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Research Article

Assessing Food Handling Practices in Catering Services Across Isabela and Ifugao

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About Article

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ABSTRACT

Proper food handling methods are essential for guaranteeing food safety, especially in settings encountering logistical and infrastructural difficulties. This study aimed to assess the compliance of catering services with food safety requirements by investigating the knowledge, attitudes, and practices of food handlers. A survey questionnaire was used to gather descriptive data from 60 catering personnel in Ifugao and Isabela provinces, focusing on personal hygiene, food handling, culinary techniques, and equipment management. Data were examined utilizing the mean and standard deviation. Results indicated that participants demonstrated substantial knowledge and favorable attitudes towards essential elements of food safety, including proper handwashing, safe food handling, accurate cooking methods, and the proper use of equipment. The average scores for personal hygiene (3.77), cooking (3.49), food handling (3.57), and equipment use (3.30) indicate a robust commitment to maintaining safety and cleanliness. Nevertheless, areas necessitating enhancement were identified, including the comprehension of food danger zone temperatures, the management of equipment malfunctions, and the minimization of bare-hand contact with ready-to-eat items. The report emphasizes the need for ongoing training and education to bridge these gaps and enhance food safety standards. This research offers valuable insights into promoting safer food environments in the catering industry, highlighting both strengths and areas for improvement. Enhancing the competencies of food handlers through targeted interventions is crucial for protecting public health and ensuring the delivery of high-quality food service.

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1. INTRODUCTION

The catering business makes a significant contribution to the Philippine economy, driven by the country's economic growth and a burgeoning middle class. The Philippines' rich culinary tradition, combined with a significant cultural emphasis on social gatherings and festivals, has driven the development of the catering industry. The local catering business is experiencing significant growth, driven by heightened service demand resulting from a robust economy and increasing customer density (Diaz, 2023).

As the catering sector continues to prosper, catering enterprises must adopt and enforce stringent health and safety protocols to thrive in an environment where food safety is paramount. This study aims to investigate multiple facets of health and safety awareness in the catering industry, assessing its influence on enterprises and the strategies employed to comply with changing regulations (Vidani, 2018).

A vital element in ensuring food safety is the implementation of Pre-Requisite Programs (PRPs), which encompass maintaining sanitary, technical, and hygienic standards within catering businesses. In addition to physical infrastructure, human resources, including the skills, behaviors, and attitudes of personnel and facility managers, are crucial for the efficient implementation and maintenance of the Hazard Analysis Critical Control Points (HACCP) system (Smječanin *et al.*, 2024). The practical implementation of HACCP depends on a defined framework that delineates Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP), which are crucial for ensuring food safety (Oliveira *et al.*, 2016). Food safety training is crucial to support these initiatives, as food handlers in catering establishments often play a primary role in the transmission of foodborne illnesses. Research indicates that catering personnel generally possess insufficient knowledge regarding optimal cooking, holding, and storage temperatures, underscoring the need for food safety training to enhance their understanding (Ovca *et al.*, 2017).

Inadequate food handling, preparation, and storage procedures can promote the proliferation of pathogens, including bacteria, viruses, and other foodborne diseases. Numerous recorded instances have been associated with foodborne virus illnesses caused by contaminated food handlers employed in the catering industry (Akabanda *et al.*, 2017).

Catering services often encompass the shipping, serving, and management of food, each of which poses logistical problems that may impact food safety. Consistent with Putri and Susana (2021), it is imperative for food handlers to acquire sufficient information, exhibit favorable attitudes, and comply with appropriate food handling protocols to avert contamination. A positive attitude, combined with adequate information and proper practices, is crucial for ensuring food safety.

Furthermore, food workers who exhibit inadequate personal hygiene and lack knowledge of essential food safety principles are at a heightened risk of intestinal helminths, protozoa, and enteric infections, which can lead to food contamination. Consequently, all food handlers must have the requisite food safety knowledge (FSK) and handling skills to guarantee the hygienic preparation and presentation of food (Teffo & Tabit, 2020).

Catering services in San Mateo and Ramon, Isabela, along with Alfonso Lista, Ifugao, primarily cater to local events and gatherings, including weddings, corporate meetings, and private parties. These services often encompass meal transportation, on-site culinary preparation, and many associated chores. Interventions that instruct food handlers on critical control point identification, hazard analysis, hand hygiene, and other fundamental aspects of food safety have demonstrated efficacy in diminishing microbe proliferation during food preparation (Levy *et al.*, 2022).

Consequently, evaluating contemporary food handling procedures in catering services is a primary aim of this study. The objective is to detect deficiencies or vulnerabilities in these processes and assess their effectiveness in ensuring food safety and quality. Recommendations will be formulated to enhance food handling processes based on the findings. The study aims to evaluate the adherence of catering services to established food safety standards and the impact of these practices on food safety and quality, consequently improving the knowledge, attitudes, and practices within the catering business. This would also help catering services achieve higher levels of client satisfaction and food safety.

1.1. Objectives of the study

This study aims to assess the food safety and hygiene practices of catering service staff and owners in the provinces of Isabela and Ifugao.

Specifically, it seeks to achieve the following objectives:

i. To determine the level of knowledge of catering staff and owners on food safety and handling in the following areas:
- Personal hygiene
- Food handling
- Cooking procedures
- Use and sanitation of equipment

ii. To evaluate the attitudes of catering staff and owners toward food safety and hygiene in terms of:
- Personal hygiene
- Cooking practices
- Food handling
- Equipment use and maintenance

iii. To assess the food safety and hygiene practices observed by catering staff and owners concerning:
- Personal hygiene
- Cooking practices
- Food handling
- Equipment use and maintenance

iv. To identify the common challenges encountered by catering staff and owners in maintaining proper food safety and hygiene standards.

2. LITERATURE REVIEW

In this study, the researchers gathered theories from different authors that serve as a guide to the effect of food handling practices in catering in Alfonso Lista. It states the topic and provides accurate data for the researchers.

According to Putri and Susanna (2021), a cheerful mindset, adequate knowledge, and proper food handling techniques are all necessary to prevent food contamination. According to the

statement, surveys measuring participants' awareness of issues are usually conducted using knowledge, attitude, and practice questionnaires. The recommendations are then incorporated into training programs. The importance of the study has increased, especially in food-related units.

Many intestinal helminths of protozoa and entheogenic pathogens can infect food handlers who work in food outlets and have poor personal hygiene, unaware of critical factors in preventing foodborne illnesses. The project aims to raise awareness about preventing foodborne illnesses and to provide information on various food handling procedures. Many foodborne diseases are caused by inadequate cooking and storage temperatures, as well as cross-contamination from unhygienic handling practices, which are believed to be the leading causes of outbreaks in food preparation and serving facilities. Food-borne disease outbreaks in facilities that prepare and serve food have been linked to factors such as inadequate personal hygiene and the use of food from untrustworthy sources (Teffo & Tabit, 2020).

They are aware of some of the underlying issues, such as the use of contaminated drinking water for food processing, followed by inadequate cleaning practices, poor food handling procedures, including cross-contamination of food, the presence of infected food workers, and inadequate food production and storage techniques. These may be combined with industry compliance and regulatory requirements that are insufficient or poorly enforced. However, being aware of these is insufficient. Improvements in the investigation of complaints and illnesses to identify the underlying cause of outbreaks, the application of quick and accurate identification of the hazards present, the understanding of human behavior about food processing and preparation, the creation of effective educational and training programs, the assessment of the risks of current and modified food production and preparation practices, the prediction of the effectiveness of potential interventions, and the implementation of efficient and legally binding standards of conduct for the different used processing, and preparation sector components are all necessary to make progress in prevention and control practices. Although it is now widely acknowledged that human interaction is essential in implementing safe procedures to prevent foodborne illnesses, it is far more challenging to effect positive changes from both individual backgrounds and preferences, as well as organizational culture. This issue's five publications provide a meager attempt to examine some of these initiatives (Todd, 2020).

Catering services, both local and international, refer to the provision of food and beverage services for a range of local events and get-togethers. Managing food-related requirements for events, including weddings, business gatherings, and private parties, may involve transporting prepared meals, providing on-site catering, and other services. Menu planning, meal presentation, and cleanup may also be included in services, depending on the particular tastes and needs of the customers (Levy *et al.*, 2022).

3. METHODOLOGY

3.1. Research design

This research employed a quantitative descriptive approach to assess the knowledge, attitudes, and practices (KAP) of catering service personnel and proprietors regarding food safety and cleanliness. Quantitative research is ideally suited for this study as it facilitates the systematic collecting and analysis of numerical data using organized, closed-ended questions. According to Plana (n.d.), quantitative methods enhance efficiency by standardizing responses and facilitating statistical analysis, which is more streamlined than qualitative approaches that rely on open-ended questions. By using descriptive research to collect descriptive data from the respondents to know what the advantages and disadvantages of our study are.

3.2. Research locale

The study was conducted in three municipalities: San Mateo and Ramon in the province of Isabela, and Alfonso Lista in the province of Ifugao. These areas were purposively selected due to the observed increase in catering services, especially during local celebrations such as weddings, birthdays, christenings, and other social events.

3.3. Research respondents

The respondents were owners and staff members of nine (9) registered catering service establishments in the selected municipalities, totaling 60 participants. The aim was to assess their knowledge, attitudes, and practices concerning personal hygiene, food handling, cooking, and equipment sanitation.

3.4. Sampling technique

This study employed total enumeration sampling, also known as census sampling, which involves including all eligible members of the population in the research. This method allowed comprehensive data collection from all identified catering establishments, ensuring that no respondent or data segment was excluded. While similar in focus to purposive sampling, total enumeration differs in that it includes all qualifying members without introducing selection bias (Hassan, 2024).

3.5. Research instrument

Data were collected using a structured survey questionnaire developed by the researchers. The instrument was divided into four main parts. The questionnaire was patterned from the study of Lee *et al.* (2017), with modifications to contextualize the content for the local catering industry. A Likert scale (ranging from Strongly Agree to Disagree Strongly; or Always to Never) was used for most items to facilitate consistent measurement of responses.

3.6. Validation and reliability testing

The questionnaire used in this study underwent a rigorous validation and reliability assessment to ensure its accuracy and suitability. The instrument was initially formulated following a comprehensive analysis of pertinent literature and prior research on food safety, hygiene, and catering services. The draft questionnaire was assessed for content validity by a panel of three experts in food safety, public health, and catering operations. Their comments guaranteed that the items were congruent with the research aims and pertinent to the study's

setting. Modifications were implemented by their suggestions, followed by an exhaustive grammar and syntactic evaluation performed by a competent English editor. The modified instrument was subsequently pilot-tested on 30 student workers engaged in catering services to evaluate the clarity, coherence, and comprehensibility of the questions. Data from the pilot test were analyzed using IBM SPSS software to compute Cronbach's Alpha, thereby assessing the internal consistency of the questionnaire for reliability testing. All sections exhibited substantial reliability, as indicated by Cronbach's Alpha values over the allowed limit of 0.70, hence affirming the instrument's validity and dependability for data collection.

Table 1. Cronbach's alpha results

Domain	Number of Items	Cronbach's Alpha	Intrepretation
Knowledge of Personal Hygiene	5	.836	Good
Knowledge of Food Handling	5	.932	Excellent
Knowledge of Cooking Food	5	.849	Good
Knowledge on Equipment	5	.920	Excellent
Attitude on Personal Hygiene	5	.861	Good
Attitude on Cooking Food	5	.776	Acceptable
Attitude on Food Handling	5	.890	Good
Attitude on Equipment	5	.792	Accepatable
Practice Personal Hygiene	5	.883	Good
Practice Cooking Food	5	.909	Excellent
Practice on Food Handling	5	.920	Excellent
Practice on Equipment	5	.912	Excellent
Challenges in Food Handling	10	.929	Excellent
Overall Instrument Reliability	70	.946	Excellent

3.7. Data collection procedure

The data collection commenced with the formal procurement of an official roster of registered catering service providers from the Business Permit and Licensing Offices (BPLO) of the three study locations: San Mateo and Ramon in Isabela, and Alfonso Lista in Ifugao. Upon receipt of the lists, the researchers conducted personal visits to each designated catering establishment to engage directly with owners and staff, obtain their approval, and ensure voluntary participation in the study. Subsequently, the survey questionnaires were distributed in person to both proprietors and personnel. Throughout the distribution, the researchers provided explicit instructions and clarifications as needed to ensure accurate and truthful responses. Data collection was executed consecutively, commencing in San Mateo, followed by Ramon, and culminating in Alfonso Lista. This methodical approach guaranteed structured data management and uniformity throughout the procedure.

3.8. Data analysis

The gathered data were examined using a combination of descriptive statistical methods to ensure a thorough and meaningful interpretation of the findings. The weighted mean was utilized to evaluate the central tendency of responses, specifically in analyzing the overall levels of knowledge, attitudes, and practices among the participants. To assess the consistency and variability of these responses, the standard deviation was computed, providing insights into the distribution and dispersion of data points relative to the mean.

4. RESULTS AND DISCUSSION

4.1. Knowledge of respondents on personal hygiene, handling food, cooking food, and equipment

Table 2. Mean and standard deviation of knowledge on the respondents on personal hygiene, handling foods, cooking foods, and equipment

Knowledge	Overall Mean	Standard Deviation	Qualitative Interpretation
Personal Hygiene	3.78	.2994	SA
Handling Foods	3.40	.5121	SA
Cooking Foods	3.42	.5004	SA
Equipment	3.39	.4668	SA

LEGEND 1.00-1.74 Strongly Disagree (SD) 1.75-2.49 Disagree(D) 2.50-3.24 – Agree(A) 3.25-4.00 - Strongly Agree (SA)

Table 2 presents the mean scores and standard deviations of respondents' knowledge in four critical areas: Personal Hygiene, Handling Foods, Cooking Foods, and Equipment. The overall mean for Personal Hygiene is 3.78, which falls within the "Strongly Agree" (SA) range (3.25-4.00) according to the legend. This suggests that respondents have a high level of knowledge in maintaining personal hygiene, a crucial aspect of food safety. The standard deviation for this category is 0.2994, indicating that responses are closely clustered around the mean, showing consistency among respondents' understanding of personal hygiene practices.

The mean score for the Handling Foods category is 3.40, which also falls within the "Strongly Agree" range. This indicates a strong level of knowledge among respondents about proper food handling techniques. The standard deviation of 0.5121 suggests a slightly wider variation in responses compared to Personal Hygiene, but the overall knowledge in this area remains high.

Similarly, the mean for Cooking Foods is 3.42, indicating that respondents strongly agree with the knowledge expectations in this area. The standard deviation of 0.5004 is consistent with the variability observed in Handling Foods, suggesting that while respondents generally possess strong knowledge about cooking food safely, there may be some variation in their understanding of specific cooking practices.

The Equipment category has a mean score of 3.39, indicating that respondents have a strong knowledge of the use and sanitation of equipment, which is critical for maintaining food safety. The standard deviation for this category is 0.4668, indicating a moderate level of consistency in responses, although it remains slightly more varied than the Personal Hygiene category.

All four areas show that respondents have strong knowledge, with all mean scores falling within the "Strongly Agree" range. The relatively low standard deviations indicate that most respondents have a similar level of knowledge, although there is some variation, particularly in areas such as handling and Cooking Foods. This suggests that while the respondents are generally well-versed in food safety practices, there may be specific areas where additional training or clarification could be beneficial to ensure uniform knowledge across all respondents. The implications of these results suggest that catering services can rely on their staff's general competence in food safety but may need to address any gaps or inconsistencies in specific food handling or cooking practices to improve overall standards.

According to Abas *et al.* (2021) Hand washing (or handwashing), commonly referred to as hand hygiene, is the process of cleansing one's hands with soap and water to get rid of bacteria, viruses, and other undesirable substances that have become stuck to them. Regular hand washing with soap eliminates germs and reduces the risk of spreading infections to others (Satish Kumar *et al.*, 2020). Additionally, in the culinary and hospitality industries, nail hygiene is an essential component of food safety. Workers at these establishments have direct contact with food, and dirty nails can harbor pathogens and dangerous bacteria that can contaminate food and cause foodborne illnesses. Nails that are kept short and well-trimmed are less likely to harbor bacteria, dirt, and other impurities. Food safety is at risk since long nails can readily catch pathogens and food particles (Admin, 2024). Face masks are one type of personal protective equipment that can help prevent the transmission of bacteria and viruses, particularly in the context of preventing respiratory illnesses. For respiratory viruses that are disseminated by droplets traveling short distances and spread through coughing or sneezing, face masks are more frequently used (Dessai, 2020). Moreover, hairnets, hats, or scarves are appropriate hair covers for staff members who prepare meals. Beard nets should be worn by bearded staff. Workers should wash and sanitize tools and utensils, as well as prepare and serve food items, while wearing clean outerwear (Nationwide, n.d.).

It emphasizes the importance of understanding the danger zone temperature range to prevent bacterial growth. Bacteria grow best in temperatures between 40 and 140 degrees Fahrenheit, and they can double in number in as little as 20 minutes. This range of temperatures is commonly known as the "Danger Zone." ("Danger Zone" (40°F - 140°F) | Food Safety and Inspection Service, n.d.) The food sector frequently uses food labels even when consumers do not fully understand them. Although food manufacturers frequently put label dates to signify quality or freshness, consumers may incorrectly think that these dates are intended to provide information about an item's safety (Kavanaugh & Quinlan, 2020). Additionally, any food business must prioritize food safety. Maintaining the health and safety of your patrons depends on keeping pests out of your business, whether you own a bakery, restaurant, or food processing facility. Common pests that can contaminate food include cockroaches, flies, and rodents. This can result in financial losses, reputational damage, and health code violations. Both safety and compliance must prevent pests from entering the food industry. Proper hygiene, vigilant monitoring, and professional intervention can maintain a clean and pest-free environment (Lei, 2025).

The consistently high response rates for all items indicate that responders are well-informed about cooking practices, particularly in terms of food safety and safe food preparation. This data is not only helpful but also crucial for preparing safe, healthy, and high-quality food. Safe handling, cooking, and storage practices are crucial to prevent foodborne illness. Harmful microorganisms that might cause illness are invisible, odorless, and tasteless. (Safe Minimum Internal Temperature Chart | Food Safety and Inspection Service, n.d.). The precise heat settings at which certain meals are prepared are referred to as cooking temperatures. Knowing these temperatures is essential to ensure that your food is both safe to eat and delicious. By understanding the proper cooking temperatures, you can prevent undercooked or overdone food and achieve the desired doneness (Ultimate Guide: Cooking Temperature Chart – Cookery Hut, 2023). A crucial step in ensuring the quality and safety of many food items, particularly those that are potentially hazardous, is temperature testing. Temperature monitoring during the receiving, production, or final product storage and distribution stages requires the use of appropriate, dependable, and accurate food thermometers (Food Hygiene Code, 2017).

According to Kans and Diego (2017), Smart, networking-based equipment is a byproduct of the most recent industrial

revolution. Preserving machine dependability is crucial for minimizing production losses and downtime, enhancing operational efficiency, ensuring worker safety, and extending equipment lifespan. Cleaning, lubrication, and calibration are examples of routine maintenance procedures that support efficient operations and reliable performance (Agustiady & Cudney, 2023).

4.2. Attitude of respondents on personal hygiene, cooking foods, handling foods, and equipment

Table 3: mean and standard deviation of attitude of respondents on personal hygiene, cooking foods, handling foods, and equipment.

Attitudes	Overall Mean	Standard Deviation	Qualitative Interpretation
Personal Hygiene	3.77	.3579	SA
Cooking Foods	3.49	.4513	SA
Handling Foods	3.57	.3805	SA
Equipment	3.30	.5405	SA

LEGEND 1.00-1.74 Strongly Disagree (SD) 1.75-2.49 Disagree(D) 2.50-3.24 – Agree(A) 3.25-4.00 - Strongly Agree (SA)

Table 3 presents the mean scores and standard deviations for the respondents' attitudes toward four key areas: Personal Hygiene, Cooking Food, Handling Food, and Equipment. The overall mean for Personal Hygiene is 3.77, which falls within the "Strongly Agree" (SA) range. This suggests that respondents hold a very positive attitude towards personal hygiene, indicating that they recognize the importance of maintaining cleanliness and hygiene in food preparation. The standard deviation of 0.3579 indicates that responses are relatively consistent, with slight variation in the degree of agreement with the importance of personal hygiene.

The mean score for cooking foods is 3.49, which falls within the "Strongly agree" range, indicating that respondents have a favorable attitude toward safe cooking practices. The standard deviation of 0.4513 indicates moderate variability in responses, meaning that while most respondents agree on the importance of cooking foods properly, there is some variation in how strongly they feel about certain cooking practices.

The mean for Handling Foods is 3.57, again within the "Strongly Agree" range, indicating that respondents generally possess a positive attitude toward proper food handling. The standard deviation of 0.3805 is relatively low, signifying that there is slight variation in how strongly respondents agree about the importance of handling food safely.

For the Equipment category, the mean score is 3.30, which still falls within the "Strongly Agree" range, though it is slightly lower than the other categories. This suggests that respondents have a positive attitude toward equipment use and maintenance, though the score indicates that this attitude may not be as strong as in the other areas. The standard deviation of 0.5405 is the highest among the four categories, suggesting that there is more variability in responses. This could imply that some respondents may feel less strongly about the importance of equipment cleanliness and maintenance, highlighting a potential area for improvement.

All four categories show that respondents generally have a positive attitude toward food safety, with mean scores falling within the "Strongly Agree" range. The relatively low standard deviations for most categories indicate consistency in attitudes. However, there is more variability in the Equipment category, which may warrant further attention to ensure all respondents maintain a strong attitude toward equipment sanitation and care. These results suggest that while respondents generally have a favorable attitude toward food safety practices, there may be a need for targeted reinforcement in areas such as equipment handling.

According to Mengal *et al.* (2017), this study demonstrates that the bacterial load of certain accessories (such as watches, tattoos, and rings) is a source of food cross-contamination. The sampling procedure was carried out using a swab collection approach from accessories, such as rings, bracelets, earrings, necklaces, piercings, and recently applied tattoos, which were left in place while learning how to cook or serve tables, where there was a chance of food cross-contamination. Food hygiene refers to the circumstances and measures necessary to guarantee food safety from production to consumption. Any of the following processes can contaminate food: harvesting, processing, storing, distributing, transporting, and preparing. The conditions and actions required to guarantee the safety of food from manufacturing to consumption are known as food hygiene (Sahil *et al.*, 2020).

According to Yathart and Chandigarh (2023), Innovative culinary techniques and the inventive use of seasonal, locally available ingredients can result from culinary innovation. Healthy cooking techniques and ingredient choices have evolved in response to the growing number of health-conscious consumers.

According to Disanto *et al.* (2021), the Appropriate management of food service employees is essential, as increased productivity and overall improvement in the implementation of HACCP procedures are greatly influenced by a happy and inspiring work environment. Additionally, managers need to lead by example by implementing proper food safety procedures during operations. From a conscious rather than an informative standpoint, they should also train staff members on food safety regulations and management systems, including HACCP, to motivate them to handle food safely and effectively. The participant's perspective on foodborne illness was less favorable. This demonstrated that food handlers were not adequately trained. Regarding methods for preserving and storing food, most of them engaged in practices they considered cultural (Ateye *et al.*, 2024).

According to Rustia *et al.* (2017), food-contact surfaces are made of materials that are impervious, non-toxic, corrosion-

resistant, easily cleanable, long-lasting, and chip-resistant. Equipment and utensils are also easily cleaned and free of dangerous materials (such as lead-soldered and cadmium-lined plumbing fixtures). Utensils and equipment are non-toxic and straightforward to clean. Finding the issue and its underlying cause is the first step in handling an equipment failure. This will help you avoid rash decisions, wasting time, or making errors. To collect information, evaluate data, and validate your conclusions, use your technical expertise, diagnostic tools, and communication abilities. Seek assistance and direction from your coworkers, your manager, or the manufacturer, if at all possible. (What Techniques Can You Use to Manage Your Stress and Emotions During Equipment Failures?, 2024).

Choosing the right food processing equipment, maintaining a clean and hygienic processing plant and equipment, and properly organizing the facility are the key factors in ensuring food safety. Several factors influence cleaning and sanitization, including environmental, chemical, biological, and physical factors. The foundation for the cleaning, sanitation, and upkeep of food processing facilities and environments is a combination of Good Manufacturing Practices (GMP), Hazard Analysis Critical Control Points (HACCP), and Sanitation Standard Operating Procedures (SSOP), (Wang *et al.*, 2020).

4.3. Practices of respondents on personal hygiene, cooking food, handling food, and equipment.

Table 4. mean and standard deviation of attitude of respondents on personal hygiene, cooking foods, handling foods, and equipment.

Practices	Overall Mean	Standard Deviation	Qualitative Interpretation
Personal Hygiene	3.75	.3712	A
Cooking Foods	3.68	.3876	A
Handling Foods	3.54	.4131	A
Equipment	3.62	.4206	A

LEGEND 1.00-1.74 – Never (N) 1.75-2.49 – Rarely (R) 2.50-3.24 – Sometimes (S) 3.25-4.00 – Always (A)

Table 4 presents the mean scores and standard deviations for the respondents' practices in four critical areas: Personal Hygiene, Cooking Foods, Handling Foods, and Equipment. The overall mean for Personal Hygiene is 3.75, which indicates that respondents consistently practice good personal hygiene, demonstrating a strong commitment to maintaining cleanliness and hygiene during food preparation. The standard deviation of 0.3712 suggests a low level of variability in responses, indicating that most respondents consistently adhere to personal hygiene practices.

The mean score for cooking foods is 3.68, which is also within the "Always" range. This suggests that respondents consistently apply proper cooking practices to ensure food safety. The standard deviation of 0.3876 indicates moderate consistency, suggesting that while most respondents consistently follow correct cooking procedures, there is some variation in the rigor with which these practices are followed.

The mean for Handling Foods is 3.54, which also falls within the "Always" range. This suggests that respondents consistently practice proper food handling techniques, ensuring safe food practices during preparation, storage, and service. The standard deviation of 0.4131 indicates some variation in responses, but it remains within an acceptable range, indicating that most respondents maintain good food handling practices. However, a few may do so less consistently.

The Equipment category has a mean of 3.62, which also falls within the "Always" range. This implies that respondents regularly follow proper practices in the handling and sanitation of equipment used in food preparation and service. The standard deviation of 0.4206 indicates that there is slightly more variation in responses in this area, suggesting that while most respondents maintain good equipment practices, a few may not adhere consistently to equipment sanitation procedures.

Generally, all four categories show that respondents generally practice good food safety behaviors, with mean scores falling within the "Always" range. The relatively low standard deviations for Personal Hygiene and Cooking Foods suggest consistent practices. In contrast, the slightly higher standard deviations for Handling Foods and Equipment indicate more variability in how these practices are followed. These results imply that, while respondents consistently adhere to proper food safety practices, there may be a need for further training or reinforcement in areas such as equipment handling to ensure uniformity in practices across all respondents.

According to Yoo and Song (2021), one of the fundamental behaviors for preserving personal hygiene and stopping the spread of infectious diseases is washing your hands with soap. Maintaining good personal hygiene is essential for producing food that is safe for customers. Food handlers should follow safe procedures, including wearing proper attire such as helmets, aprons, and closed-toe shoes; they should also refrain from smoking, coughing, sneezing, or wearing jewelry while working that could contaminate meals (Aulia *et al.*, 2024).

Cross-contamination, which occurs when raw food spills onto cooked food, utensils, or surfaces, can spread bacteria from one thing to another. When preparing and storing food, it can be avoided by: keeping raw meat and unwashed vegetables separate from ready-to-eat meals; keeping raw meat in a sealed container at the bottom of the refrigerator; never washing raw meat in separate shopping bags from raw and ready-to-eat foods; and using different cutting boards, plates, and utensils for raw and cooked food or thoroughly cleaning them between uses. You should also wash your hands, worktops, and utensils after handling raw meat, poultry, fish, and eggs, as well as

before handling fresh food (NHS Inform, 2025).

According to Candido *et al.* (2020), the proverb emphasizes the importance of health to humans. This firm belief is that any establishment serving a variety of customers, including Administrators, teachers, support staff, and students, must ensure that the food supplied in the school canteen every day is safe to eat, clean, and free from pollutants, including physical, chemical, and microbiological ones. The study developed and applied a model to assess food safety knowledge among pre-trained food handlers, identifying the specific requirements for food safety training workers with prior knowledge of food safety (Rustia *et al.*, 2017).

According to Borbon *et al.* (2020), food sanitation goes beyond mere cleanliness. Instead, it starts with personal hygiene, handling food safely while preparing it, and using clean utensils, modern appliances, storage, and areas in the kitchen and dining room. Food preparation, food handlers, facilities, and equipment must all be considered when controlling the microbiological purity of food.

4.4. Challenges encountered by the respondents in food handling

Table 5. Mean and standard deviation of the challenges encountered by respondents.

Challenges Encountered	Mean	Std. Deviation	Qualitative Interpretation
I frequently feel overwhelmed by the volume of work during peak hours.	2.02	.873	A
I always experience fatigue due to long working hours.	2.02	.948	A
I feel pressured to meet tight deadlines for food preparation and delivery.	2.02	.892	A
As a staff, maintaining proper hygiene standards in a busy catering environment is very challenging.	1.63	.758	SA
I know that it is hard always to ensure food is stored and transported at the correct temperatures.	1.72	.715	SA
I know that Insufficient kitchen equipment and facilities can hinder efficient food preparation.	1.60	.616	SA
I noticed that I do not receive adequate training on food safety and hygiene practices.	2.17	.994	A
I am aware that meeting the diverse needs and expectations of customers can be challenging.	1.72	.691	SA
I experience physical discomfort due to repetitive motions and awkward postures.	2.03	.956	A
I know that effective communication within the catering team can be challenging.	1.70	.850	SA
Overall Mean		**1.87**	**A**

LEGEND 1.00-1.74 Strongly Agree (SA) 1.75-2.49 Agree (A) 2.50-3.24 – Disagree (D) 3.25-4.00 - Strongly Disagree (SD)

Table 5 presents the areas of difficulty and the staff's challenges with meal preparation and catering. During busy periods, stress can be particularly challenging. Because it is difficult to guarantee that food is always carried and stored at the proper temperature, and they are aware that meeting the diverse needs and expectations of customers can be challenging, the personnel score high, with a total mean of 1.72. It might be challenging to meet the demands and expectations of customers. The respondents' low-level score of 2.17 suggests that they do not get enough instruction on proper food safety and hygiene procedures. Overall, the score is 1.87, which is moderate to low due to the difficulties, but these can be overcome with teamwork. The average score falls between moderate and low. This suggests that the current issues are not particularly severe. However, issues such as stress during peak hours, physical pain during extended workdays, and inadequate staff training can be addressed. For employees to remain productive and improve food safety, we should also maintain their healthy lifestyle. A more productive and successful team and workforce can be achieved by implementing training programs, creating more pleasant working environments, and developing stress-reduction techniques.

According to Del Rosario *et al.* (2018); PEJ Reader (n.d.), the study states that the study looks into the difficulties faced by a long-standing catering company in San Pablo City. The major informants in this study highlighted the lack of personnel and equipment, as well as early or late arrival at the venue, as their main difficulties. This study evaluated the catering business that had previously operated in Batangas province. The problems encountered include inadequate parking, unanticipated power outages, the seasonality of the products, and a discrepancy in scope between managers and employees. It also shares techniques for improving business strategy and customer service (Rasa, 2018).

5. CONCLUSION

Based on the findings, the following were concluded.

i. The result shows that the respondents have a similar level of knowledge of catering staff and owners, particularly in handling food and cooking food.

ii. The results show that the respondents have a low score in terms of the attitudes of catering staff and owners towards

equipment.

iii. The respondents' results on the level of practices, particularly in terms of personal hygiene and food preparation, were low.

iv. The common challenges encountered by the catering staff and owners in maintaining proper food safety and hygiene standards have proven that they agree and encounter the challenges mentioned.

RECOMMENDATIONS

Based on the conclusions, the following were recommended:

i. Catering owners and staff are highly encouraged to attend a seminar or training to gain knowledge, especially on the handling and cooking of food, so they know the proper food safety and cooking procedures.

ii. It is recommended that the catering owner and staff receive orientation or training on the proper operation of equipment for more efficient use and to exhibit positive behavior when operating or using it.

iii. The staff and owners are highly encouraged to attend a training or seminar on how they maintain proper hygiene and cleanliness of catering staff and owners.

iv. For future Researchers, it is recommended to gather data in San Mateo, Isabela, Ramon, Isabela, and Alfonso Lista, Ifugao, to observe personal hygiene, food preparation, handling of food and equipment, and violations. To add more respondents, it is recommended to separate the questionnaire content for staff and owners.

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