food handling when ill is being observed. This demonstrates that food handlers are aware of their health implications and highlights the effectiveness of workplace policies that enforce the exclusion of sick employees from food preparation areas. The use of face masks as a protective barrier is also widely acknowledged and adhered to by food handlers. The regular observance of this measure further reflects the strong hygiene culture among participants. The integration of these practices into food handling tasks suggests individual diligence and institutional commitment to food safety.

The findings of this study reinforce the importance of food safety protocols among handlers, particularly in areas such as hygiene, preventing cross-contamination, and reporting illnesses. Selvaraj et al. (2023) emphasized that gloves serve as essential barriers against bacteria; however, damaged gloves can harbor significant microbial loads, underscoring the importance of proper glove use and replacement. Complementary to this, Chauhan (2024) noted that promoting regular hand washing and monitoring such practices significantly reduces the risk of contamination. For food preparation, McQueen (2024) and Breunig (2023) emphasize the value of color-coded cutting boards, which serve as visual cues that significantly reduce cross-contamination during meal preparation, lowering the risk of foodborne illness by up to 40%. Tappes et al. (2020) and Abera et al. (2022) both highlighted the risk posed by infected food handlers, emphasizing the importance of ethical and legal compliance in reporting illnesses to prevent outbreaks. Restaurants must therefore adopt operational policies to mitigate these risks, as recommended by Andualem et al. (2022), who further advised the use of masks to discourage face-touching and limit contamination during food handling.

3.6 Difference in the Level of Food Safety Awareness according to Demographic Profile

The findings reveal that there is no significant difference in the level of food safety awareness among employees of casual dining restaurants in terms of age ($p = .139$), sex ($p = .932$), position ($p = .137$), and years of employment ($p = .430$) (Table 8). The results reveal that the food handlers' level of awareness across all demographic factors is relatively the same. This may be attributed to standardized training protocols, uniform onboarding procedures, and a workplace culture that prioritizes food safety compliance across all roles. It also indicates the effectiveness of restaurant-wide food safety education efforts in reaching all employees equally. Furthermore, the findings reinforce the notion that food safety awareness is not inherently dependent on factors such as age, gender, tenure, or job position. Instead, it highlights the impact of systemic training and policy implementation as key drivers of food safety knowledge and compliance among food handlers.

Table 8. *Difference in the Level of Food Safety Awareness According to Demographic Profile*

Description	*p*	Interpretation
Age	.139	Not Significant
Sex	.932	Not Significant
Position	.137	Not Significant
Years Employed	.430	Not Significant

The study by Ncube et al. (2020) found no significant difference in food safety knowledge across age groups and occupational roles. However, this result contrasts with the studies of Babor (2024) and Limon (2021), who found that age may influence food safety awareness, and supports Karunasena et al. (2021), who argued that adults tend to have better food safety knowledge due to their broader experience. Regarding sex, Babor (2024) and Taha (2020) concluded that male and female food handlers exhibit similar levels of food safety knowledge, a finding further validated by the present study. In contrast, Jevsniks et al. (2023) observed that men scored higher than women in food safety knowledge. Additionally, this study's findings regarding position ($p = .137$) and years of employment ($p = .430$) indicate that there is no significant difference in awareness levels, which reinforces the findings of Ncube et al. (2020) that food safety knowledge does not vary significantly across job roles or experience duration in the restaurant industry.

3.7 Difference in the Extent of Observance of Food Safety Practices by the Employees of Casual Dining Restaurants when Grouped according to the Profile

The results of the study indicate that there is no statistically significant difference in the extent of observance of food safety practices among food handlers when grouped by sex ($p = .709$) and position ($p = .008$) (Table 9). This suggests that both male and female employees, regardless of their roles in casual dining establishments, exhibit comparable adherence to food safety protocols. This uniformity may reflect the standardization of training programs and institutional policies that apply equally across all job levels and genders.

Table 9. *Difference in the Extent of Observance According to Demographic Profile*

Description	*p*	Interpretation
Age	.001	Significant
Sex	.709	Not significant
Position	.008	Not significant
Years Employed	.001	Significant

Conversely, significant differences in food safety practices were observed when participants were grouped by age ($p = .001$) and years of employment ($p = .001$) (Table 9). Post-hoc analysis using the Tukey HSD Test revealed that food handlers aged 40–50 demonstrated significantly higher observance of food safety practices compared to those aged 15–30 ($p = .001$). This finding suggests that older employees may possess a deeper understanding of food safety measures, likely acquired through accumulated experience and exposure to real-world food handling scenarios over time.

Similarly, employees with five or more years of tenure demonstrated a significantly higher adherence to food safety practices than those employed for one year or less ($p < .001$) and those employed for 2–5 years ($p < .001$). This result highlights the crucial role of experience and ongoing training in developing and refining food safety competencies. It is likely that long-tenured employees have not only undergone more extensive training but have also internalized these practices as part of their routine work behavior. These findings underscore the importance of experiential learning and sustained employment in promoting stronger adherence to food safety practices. While demographic factors such as sex and position may not significantly influence compliance, age and tenure emerge as key variables that enhance food safety behavior, emphasizing the need for targeted mentorship and continuous education for newer or younger food handlers.

The findings of Fekadu et al. (2024) and Tamiru et al. (2022) demonstrate that experience enhances food handling practices. Similarly, the study supports Jevšnik et al. (2023), who found that older food handlers tend to follow safer practices than their younger counterparts. However, the absence of significant differences based on sex contradicts Başkaya Sezer (2024), who observed superior food preparation practices among female food handlers in Türkiye. Additionally, the finding that position within the restaurant does not significantly impact food safety observance aligns with Da Vitória et al. (2021), emphasizing that responsibilities across roles may be uniformly regulated or trained. These insights underscore the importance of ongoing food safety education, particularly for less experienced staff, in promoting consistent practices across all age groups, genders, and positions.

3.8 Relationship between Awareness and the Extent of Observance of Food Safety Practices among Employees of Casual Dining Restaurants

The results reveal a significant relationship between awareness and the extent of observance of food safety practices among employees of casual dining restaurants ($p = .001$). In addition, there exists a positive and moderately strong association between both variables, with a Spearman's rho of 0.66. Having a positive association means that as food safety awareness increases, the observance of food safety practices also increases. Hence, when food handlers understand the importance of food safety and the risks and consequences for noncompliance, they are more likely to adhere to proper procedures. This indicates that the restaurants have effectively implemented training programs and adhered to guidelines. This is supported by the studies of Gemeda et al. (2025) and Johnson et al. (2023). Gemeda et al. (2025) discuss that food handlers with sufficient food safety knowledge are twice as likely to observe food safety practices.

4.0 Conclusion

The participants rated their level of awareness as "Very Aware" across all areas of food sourcing, preparation, storage, and handling. This suggests that food handlers have a strong understanding of these areas, which may have been strengthened by training programs and exposure provided by the restaurants. Moreover, the participants rated their extent of observance as "Very Large Extent," indicating their strong commitment to food safety practices. Additionally, there is no significant difference in the participants' level of food safety awareness when grouped by demographic variables such as age, sex, position, and years of employment. This suggests that the level of awareness among employees of casual dining restaurants in Bacolod City, across all demographic factors, is relatively uniform. Moreover, there is a significant difference in the extent of observance of food safety practices among participants when grouped by age and years of employment, indicating that older participants, in terms of both age and experience, exhibit a higher level of observance. Ultimately, the study reveals a significant relationship between food safety awareness and the extent of food safety practices among employees of casual dining restaurants. The higher the level of awareness, the more likely the participant is to exhibit a high degree of observance. The findings of this research underscore the importance of employee awareness of food safety practices. While participants demonstrated a high level of awareness, there is an opportunity to further enhance their awareness and practices through training and development programs. Restaurant management can conduct regular refresher training programs for their employees on general food safety topics. In this way, awareness can be reinforced through repetitive initiatives, even those that are simple. Additionally, restaurant management should proactively assess the training needs of their team so that the appropriate interventions can be implemented. Through this, they can tap the right parties who can effectively conduct the training. With this, a specific skill can be targeted for improved performance. While high levels of awareness and observance were reported, these do not guarantee consistent behavior, especially when unmonitored. Hence, management can implement unannounced spot checks while they are performing tasks and providing timely feedback and recognition. This reinforces the proper practices and encourages accountability. At a regulatory level, government agencies can consider making a standardized compliance checklist for the restaurants in terms of training and development. This includes checking whether the staff have received adequate and up-to-date training before assuming any job responsibilities. Intensifying its efforts to monitor the compliance of restaurants in terms of training and development assures the public that the government and restaurants are committed to ensuring food safety. Lastly, future researchers can solidify the results by conducting observational studies that also consider customer observation and experiences. Furthermore, future research can be expanded to food stalls in malls, business establishments, hospitals, and schools, which will provide a deeper understanding of food safety awareness and practices across different environments.

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7.0 Conflict of Interests

No conflict of interest

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