



Food Safety Practices and Attitudes of Food Handlers in Eateries at Marikina City: Basis for information campaign

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Abstract

This study explores the attitude and food safety practices of food handlers working in local eateries/(carinderias) across Marikina City. Through a survey-based approach, it aimed to examine the correlation between their level of food safety compliance and their perception of proper food handling. Specifically, the study evaluated practices in four key areas: personal hygiene, storage and temperature control, cleaning and sanitation, and food handling. Findings showed that these practices were implemented to a very high extent, indicating strong adherence to safety standards. Respondents expressed a consistently positive attitude toward food safety, which was statistically proven to have a moderate positive correlation with actual practices across all indicators. For instance, higher attitude scores were associated with improved hygiene routines, better temperature control, and stricter sanitation protocols. Moreover, the study gathered quantitative feedback suggesting the need for clearer food safety campaigns and stronger supervision from local authorities. Food handlers recommended actionable improvements such as strict waste disposal systems, regular training, the adoption of sustainable practices, and the introduction of compliance checklists. Overall, the research underscores the importance of continuous education and updated guidelines to enhance the culture of compliance in food safety. These findings can inform future policies aimed at improving public health and safety in urban food service settings.

Keywords: Attitude; Correlation; Compliance; Education; Food Safety; Hygiene; Practices; Sanitation; Supervision; Temperature Control

1. Introduction

According to the World Health Organization (2024), food safety and access to nutritious food are considered basic human rights. However, around 10% of people worldwide still get sick from eating unsafe or contaminated food, and approximately 420,000 people die each year because of it. These foodborne illnesses affect children's ability to focus in school and adults' productivity at work. Poorer countries also suffer big financial losses—reaching up to \$95 billion yearly. Food safety problems can happen at any point in the food supply chain, especially when people do not handle food properly. That's why government agencies continuously monitor this issue.

This study focuses on the food handlers working in carinderias or small eateries in Marikina City. Its main goal is to help them improve their food safety practices. The study aims to teach important topics such as personal hygiene, proper food storage, correct labeling, tool sanitation, and proper customer service. In the Philippines today, food handling has become a growing concern. The Philippine News Agency (2024) reported a food poisoning incident at Mariano Marcos State University, which clearly shows the risks when food safety guidelines are not followed. Similarly, Chen et al. (2022) pointed out that poor food handling practices often result in serious illness.

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In 2022 alone, the number of reported salmonella cases increased to 13,000. Many of these cases were linked to eating raw or undercooked eggs and meat (Philippine News Agency, 2024). Pantua (2024) also warned that meat that is not properly cleaned or cooked can be very dangerous. This is why carinderia owners must ensure their staff are well-trained in food safety. According to Putri et al. (2021), the attitude of food handlers plays a big role—it's not enough to know about food safety; they must apply it daily in their work.

Cleaning and sanitizing are also crucial in food handling. The Food Safety & Hygiene Academy of the Philippines recommends washing utensils after every use or every four hours and keeping a written cleaning schedule. These habits help maintain a clean and safe environment for food preparation.

This study aims to assess whether food handlers and eatery owners in Marikina truly understand and apply food safety principles. It also wants to identify areas that need improvement to reduce the risk of foodborne illnesses. Furthermore, this study supports the United Nations Sustainable Development Goals (SDGs). Specifically, SDG 3 focuses on ensuring healthy lives, including reducing deaths caused by unsafe food. Contaminated food can carry harmful organisms like salmonella, *E. coli*, and norovirus—still a major issue in the Philippines.

SDG 6 promotes access to clean water and sanitation, which is directly related to food hygiene. SDG 12 focuses on responsible consumption and production, including safer and less wasteful food systems. Poor food handling not only harms health but also leads to unnecessary food waste. Therefore, there is a strong need for better training and more eco-friendly practices in the food service sector.

However, reading books or looking at posters is not enough to build strong food safety habits. The New South Wales Government (2024) emphasized that training must be paired with actual practice. Carinderias/eateries should develop and follow a food safety plan that connects knowledge with real-world actions to improve safety.

It is also very important that food handlers truly understand what they are learning. Business owners must encourage their staff to stay clean, maintain a positive attitude, and care about the health of their customers. While many food safety rules already exist, most studies only check whether people are following these rules. Few studies explore how food handlers actually feel or think about their work.

That's why this study involves 60 eatery staff and 30 eatery owners in Marikina. It uses a survey with a 4-point Likert scale to assess their knowledge, attitudes, and practices related to food safety. To support the study, the researchers also created a Facebook page, distributed educational posters, and provided food safety kits that included a hairnet, apron, face mask, gloves, and towel.

In the end, the study will evaluate the overall state of food safety in Marikina's carinderias—looking at personal hygiene, food temperature control, sanitation, and proper food handling. It will also examine whether attitude is connected to better food safety practices. The results aim to help improve local efforts and campaigns that promote safe and healthy food for everyone.

2. Literature review

Republic Act 10611, also known as the Food Safety Act of 2013, was created to ensure food safety in the Philippines. This law aims to protect people from sickness caused by unsafe food and water, make sure food is clean, and build trust in the country's food system (Food & Agriculture Organization, 2013). It also supports the growth of local and international trade, contributing to economic development. Food safety, however, is not only a concern in the Philippines—other countries have also implemented laws to ensure food security and prevent food crises.

Gador, S.M. (2021) conducted a study involving 156 food handlers. The findings revealed that while some followed food safety guidelines, others were seen eating and drinking at work or continuing their tasks even while sick. The study emphasized the need for more training and seminars to help food handlers better understand and apply food safety practices. This research is useful to the current study because it shows how food handlers in Siquijor follow safety procedures, with managers constantly checking their compliance.

Sarmiento, F., and Apritado, J. M. (2022) looked into food safety in casual dining restaurants, focusing on comfort rooms, the surrounding area, and dining spaces. Their findings revealed that customers agreed that food safety was practiced to prevent contaminated food. A similar study conducted in Makati showed that casual eateries were doing well in terms of food safety, although certain areas still required improvement. The study found that more customers preferred returning to establishments that were clean and safe.

Bihag, R.C. et al. (2021) emphasized that food safety plays an important role in preventing food poisoning. Their research in Agusan del Norte analyzed restaurant food handler behavior and concluded that proper knowledge of food handling practices could prevent sickness. Tuglo, L. S. et al. (2021) pointed out that food safety is now a serious issue, especially in developing countries where more people suffer from food-related illnesses. This underscores the importance of training and education for food handlers.

Lim, E. S. et al. (2021) conducted a study on bacteria found on food surfaces. They discovered that electric fans can blow contaminated air and cause food contamination. Their findings revealed the presence of harmful bacteria and highlighted the importance of hygiene and strict adherence to safety protocols to prevent the spread of illness.

Idris et al. (2024) examined 24 food outlets within Sudan University and found that while most food handlers maintained cleanliness, many still failed to wear protective gear such as masks, aprons, and gloves. Although these food handlers were aware of food safety, they did not always apply the practices consistently. Similarly, Fitahah, W. et al. (2022) stated that street food is sometimes unsafe, with many reported cases of food poisoning. However, there is limited information about street vendors. The study concluded that training is highly beneficial for improving food safety practices.

The food industry is now more serious in checking cleanliness and legal compliance, especially following numerous past food scandals. Consumers today expect food that is both safe and clean. Supporting this, Gamido, M., et al. (2024) studied food vendors near Saint Mary's University and highlighted the importance of food safety in cooking, handling, and storing to avoid illness.

Wu, F., and Rodricks, J.V. (2020) noted that food safety has long been an issue in the United States. Since 1906, the country has passed laws to regulate food quality. Although many new technologies have been developed, they come with new risks, and thus food safety rules must continue to evolve. Paller, V.G. et al. (2021) also stated that unsafe farming practices can lead to parasitic infections. Contaminated manure and improper hygiene during planting and harvesting contribute to food contamination, showing that safety must begin even at the farming level.

Limon, M.R., et al. (2022) reported a food poisoning incident in a school in the Philippines. The study mentioned that there was no long-term food safety program in place. Although the Department of Education provided food safety guidelines, these were still insufficient. Argente, M. A. et al. (2020) found that street vendors had average knowledge of food safety. Even though they were aware of good practices, contamination such as *E. coli* was still present, indicating a need for better implementation.

Alemayehu, T. et al. (2021) noted that the World Health Organization defines food safety as the practice of maintaining cleanliness from food preparation to consumption. If these steps are not followed, consumers may become ill. The authors emphasized the need for regular inspections and proper safety rules. Albattat, A., and Yahya, S.A. (2021) also stressed that food safety helps reduce the risk of sickness. If food is not stored properly, it may become contaminated. Many consumers purchase food without being fully aware of whether it is safe.

In the **Related Studies**, Borbon, N.M., and Tolentino, M. (2020) studied food safety in restaurants by examining cleaning, hygiene, and sanitation practices. While the focus is similar to the current study, theirs was limited to carinderias in Marikina. Labao, R.U., et al. (2023) looked at street vendors in Davao and found that cleaner vendors enjoyed better sales. The study concluded that teaching food safety to vendors helps both business and public health.

Poot, J. J. et al. (2022) from DLSU-Dasmariñas conducted a study showing that training through FoodSHAP helped students in the food business. This is relevant to the current study, although it focuses more on formal training. Barnes, J., et al. (2022) said that inspections help prevent illness, but many participants in their study said inspections were not always effective. While both studies agree on the importance of inspections, the current study focuses more on food handlers in Marikina.

Taha, S., Osaili, T. M., et al. (2020) from Dubai concluded that restaurant owners and managers must care about food safety. Their study focused on the attitude and safety behaviors of management, similar to this research but with a different target group. Tiu, A. M. C., et al. (2021) studied street food vendors and found that while they understood food safety practices, these were not always followed in real life. This is similar to the current study, although the setting differs.

Rustia A.S. (2021) emphasized that food safety is now a global issue. The Philippines follows international food safety rules through its participation in the World Trade Organization and the Codex Alimentarius. Laws like the Food Safety

Act of 2013 help protect people's health. Makhunga, S.E., et al. (2023) in South Africa studied food handlers in food aid programs using surveys to check their attitudes and knowledge. While their focus was different, their method is similar to this research.

Salvador, R. Q., et al. (2024) checked food safety practices in school canteens and concluded that training and partnerships help improve food safety. This is similar to the current research, although the focus here is on eateries in Marikina. Lastly, Bolek, S. (2020) focused on consumers' knowledge, attitudes, and feelings about food safety. Unlike the current study, which focuses on food handlers, Bolek's research is about consumers.

This study consists of three main parts. First is the **Input**, where the researchers used a validated survey questionnaire to gather data from 90 participants—60 eatery staff and 30 eatery owners from different carinderias /eateries in Marikina City. Second is the **Process**, which involved obtaining permits from Marikina Polytechnic College and the City Health Office, distributing the surveys, collecting the responses, and analyzing the data. The third part is the **Output**, where the researchers developed an informational campaign. This included campaign posters, a Facebook page, and a food handler's kit containing a hairnet, apron, spit/mouth guard, disposable gloves, and towel. These materials aim to promote food safety and help improve hygiene practices in the community. In addition, feedback was collected to improve the campaign for future implementation.

3. Methodology

The descriptive-correlational research method used to describe and examine the relationship between two or more variables without manipulating them. It aims to identify patterns, trends, or associations as they naturally occur, providing insights into how variables are related but not establishing causal relationships (Chris Koger, 2023). Researchers collected data through surveys and observations and used statistical techniques to determine the strength and direction of correlations.

The researchers collected and analyzed data using a quantitative research technique to identify measurable practices and correlations. Survey research was employed a validated survey questionnaire to gather information from a particular participant group. These surveys included Likert scale items with closed-ended responses (Larson, 2024). with a focus on topics such as food preparation, sanitation, service, and other related kitchen activities (Vitoria et al., 2021). The survey was reviewed and approved before it was released.

Additionally, the study used a quantitatively descriptive approach to assess key areas such as personal hygiene, storage and temperature control, cleaning and sanitation, food handling practices and attitudes among food handlers in eateries at Marikina City. This research was designed to systematically captured and organized these factors. The data was analyzed to explore the relationships between these variables, which were measured numerically and examined using statistical analysis techniques.

3.1. Source of Data

The source of data in this research are (90) Food Handlers: 60 eatery staff and 30 eatery owners in eateries at Marikina City. The table below is the distribution of the respondents consisting of food handlers and eateries/business owners.

Table 1 Distribution of Respondents

Category of Respondent (Food Handlers)	Number of Respondents	Percentage
Eatery Staff	60	80%
Eatery Owners	30	20%
Total	90	100%

The researchers utilized a validated survey questionnaire. The research was conducted using a survey questionnaire, which served as the primary tool for gathering data from respondents.

3.2. Data Gathering Instrument

The researchers used a validated survey questionnaire as the main data- gathering instrument. The survey questionnaire was designed to identify the food safety practices and attitudes among food handlers in carinderia/eatery. Additionally,

a checklist was used to evaluate specific food safety practices and compliance with food hygiene standards. The checklists helped identify key behaviors, attitudes and practices related to personal hygiene, storing and temperature, cleaning and sanitation, food handling and attitudes. These instruments allowed the researchers to identify the food safety practices and attitudes among food handlers in carinderia/eatery at Marikina City and identified areas for improvement with local regulations.

3.3. Data Gathering Procedure

Data gathering helped in achieving research objectives and validating the reliability of the analysis. This section provided details about the researchers' data collection instrument. It was demonstrated to various methods for developing instruments and materials that this present study was used. A validated survey questionnaire and checklist were utilized to collect data. The part of the study was to randomly select the food handlers: eatery owners and eatery staff in carinderias/eateries at Marikina City. The survey questionnaires were given to the respondents through the means of face-to-face and paper-and-pen survey questionnaires. This survey included a Likert scale to assess key areas such as personal hygiene, storage and temperature control, cleaning and sanitation, and food handling practices and attitudes among food handlers in carinderias/eateries in Marikina City. The data was collected from the answers of the respondents. It was analyzed, evaluated and interpreted. The result of this study helped the researchers' gained additional insights, conclusions, and recommendations into organizational food safety practices and policies.

3.4. Ethical Considerations

The ethical consideration in this study revolved around the following elements:

- **Validity:** The researchers adopted the guidance, regulations, and requirements, and approved of this study from RDO before proceeding with data gathering.
- **Informed Consent:** Participants were informed of the purpose, method, risks, and benefits, and understood the information of this present study and how it was related to their current situation or interest. Voluntary decision whether or not to participate.
- **Confidentiality and Anonymity:** The researchers administered and retrieved the questionnaires. All the personal details and information from the participants were protected and treated with utmost confidentiality.
- **Voluntary Participation:** Respondents were free to choose to participate without any pressure or coercion. All participants were able to withdraw from or leave the study at any point without feeling an obligation to continue. Respondents were not obligated to provide a reason for not participating in this study.
- **Data Privacy:** The researchers performed their duty to exercise the rights of the participants to privacy of personal information, such as name, gender, civil status, employment, and job position.

3.5. Statistical Treatment of Data

The descriptive statistics were used to summarize and analyze the data collected from the respondents/food handlers: eatery staff/eatery owners.

Range of Perceptions on the Level of Food Safety Practices of Food Handlers in Eateries

Scale	Ranges	Verbal Interpretation
4	3.25 – 4.00	Very High Extent (VHE)
3	2.50 – 3.24	High Extent (HE)
2	1.75 – 2.49	Low Extent (LE)
1	1.00 – 1.74	Very Low Extent (VLE)

Weighted Mean. This was applied to determine the respondent's perception of the level of food safety practices of food handlers and their attitudes towards food safety practices in eateries at Marikina City.

Spearman ρ Correlation Coefficient. This was utilized to measure the linear strength and direction of a linear relationship between the level of food safety practices, and the attitudes of food handlers in eateries at Marikina City.

Range of Perceptions on the Level of Food Handlers' Attitudes Toward Food Safety in Eateries

Scale	Ranges	Verbal Interpretation
4	3.25 – 4.00	Strongly Agree (SA)
3	2.50 – 3.24	Agree (A)
2	1.75 – 2.49	Disagree (D)
1	1.00 – 1.74	Strongly Disagree (SD)

Table 2 displays the range and strength of relationship for the interpretation of computed Spearman ρ Correlation Coefficient.

Table 2 Range of Correlation Coefficient and Strength of Relationship

Range	Strength of Relationships
0.00	No Correlation - No Relationship
± 0.01 to ± 0.20	Very Low Correlation - Almost Negligible Relationship
± 0.21 to ± 0.40	Slight or Weak Correlation - Definite but Small Relationship
± 0.41 to ± 0.70	Moderate Correlation - Substantial Relationship
± 0.71 to ± 0.90	High Correlation - Marked Relationship
± 0.91 to ± 0.99	Very High Correlation - Very Dependable Relationship
± 1.00	Perfect Correlation - Perfect Relationship

4. Results and discussion

The Level of Food Safety Practices of Food Handlers in Eateries at Marikina City

Personal Hygiene. The weighted means and verbal interpretation of the respondents' perceptions on the level of food safety practices of the respondents in terms of personal hygiene of food handlers in eateries at Marikina City is shown in Table 3.

Table 3 reveals that food handlers displayed commendable personal hygiene practices, with an overall weighted mean score of **3.61** across the indicators. Among these, frequent handwashing stands out with the highest score of **3.83**, indicating that food handlers are highly consistent in performing this essential hygiene practice.

The practice of ensuring that handwashing stations are well-stocked also received a strong rating of **3.66**, reflecting both awareness and structural support for personal hygiene. The use of personal protective equipment (PPE), such as gloves and masks, was rated at **3.56**, while avoiding work when ill scored **3.55**, suggesting a conscientious approach to preventing the spread of illness. Lastly, the habit of wearing clean uniforms received a moderate score of **3.44**, still reflecting a generally positive adherence to cleanliness standards.

Table 3 Respondents' Perception on the Level of Food Safety Practices of Food Handlers in Eateries as to Personal Hygiene

Indicators	WM	VI
1. I practice good personal hygiene (e. g. washing hands frequently, wearing appropriate clothes) while handling food.	3.83	VH E
2. I wear clean & appropriate uniforms while working.	3.44	VH E
3. I avoid working while ill to prevent contamination.	3.55	VH E
4. I ensure that hand washing stations are available and well stock throughout the workplace.	3.66	VH E

5. I use personal protective equipment (PPE) such as gloves and aprons to ensure safety.	3.56	VH E
Overall Weighted Mean	3.61	VH E

Notes: WM – Weighted Mean VI – Verbal Interpretation VHE – Very High Extent

The results imply that food handlers are largely committed to maintaining high standards of personal hygiene, which in turn positively influences their attitudes toward food safety. While this commitment does not guarantee flawless adherence or absolute improvement in attitude, it does suggest a strong link between consistent personal hygiene and practices, use of PPE, and care in handling food safety.

Storage and Temperature Control. The weighted means and verbal interpretation of the respondents' perceptions on the level of food safety practices of the respondents in terms of storage and temperature control of food handlers in eateries at Marikina City are shown in Table 4.

Table 4 shows that the food handlers' practices concerning storage and temperature control are highly effective, as evidenced by an overall weighted mean of 3.55 across the indicators, including maintaining the correct temperatures in food storage areas, with a score of 3.66, storing perishable foods separately from non-food items at 3.47, and labeling and dating frozen foods to avoid misuse which received a score of 3.42. Additionally, food handlers indicated following policies for managing the shelf life of food items with a rating of 3.56 and adhering to procedures that minimize cross-contamination risks during food storage and handling, which also scored 3.66.

Table 4 Respondents Perceptions on the level of Food Safety Practices of Food Handlers in Eateries as to Storage and Temperature Control

Indicators	WM	VI
I maintain the food storage areas (e.g. refrigerators, freezers) at the correct temperatures.	3.66	VHE
I store perishable foods separately from non-food items.	3.47	VHE
I label and date frozen food to avoid misuse.	3.42	VHE
I follow policies for checking and managing the shelf life of food items.	3.56	VHE
I follow procedures to minimize cross-contamination risks during food storage & handling.	3.66	VHE
Overall Weighted Mean	3.55	VHE

Notes: WM – Weighted Mean VI – Verbal Interpretation VHE – Very High Extent

This implies that food handlers are generally committed to proper storage and temperature management practices, which tend to enhance their attitudes toward food safety, though not in an absolute or guaranteed way. Consistently maintaining correct storage temperature, properly labeling and dating food items, and preventing cross-contamination during storage are key behaviors that reflect a growing awareness and sense of responsibility toward food safety. These practices ensure food quality, reduce the risk of foodborne illness, and promote a more safety-conscious mindset among food handlers. While these actions alone may not fully shape attitudes, they contribute significantly when supported by effective training, workplace policies, and managerial oversight, reinforcing the importance of maintaining high standards in food safety practices.

Cleaning and Sanitation. The weighted means and verbal interpretation of the respondents' perceptions on the level of food safety practices of the respondents in terms of cleaning and sanitation of food handlers in eateries at Marikina City are shown in Table 5.

Table 5 shows that the food handlers exhibit strong practices in cleaning and sanitation with an overall weighted mean of 3.53 across the indicators, including maintaining an effective cleaning and sanitizing routine in the workplace which received a score of 3.69, storing cleaning chemicals separately from food items with a score of 3.50, and implementing a regular sanitation routine for food contact surfaces which scored 3.53.

Table 5 Respondents' Perceptions on the Level of Food Safety Practices of Food Handlers in Eateries as to Cleaning and Sanitation

Indicators	WM	VI
I maintain an effective cleaning and sanitizing routine in the workplace.	3.69	VHE
I store cleaning chemicals separately from food items.	3.50	VHE
I implement a regular sanitation routine during operation for food contact surfaces.	3.53	VHE
I ensure restrooms are clean and sanitize regularly to prevent contamination.	3.41	VHE
I maintain a proper waste management system to ensure the safe disposal of food waste.	3.52	VHE
Overall Weighted Mean	3.53	VHE

Notes: WM – Weighted Mean VI – Verbal Interpretation VHE – Very High Extent

They also ensure restrooms are clean and sanitized regularly to prevent contamination with a score of **3.41**, and they maintain a proper waste management system for the safe disposal of food waste, which scored **3.52**. This implies that as food handlers become more engaged in proper cleaning and sanitation practices, their attitudes toward food safety tend to improve, though not in an absolute or uniform way. Regularly sanitizing food contact surfaces, properly storing cleaning chemicals, and maintaining a clean and organized work environment all contribute to a heightened awareness of food safety's importance. These practices not only reduce the risk of contamination but also foster of cleanliness and responsibility, reinforcing the role of sanitation as a foundational element of overall food safety. **Food Handling.** The weighted means and verbal interpretation of the respondents' perceptions on the level of food safety practices of the respondents in terms of food handling of food handlers in eateries at Marikina City is shown in Table 6. Table 6 illustrates that food handlers generally demonstrate a moderate to high level of practices toward food safety. As evidenced by an overall weighted mean score of **3.51** across several critical indicators. Among these, proper handwashing and sanitation practices received the highest rating with a score of **3.58**, suggesting a strong awareness of the importance of proper hygiene in preventing foodborne illnesses. Similarly, the ability to handle food allergens effectively to prevent cross-contamination garnered a score of **3.57**, highlighting that food handlers are reasonably attentive to allergen management, a crucial component of food safety.

Table 6 Respondents' Perceptions on the Level of Food Safety Practices of Food Handler in Eateries as to Food Handling

Indicators	WM	VI
I use gloves or utensils when touching food that is ready to eat	3.44	VH E
I regularly check the food safety conditions during operation (e.g., temperature, cleanliness)	3.48	VH E
I follow a policy for handling that is past its expiry date.	3.47	VH E
I practice proper handwashing and sanitation before and after handling food.	3.58	VH E
I follow workplace procedures for handling food allergens to prevent cross-contamination	3.57	VH E
Overall Weighted Mean	3.51	VH E

Notes: WM – Weighted Mean VI – Verbal Interpretation VHE – Very High Extent

The practice of checking food safety conditions during operations, such as monitoring temperature, storage, and cleanliness, also received a solid score of 3.48, indicating a commendable level of vigilance during day-to-day tasks. Furthermore, the use of gloves or utensils when handling ready-to-eat food, which scored 3.44, reflects a growing understanding of indirect contamination risks. Adherence to policies regarding expired food, with a score of 3.47, further supports the idea that food handlers are mindful of shelf life and food quality control.

These findings imply that as food handlers adhere more consistently to best practices in food handling, their attitudes toward food safety tend to improve. While this relationship may not be absolute or linear. It suggests a positive correlation between compliance and awareness. For instance, habits such as using gloves, conducted routine safety checks, and preventing allergen cross-contact help reinforce a mindset of accountability and precaution. Over time, such practices may cultivate a deeper understanding of food safety responsibilities, ultimately fostering a more proactive and safety-oriented work culture in food service environments.

Respondents' Perceptions on the Level of Food Handlers' Attitudes Toward Food Safety in Eateries at Marikina City

Table 7 represents the attitudes of food handlers towards food safety in eateries at Marikina City based on their perceptions.

Table 7 Respondents' Perceptions on their Attitudes Towards Food Safety in Eateries

Indicators	WM	VI
I consistently follow the food safety rules and regulations in my daily work.	3.61	SA
I report any food safety issues or potential hazards to my supervisor immediately.	3.64	SA
I am personally responsible for the safety of the food I handle.	3.63	SA
I believe that adhering to food safety practices improves the overall quality of food served.	3.63	SA
I understand the importance of food safety in preventing foodborne illnesses.	3.53	SA
Overall Weighted Mean	3.61	SA

Note: SA – Strongly Agree

Table 7 shows that the respondents generally exhibit a high level of positive attitudes towards food safety in eateries, with an overall weighted mean of 3.61 across the indicators. This indicates a strong commitment to food safety practices. Food handlers reported that they consistently following food safety rules and regulations with a weighted mean of 3.61, which means their dedication to maintaining food safety standards throughout their daily practices. Additionally, immediately reporting any food safety issues and potential hazards scored 3.64, a sense of responsibility towards food safety is reflected by their belief that they are personally responsible for the safety of the food they handle, which scored 3.63, as well as the importance they place on food safety practices for improving the overall quality of food served, which also scored 3.63. Furthermore, respondents understand the crucial role of food safety in preventing foodborne illnesses with a score of 3.53.

This implies that when food handlers recognize the importance of food safety practices, take personal responsibility for the food they handle, and understand how these practices directly impact food quality and customer health, their overall commitment to maintaining safety standards tends to grow stronger and more consistent.

This awareness encourages them to be more vigilant and proactive in applying what they have learned, resulting in safer food handling behaviors and better service outcomes. However, despite this positive trend, there may still be gaps in attitude or practice that require attention, particularly in formal food service settings like carinderias/eateries, where resources, supervision, or training may be limited. In such environments, reinforcement through continuous education, strong management support, and practical, hands-on training is essential to further strengthen the attitudes of food handlers. This helps ensure that food safety practices are not only understood but consistently applied across all tasks, from preparation to service, ultimately creating a safer and more reliable food environment for customers.

Significant Relationship Between the Level of Food Safety Practices, and the Attitudes of Food Handlers in Eateries at Marikina City.

Table 8 represents the test of the relationship between the level of food safety practices in terms of personal hygiene and the attitudes of food handlers in carinderia/eatery at Marikina City.

Table 8 Test of Relationship Between the Level of Food Safety Practices in terms of Personal Hygiene and the Attitudes of Food Handlers in Eateries at Marikina City

Variables	Spearman ρ	Degree of Relationship	P- Value	α	Decision	Interpretation
Personal						
Hygiene	0.48	Moderate	0.000	0.05	Reject the H ₀	Significant
Attitude						

Note: *Significant if p - value $< \alpha = 0.05$

As presented in Table 8, the computed Spearman rank correlation ($p = 0.48$) reveals a moderate positive correlation between the level of food safety practices related to personal hygiene and the attitudes of food handlers towards food safety in carinderias/eateries. This indicates that as food handlers demonstrate more positive attitudes toward food safety, their actual hygiene practices tend to improve correspondingly. However, those with less favorable attitudes may be less likely to adhere to proper hygiene practices.

This associated p-value ($p = 0.000$) is significantly lower than the alpha level of 0.05, which is the threshold for determining statistical significance in this study. Since the p-value falls well below this cutoff, the null hypothesis—which assumes the rejection of the null hypothesis. Hence, there is a significant relationship between the level of food safety practices as to personal hygiene and the attitudes of food handlers in carinderias/eateries at Marikina City.

This implies that attitudes towards food safety play a crucial role in influencing behavior among food handlers. Specifically, the data provides empirical support for the assertion that fostering positive attitudes towards food safety can lead to improved personal hygiene practices in the carinderia/eatery. It also implies that targeted actions such as training programs, information campaigns and consistent supervision may enhance food safety outcomes by positively shaping food handlers' attitudes.

Table 9 represents the test of the relationship between the level of food safety practices in terms of storage and temperature control and the attitudes of food handlers in carinderia/eatery at Marikina City.

Table 9 Test of Relationship Between the Level of Food Safety Practices in terms of Storage and Temperature and the Attitudes of Food Handlers in Eateries at Marikina City

Variables	Spearman ρ	Degree Relationship	of	P-Valu e	α	Decision	Interpretation
Storage and							
Temperature Control	0.69	Moderate		0.000	0.05	Reject the H0	Significant
Attitudes							

Note: *Significant if $p - \text{value} < \alpha = 0.05$

It can be observed in Table 9 that the Spearman rank correlation ($p = 0.69$) demonstrates a moderately strong positive correlation between the level of food safety practices concerning storage and temperature control and the attitudes of food handlers in carinderias/eateries. This suggests that food handlers who exhibit more favorable attitudes toward food safety are more likely to implement proper storage methods and maintain appropriate temperature control for food items.

The p-value associated with this correlation is 0.000, which is considerably lower than the chosen alpha level of 0.05. The statistical decision leads to the rejections of the null hypothesis at a significance level of 5%. This means there is a significant relationship between the level of food safety practices as to storage and temperature control and the attitudes of food handlers in carinderias/eateries at Marikina City. This means that the findings underscore the importance of food handlers' attitudes in influencing behavior, particularly in areas that are crucial for preventing foodborne illnesses. In the context of carinderias/eateries at Marikina City, it highlights the need for continuous education and training focused not only on technical knowledge but also on shaping positive attitudes toward food safety. Programs that effectively cultivate awareness and responsibility among food handlers could lead to improved storage and temperature control practices, thereby enhancing the overall safety and quality of food served to the customers.

Table 10 represents the test of the relationship between the level of food safety practices in terms of cleaning and sanitation and the attitudes of food handlers in carinderias/eatery at Marikina City.

Table 10 Test of Relationship Between the Level of Food Safety Practices in terms of Cleaning and Sanitation and the Attitudes of Food Handlers in Eateries at Marikina City

Variables	Spearman ρ	Degree of Relationship	P- Value	α	Decision	Interpretation
Cleaning and Sanitation Attitudes	0.66	Moderate	0.000	0.05	Reject the H0	Significant

Note: *Significant if $p - \text{value} < \alpha = 0.05$

It can be gleaned from the table 10 that the Spearman rank correlation coefficient ($p = 0.66$) indicates a moderately strong positive relationship between the level of food safety practices related to cleaning and sanitation and the attitudes of food handlers in carinderias/eateries. This implies that individuals with more positive attitudes towards food safety are more likely to engage in thorough and consistent cleaning and sanitation practices. However, less positive attitudes may be associated with lapses in maintaining sanitary food preparation.

The p-value associated with this correlation is 0.000, which is significantly lower than the 0.05 alpha level set for statistical testing. In consequence, the statistical inference at the 5% significance level results in rejecting the null hypothesis. This concludes that there is a significant relationship between the level of food safety practices as to cleaning and sanitation of food handlers in carinderias/eateries at Marikina City.

This means the role of attitudes play crucial role in food safety, Specifically, it highlights the importance of fostering a strong sense of responsibility and awareness among food handlers regarding the importance of cleanliness and hygiene in preventing food contamination. Carinderias/eateries at Marikina City, this finding suggests that training initiatives and behavioral interventions targeting attitudes toward cleaning and sanitation could have a meaningful impact on improving food safety practices.

Table 11 represents the test of the relationship between the level of food safety practices in terms of cleaning and sanitation and the attitudes of food handlers in carinderia/eateries at Marikina City.

Table 11 Test Relationship Between the Level of Food Safety Practices in terms of Food Handling and the Attitudes of Food Handlers in Eateries at Marikina City

Variables	Spearman ρ	Degree of Relationship	P- Value	α	Decision	Interpretation
Food Handling Attitudes	0.67	Moderate	0.000	0.05	Reject the H0	Significant

Note: *Significant if $p - \text{value} < \alpha = 0.05$

As gleaned in Table 11, the Spearman p coefficient (0.67) denotes moderate positive correlation between the level of food safety practices regarding food handling and the attitudes of food handlers in carinderia/eateries. The p-value of 0.000 is lower than the 0.05 alpha. The statistical decision at a 5% significance level supports rejecting the null hypothesis. This signifies that there is a significant relationship between the level of food safety practices as to food handling and the attitudes of food handlers in carinderia/eatery at Marikina City.

This finding carries an important practical implication: improving the attitudes of food handlers, such as through training, awareness campaigns, or behavior modeling, may effectively lead to better food safety practices. Since carinderia are widely patronized and play a vital role in local food culture and economy, strengthening food safety behavior in these establishments can directly contribute to public health and consumer protection.

5. Conclusions

Based on the findings of the study, several conclusions have been drawn regarding the food safety practices of food handlers in carinderias/eateries in Marikina City. First, it was observed that food handlers demonstrated varying levels of commitment to food safety practices. While many followed essential procedures such as maintaining personal hygiene, controlling food storage and temperature, proper cleaning and sanitation, and safe food handling, there were still noticeable gaps. These gaps were particularly seen in preventing cross-contamination, correct handling during food preparation, and consistent application of hygiene standards.

The study also found that the attitudes of food handlers toward food safety were influenced by their training and experience. Although a majority of the participants recognized the importance of maintaining safe food practices, some showed complacency, often due to limited time, lack of proper facilities, and insufficient supervision in their workplaces. It was also clear that the level of training and years of experience had a significant impact on their knowledge and behavior. Food handlers who had received formal training in food safety were more likely to follow correct procedures and apply better practices in their daily work.

Moreover, improving the food safety habits of food handlers in these establishments would contribute greatly to public health. By reducing the risks of foodborne illnesses, both consumers and communities would benefit from a safer dining environment. Lastly, the study underlined the importance of launching an information campaign to promote awareness and proper food safety practices. This campaign included educational tools such as printed posters, a dedicated Facebook page, and a food safety kit composed of items like hairnets, aprons, gloves, and mouth guards—all aimed at strengthening food safety education among local food handlers.

Recommendations

In light of the findings and conclusions presented, the following recommendations are proposed. First, it is recommended that food handlers in carinderias/eateries participate in regular seminars and training programs on food safety to continuously improve their knowledge and skills. These programs will help reinforce the importance of applying safe food handling practices. Second, food handlers should consistently implement proper procedures in personal hygiene, food storage, temperature control, sanitation, and food preparation to ensure that the food they serve is safe for consumption.

Third, regular inspections and monitoring by local officials should be conducted to ensure that food handlers are complying with food safety standards. This oversight will help prevent lapses and encourage continuous improvement. Fourth, local authorities and eatery owners are encouraged to work together to provide ongoing resources and training opportunities to their staff. Finally, it is essential to launch a sustained information campaign that promotes the importance of food safety and encourages better practices among all stakeholders in the food service industry.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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