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Food Safety and Food Quality Practices of Kitchen Staff in Selected Food Service Establishments in Dipolog City

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Abstract

Food safety and food quality are important in every food service establishment. This study determined the food safety and food quality practices in food service establishments in Dipolog City, Philippines. Utilizing a descriptive-quantitative research design, with survey questionnaire as instrument, the respondents of the study were 100 kitchen staff in selected food service establishments selected using purposive sampling. Data were analyzed using frequency count and percentage, mean, and Chi-Square. Findings revealed that safety and quality practices in terms of food handling, storing perishable and non-perishable goods, and quality and protection of food were "Always Practiced" in selected food service establishments. A significant difference was revealed in the level of safety and quality practice in food service establishments according to the respondents' location, number of years of operation, and type of establishment while no significant difference exists in the level of safety and quality practices in terms of the number of its employees. The study concludes that the kitchen staff consistently demonstrate excellent food safety and quality practices in food handling, storage, and food protection. It is recommended that the management may continue reinforcing these practices through regular training, monitoring, and supervision to maintain high safety standards and prevent lapses.

Keywords: food safety, food quality, food service establishments, kitchen staff practices, food handling and storage, organizational factors in food safety

INTRODUCTION

The World Health Organization stresses that unsafe food, often caused by poor handling, inadequate cooking, cross-contamination, and poor hygiene, is a major global health threat, leading to millions of illnesses annually (World Health Organization, 2024). While the Centers for Disease Control and Prevention (CDC) emphasizes cleanliness and safe preparation practices (Centers for Disease Control and Prevention, 2025). That is why food safety in food service establishments is very essential.

Food safety is a major global problem caused by a lack of knowledge in preparing and handling food, leading to food contamination (Azanaw et al., 2019). Assessing and improving food handlers' knowledge of food safety and handling practices plays a dominant role in ensuring strict adherence to food safety principles (Rustia et al., 2021). Food is handled by many individuals, thereby increasing the chances of food contamination due to improper handling. It was emphasized that improper food safety procedures become increasingly associated with foodborne illnesses, as unsafe handling, inadequate cooking, and poor hygiene contribute to millions of global cases each year (World Health Organization, 2024; Centers for Disease Control and Prevention, 2025).

Food safety begins with preventing food contamination, and proper food handling is vital in this effort (Haider, 2019). Prior food-related work experience and education are critical

factors in ensuring food handlers perform healthy food-related tasks (Alqurashi et al., 2019).

This study primarily supports Sustainable Development Goals (SDGs), specifically SDG-3 (Good Health and Well-being), while also contributing to SDG-2 (Zero Hunger) and SDG-12 (Responsible Consumption and Production) by promoting safer, higher-quality food handling systems. Under SDG-3, it substantially reduces the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination. For SDG-2, it ensures access to safe, nutritious, and sufficient food, which includes food that is free from contamination. Moreover, SDG-12 encourages sustainable practices in food production and handling, including reducing food loss due to spoilage or mishandling.

Food safety remains a critical public health concern in the Philippines, affecting both residents and tourists. Diarrheal disease has consistently ranked among the leading causes of morbidity and mortality, particularly in children, with unsafe food handling and poor sanitation as major contributors (Philippine Institute for Development Studies & UNICEF, 2023). The World Health Organization (2024) reports that diarrheal disease is the third leading cause of death in children under five globally, while local studies estimate thousands of Filipino child deaths annually (Angara, 2011).

On the other hand, food contaminations, which results from improper food preparation and handling skills, are also a significant global concern that affects food safety (Azanaw et al., 2019). It underlines how inadequate food safety practices are being linked to more and more foodborne illnesses (Ayaz et al., 2018).

Strengthening food handlers' knowledge and adherence to safety practices is essential to reducing foodborne illnesses. Yet, research on food safety practices in food service establishments remains limited. In Zamboanga del Norte, a study on street food vendors in Dipolog and Dapitan revealed that while sanitation and hygiene were sometimes or often practiced, a significant proportion of vendors lacked formal training, with approximately 98% never attending food safety seminars, leading to inconsistent practices (Solon, 2022). These findings highlight persistent gaps in knowledge, training, and compliance with sanitation standards. Similar observations in other Philippine contexts underscore the need for continuous monitoring, structured training, and stricter enforcement of food safety regulations (World Health Organization, 2024; Centers for Disease Control and Prevention, 2025).

This study aims to fill the above stated gap by determining the food safety practices of kitchen staff in food service establishments in Dipolog City, Philippines. The study was utilized to educate both the respondents and the researchers about the importance of food safety procedures. Specifically, the study focused on the food safety practices of kitchen staff in food service establishments in Dipolog City.

Significance of the Study. This study holds practical value for multiple stakeholders. For employees, it provides insights into food safety practices within food service establishments, enhancing their knowledge and encouraging responsible handling of food. Food establishments likewise benefit, as the findings highlight strategies to strengthen safety standards, prevent risks, and foster greater awareness of sanitation compliance. Students, particularly those in Hospitality Management, gain exposure to real-world applications of food safety and quality practices, which can enrich their training and set higher benchmarks for professional preparation. Academic institutions also stand to benefit, as the results can guide curriculum improvements and establish new standards for both students and faculty.

Beyond these immediate beneficiaries, the study contributes to the broader academic community. Researchers may utilize its findings to advance discussions on food safety practices, while future researchers can draw upon its recommendations, data, and contextual insights

as a foundation for subsequent inquiries. By documenting the actual situation of food service employees in Dipolog City, Philippines, the study provides a reliable reference point for policy development, institutional planning, and scholarly exploration. Ultimately, it underscores the importance of continuous research in monitoring, training, and compliance to fill the identified gap in the body of knowledge on food safety practices in local food service establishments.

Objectives. This study determined the food safety and food quality practices in food service establishments in Dipolog City. Specifically, the following are the study's objectives:

1. To describe the profile of the food service establishments in terms of:
   1.1 Location;
   1.2 Number of Employees;
   1.3 Number of Years in Operation and
   1.4 Type of establishment?

2. To describe the level of kitchen staff safety and quality practices in food service establishments in terms of:
   2.1 Food Handling;
   2.2 Storing perishable and non–perishable goods; and
   2.3 Quality and protection of food?

3. To determine if there is a significant difference in the level of kitchen staff safety and quality practices in food service establishments when data are analyzed according to the respondents' profile.

Null Hypothesis. There is no significant difference in the level of kitchen staff safety and quality practices in food service establishments when data are analyzed according to the respondents' profile.

LITERATURE REVIEW

Personal Hygiene. Personal hygiene is one of the most fundamental components of food safety because food handlers can directly transmit biological contaminants to food through unclean hands, improper work attire, uncovered hair, jewelry, wounds, or unsafe habits while working. International food safety guidance consistently emphasizes that food handlers must maintain a high degree of personal cleanliness, wash hands properly and frequently, wear appropriate protective clothing, and avoid behaviors that may contaminate food, since poor personal hygiene can lead to food contamination and foodborne illness (Food and Agriculture Organization [FAO], 2023; World Health Organization [WHO], 2024). WHO further notes that unsafe food causes more than 200 diseases and remains a major public health concern worldwide, making hygienic behavior among food handlers a critical preventive measure (WHO, 2024).

A recent survey of 100 employees across five local restaurants in Santo Tomas, Batangas found that personal hygiene (alongside food and environmental hygiene) was rated very high, and employee hygiene management showed a significant positive effect on overall food safety practices (Batosalem et al., 2025). In Barangay Tibal-og, Davao del Norte, a study involving 150 street vendors revealed that strong knowledge of personal and health hygiene correlated positively with reported hygiene behaviors, a clear linkage between awareness and practice (Labao et al., 2024). Workers in a smoked-fish processing plant demonstrated solid understanding of PPE and personal hygiene. Nonetheless, actual practices such as regular handwashing and adequate stations were inconsistent. Recommendations included installing handwashing facilities and enhancing hygiene training (Zamudio et al., 2024).

Food Handling. Food handling is a critical stage in the food chain, as multiple individuals are involved, increasing the risk of contamination. Hlortsi and Owusu-Kwarteng (2017) note that deliberate or accidental contamination during large-scale production can endanger consumer health and affect national well-being. While institutional food handlers often possess adequate knowledge, this does not always translate into strict hygienic practices. Mishandling or neglecting hygiene allows

pathogenic bacteria to survive in food, leading to multiple illnesses. Thus, food handlers play a vital role in ensuring safety across production and storage.

Empirical evidence shows that food handling practices are uneven and shaped by training, attitudes, and supervision. Rifat et al. (2022), in a systematic review of Bangladesh studies, found unsatisfactory practices, with knowledge, education, and training linked to better outcomes. In the Philippines, Shane et al. (2025) reported that food handlers in Marikina eateries demonstrated a significant relationship between safety practices and attitudes. Although many followed essential procedures, gaps remained in preventing cross-contamination and proper preparation, suggesting that favorable attitudes help but continued education and monitoring are essential.

Storage practices also influence food safety. Perishable foods such as cooked or high-risk items are refrigerated or frozen, typically at 3–5°C (37–41°F). While refrigeration slows bacterial growth, it does not eliminate it. Kurniawan et al. (2015) highlight that perishable products have unique inventory challenges, including fluctuating demand and limited shelf life. Effective inventory management reduces losses and ensures safety, underscoring that both handling and storage practices are integral to food safety efficiency.
Sarmiento & Apritado (2022) surveyed 10 restaurants and 303 guests, confirming strong compliance with sanitation code—including food handling, storage, and servicing. Areas for refinement included food handling routines and temperature monitoring. Basa et al. (2019) tested a photovoltaic-powered freezer with wireless sensors for real-time inventory and temperature tracking. This system could improve consistency in storing perishable goods without the need for physical checking. The Sanitation Code of the Philippines, known as the Presidential Decree No. 856 (1975) outlines best practices for food storage which includes for dry (non-perishables) must be stored in designated cupboards or racks ($\geq$ 20 cm off floor), in insect/vermin-proof environment, at 10–15 °C, with separate storage from chemicals; use metal, non-corrosive containers with tight covers. Meanwhile, refrigeration (perishables) maintains $\leq$ 7 °C (ideally 4 °C for extended storage); specific temperatures: frozen $\leq$ 2 °C, meat/fish 0–3 °C, dairy 5–7 °C, produce 7–10 °C; use clean, well-maintained units with interior thermometers and adequate shelving for ventilation. These regulations establish targets to preserve food safety, quality, and shelf life in local food establishments.

Food Safety Practices. It emphasizes that improper food safety procedures have become increasingly associated with foodborne illnesses. Furthermore, because household kitchens are frequently used for several purposes, the danger of food contamination and the spread of foodborne illnesses increases. Food safety begins with preventing food contamination (Haider, 2019). Prior food-related work experience and education are critical factors in ensuring food handlers perform healthy food-related tasks. Furthermore, training, policy design, and standard setting can reduce the occurrence of foodborne illnesses caused by food handlers in food outlets (Alqurashi et al., 2019).

Billions of people are at risk of unsafe food. Millions of people become sick, while hundreds and thousands of people die yearly. In the 21st century, food safety issues have not decreased. Local outbreaks can turn into international emergencies due to the speed and range of product distribution. The severe foodborne disease incidences occurred in every continent. Food safety depends on science and equitable law enforcement. Periodically, new laws and regulations must be enacted to further project a continuing supply of food products that are secure and wholesome for the health and wellness of the people. Rahman et al. (2012) state that food safety may be a key public health concern. Food handlers play a vital role in guaranteeing food safety throughout the chain of storage, process production, preparation, and selling.

Quality. Food quality is a broad concept that refers to the characteristics of food that determine its value and acceptability to consumers. Food quality is especially important in food service establishments because it directly shapes customer acceptance of meals. The concept of food quality also has a strong public health dimension. WHO states that access to sufficient amounts of safe and nutritious food is essential for sustaining life and promoting good health. This implies that food quality should not be reduced to taste or presentation alone; it also includes the nutritional and hygienic suitability of food for human consumption. In the Philippine legal context, this principle is echoed in Republic Act No. 3720, which declares it a state policy to ensure a safe and good quality supply of food and to establish standards and quality measures for food. Thus, food quality in food service establishments is not merely a matter of customer satisfaction but also of legal, nutritional, and health responsibility (WHO, 2024).

Recent studies support the importance of food quality in restaurant performance and customer response. De Guzman et al. (2025), in a study of fast-food establishments in San Jose, Occidental Mindoro, found that respondents preferred freshly prepared and flavorful meals and that maintaining high food quality was important for customer loyalty. The study further reported that food quality had a significant effect on loyalty, although service quality had a larger effect overall. This finding is relevant because it shows that food quality remains a measurable and influential dimension of restaurant operations, particularly through attributes such as freshness and flavor.

Enhancing Food and Safety Efficiency. Enhancing food safety efficiency involves strengthening systems, personnel training, monitoring, and corrective actions to ensure consistent safety in food service establishments. Efficiency does not simply mean speed but accurate, consistent application of controls with minimal waste. The World Health Organization (WHO, 2024) identifies unsafe food as a major global health concern and promotes systematic prevention programs, including the "Five Keys to Safer Food," to guide daily practices.

Empirical studies affirm that efficiency improves when training, awareness, and supervision are prioritized. Amaiach et al. (2024) found that food safety knowledge, attitudes, and practices among Moroccan food handlers were shaped by education and prior training, underscoring competence as vital for operational performance. In the Philippines, a 2026 study of Mandaluyong restaurants reported general compliance with sanitation strategies but recommended stronger standardized procedures, monitoring, and communication. Escario (2025) further emphasized that efficiency is enhanced when establishments integrate knowledge, supervision, and systematic implementation.

Food Safety Legislation. Food safety legislation encompasses laws, standards, and enforcement mechanisms that regulate food production, handling, storage, distribution, and sale to safeguard public health. Globally, food safety is recognized as a shared responsibility requiring coordinated action across sectors. The World Health Organization (WHO, 2024) underscores the need for a multisectoral One Health approach, while the WHO Global Strategy for Food Safety 2022–2030 calls for evidence-based, coordinated systems. These perspectives highlight that legislation extends beyond hygiene rules to governance, monitoring, risk communication, and institutional accountability.

In the Philippines, Republic Act No. 10611, or the Food Safety Act of 2013, serves as the primary law strengthening the national regulatory system, protecting consumer health, and facilitating market access. It assigns responsibility to food business operators and empowers local government units (LGUs) to regulate establishments such as markets, canteens, restaurants, catering services, and street food vendors. The law also mandates

traceability, risk analysis, official controls, and penalties, providing a systematic framework for food safety management.

Empirical studies reveal that effectiveness depends on awareness, agreement, compliance, and enforcement. Labana et al. (2024) found that while Manila consumers were aware of RA 10611, agreement with policies more strongly influenced compliance. Jambre & Lagorra (2023) reported enforcement gaps in Dipolog City, where 82% of vendors claimed compliance but inspections showed otherwise. Origenes et al. (2022) observed poor hygiene compliance among Cebu vendors, with 100% of food samples contaminated by E. coli. Baldonado (2024) noted LGUs in Pangasinan struggled with limited sanitary inspectors despite growing establishments. Collectively, these studies emphasize that legislation must be matched with training, monitoring, and enforcement to ensure food safety in practice.

Theoretical Framework. This study is anchored on the Knowledge, Attitudes and Practices (KAP) Theory which is commonly used to examine the cognitive aspects of food handling. The theory assumes that individuals who handle food will adopt positive food safety practices if they have the knowledge and positive attitudes (Bas et al., 2006). In general, institutional food handlers have satisfactory knowledge of food safety, but this does not translate into strict hygienic practices during the processing and handling of food products. In addition, Zanin (2017) also shared that this study presents an overview of the relationship between knowledge, attitudes, and practices (KAP) of food handlers with training in food safety, in addition to proposing reflections on the training of food handlers, considering its responsibility for food safety and health of consumers.

The theory further posits that individuals' practices are shaped by what they know and believe. In the context of food safety and quality, the theory guided the investigation of how food handlers' knowledge of proper hygiene and food handling affects their attitudes toward safety protocols and ultimately influences their day-to-day practices in food establishments. The framework allows the study to assess whether a gap exists between what food handlers know and what they actually do. By structuring the data collection around these three dimensions, the research can identify specific areas for training and behavioral improvement. This approach is particularly useful as it emphasizes the role of education and perception in behavior change. In this study, the KAP model will help explain why some food handlers comply with safety standards while others do not, despite having similar access to information. Ultimately, it supports the development of targeted interventions to enhance food safety and quality in food service establishments in Dipolog City.

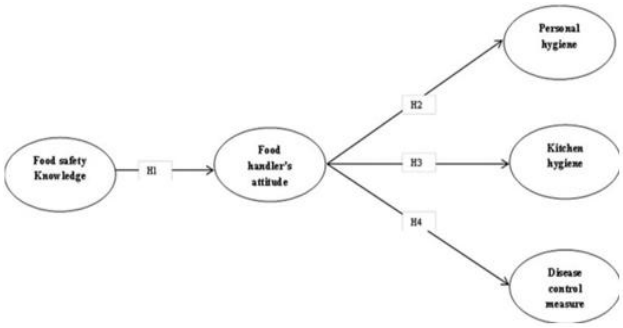

Figure 1
Knowledge, Attitude and Practices Theory

Conceptual Framework. The conceptual framework of the study is structured around three categories of variables: independent, dependent, and intervening. The independent variable pertains to the extent of kitchen staff safety practices, specifically in relation to food handling, the storage of perishable and non-perishable goods, and the assurance of food quality and protection. The dependent variable encompasses the overall food safety and food quality practices observed within food service establishments. Meanwhile, the intervening variable is represented by the demographic and professional profile of the respondents, which includes age, gender, position, and length of service.

This study is designed to examine the relationship between kitchen staff safety practices and the overall food safety and food quality practices within food service establishments in Dipolog City. The independent

variable includes the areas of food handling, storage of perishable and non-perishable goods, and food quality and protection. These are critical operational practices that directly influence the safety and integrity of food served to consumers. The dependent variable is the outcome shaped by the staff's adherence to proper protocols and standards. The intervening variable which includes the demographic characteristics may influence how safety practices are understood, prioritized, and executed. By integrating these variables, the framework allows the study to determine if there is a significant difference in the level of kitchen staff safety and quality practices in food service establishments when data are analyzed according to profile This structured approach provides a clearer understanding of the factors that contribute to effective food safety management in real-world kitchen settings.

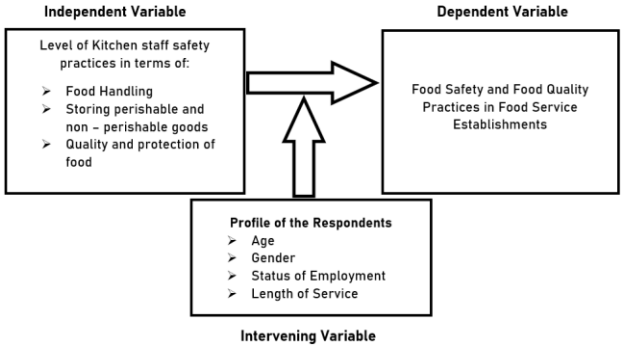

Figure 2
Linking Kitchen Safety Practices to Food Quality through Respondent Characteristics

METHODOLOGY

This study utilized a descriptive-quantitative research design. A quantitative approach is most appropriate for this study because it allows for objective measurement, analysis, provides statistically valid insights and comparison of food safety and quality practices across establishments. The study was conducted in the City of Dipolog, province of Zamboanga del Norte. Researchers selected this specific environment to provide a significant population to support the study.

Dipolog City in the Philippines is a 3rd class component City and the capital of Zamboanga del Norte, Philippines. Since Dipolog is a developing city, numerous food service establishments were established and found in the locality.

The respondents of the study consisted of 100 kitchen staff employed in ten selected food service establishments in Dipolog City. These establishments were purposively selected based on the inclusion criteria established by the researchers. The kitchen staff were selected using purposive sampling to ensure that it targets specific role who are directly responsible for food safety and quality.

The study utilized a questionnaire adopted from the "Compliance to Food Safety and Quality Standards Questionnaire" developed by Smith (2010) and published in the Journal of Food Safety and Quality, 2(1), 25–30. The instrument was deemed appropriate for the present study as it measures key dimensions related to food safety and quality practices among food service personnel.

The research instrument was organized into two sections. The first section elicited information on the profile of the participating food service establishments, including location, number of employees, years of operation, and type of establishment. The second section assessed the safety and quality practices of kitchen staff in terms of food handling, storage of perishable and non-perishable goods, and food quality and protection. Responses in the second section were measured using a three-point Likert scale, where 3 indicated "Always," 2 indicated "Sometimes," and 1 indicated "Never." Descriptive and inferential statistical techniques were employed to analyze the data. Frequency count and percentage was used to describe the characteristics of the food service establishments, while weighted mean was computed to determine the level of safety and quality practices among kitchen staff across the identified dimensions. The Chi-square test was utilized to examine significant differences in safety and quality practices when respondents

were grouped according to establishment profile variables.

Prior to data collection, permission was obtained from the management and employees of the participating establishments. Informed consent form was distributed and thoroughly explained to the respondents to ensure their voluntary participation and understanding of their rights, including the right to decline or withdraw from the study at any stage without penalty. The study strictly adhered to the ethical principles governing research involving human participants. The privacy and confidentiality of all respondents were safeguarded in accordance with Republic Act No. 10173, otherwise known as the Data Privacy Act of 2012. Participants were assured that all information collected would be treated with the utmost confidentiality and would be used solely for academic and research purposes.

RESULTS AND DISCUSSION

Profile of the Food Service Establishments

Location. Table 1 presents the distribution of the selected food service establishments in Dipolog City, Philippines, according to location. The findings reveal that the largest proportion of establishments (40%; n = 4) were situated along the highway. In contrast, 20% (n = 2) of the establishments were located at road corners, 20% (n = 2) were situated within the city proper, and the remaining 20% (n = 2) were located near the public market. The predominance of establishments situated along the highway may reflect the strategic importance of accessibility and visibility in business location decisions. High-traffic areas are generally associated with increased customer exposure and convenience, which may enhance the operational viability of food service establishments (Mitchell, 2017). Accessibility is a critical factor influencing customer patronage, particularly in the food service industry where ease of access may contribute to greater customer traffic and business performance.

Furthermore, establishments located within urban areas, such as the city proper and public market vicinity, may benefit from population concentration and diverse consumer segments. According to Hoyt (2011), urban locations provide businesses with access to larger and more heterogeneous markets, thereby increasing opportunities for customer acquisition and market expansion. Similarly, Bode (2013) noted that urban environments often offer commercial, cultural, and recreational amenities that contribute to the attractiveness of business locations. Consequently, the observed distribution of food service establishments suggests that location selection may be influenced by factors related to accessibility, market potential, and customer convenience.

Table 1
Profile of the food service establishments in terms of Location

Location	Frequency	Percentage (%)
Near the public market	2	20
City proper	2	20
Along the highway	4	40
Far from the highway	0	0
Along the barangay road	0	0
Corner of the road	2	20
Near the church	0	0
Total	**10**	**100**

Number of Employees. Table 2 presents the distribution of the selected food service establishments according to the number of employees. The findings indicate that the majority of establishments (80%; n = 8) employed between 10 and 99 personnel, while the remaining 20% (n = 2) employed fewer than 10 personnel. The predominance of establishments with 10 to 99 employees suggests that most of the participating food service establishments operate on a scale that requires a moderate-sized workforce to support daily operations and service delivery. This staffing structure may enable establishments to allocate personnel across specialized functions, thereby enhancing operational efficiency and service effectiveness. According to Jabagat (2021), establishments with a larger workforce are better positioned to distribute tasks among

employees, which may contribute to improved productivity and service quality.

Furthermore, Guthrie et al. (2013) emphasized that maintaining an adequate number of employees enhances organizational flexibility and responsiveness to varying operational demands. In the context of food service establishments, a sufficient workforce may facilitate the efficient management of customer needs during peak periods while supporting the continuity of business operations. The findings therefore suggest that the participating establishments generally maintain staffing levels that are conducive to effective operational performance.

Table 2
Profile of the food service establishments in terms of Number of Employee

Number of Employee	Frequency	Percentage (%)
Less than 10	2	20
10-99	8	80
100-199	0	0
Total	**10**	**100**

Number of Years in Operation. Table 3 presents the distribution of the selected food service establishments according to years of business operation. The findings reveal that the majority of establishments (60%; n = 6) had been operating for 0–3 years, while 30% (n = 3) had been in operation for 4–6 years. Only one establishment (10%; n = 1) reported more than 10 years of operation. The results indicate that most of the participating food service establishments are relatively young businesses. This distribution suggests the presence of a growing food service sector in the study area, characterized by a substantial number of newly established enterprises. Establishments in their early years of operation are generally engaged in developing their market presence, refining operational processes, and adapting to customer demands and competitive conditions. The predominance of relatively new establishments may reflect ongoing entrepreneurial activity and expansion within the local food service industry.

Table 3
Profile of the food service establishments in terms of Number of Years in Operation

Number of Years in Operation	Frequency	Percentage (%)
0-3 years	6	60
4-6 years	3	30
7-10 years	0	0
More than 10	1	10
0-3 years	6	60
Total	**10**	**100**

Type of Establishment. Table 4 presents the distribution of the selected food service establishments according to type. The findings indicate that fast-food establishments constituted the largest proportion of the sample, accounting for 50% (n = 5) of the participating establishments. Cafés represented 30% (n = 3), while fine-dining establishments comprised the remaining 20% (n = 2).

Table 4
Profile of the establishments in terms of type of Establishment

Type of Establishments	No. of Establishments	No. of Population	Percentage (%)
0-3 years	6	60	
4-6 years	3	30	
7-10 years	0	0	
More than 10	1	10	
0-3 years	6	60	
Total	**10**	**100**	

The predominance of fast-food establishments suggests that this segment constitutes a substantial portion of the food service industry in Dipolog City. This distribution may reflect consumer demand for accessible, convenient, and time-efficient dining options. Fast-food establishments are typically characterized by streamlined operations, standardized menu offerings, and rapid service delivery, enabling them to serve a large volume of customers efficiently. The presence of cafés and fine-dining establishments further indicates diversity within the local food service sector, catering to varying consumer preferences and dining experiences.

Level of Kitchen Staff Safety and Quality Practices in Food Service Establishments

Food Handling. Table 5 presents the level of safety and quality practices of kitchen staff in selected food service establishments in terms of food handling. The results revealed an overall mean score of 2.92, interpreted as Always Practiced. This finding indicates a consistently high level of adherence to food handling practices among the respondents. The result suggests that food handling procedures are routinely implemented within the participating establishments, reflecting compliance with established food safety and quality standards.

Table 5

Level of Kitchen staff safety and quality practices in food service establishments in terms of food handling

Description	Average Weighted Value (AWV)	Interpretation
1.Do you follow proper hygiene practices, such as washing your hands frequently and wearing clean clothing and aprons?	2.95	Always Practiced
2. Do you properly label and date food products?	2.86	Always Practiced
3. Do you follow proper storage procedures, such as storing food at the correct temperature and in designated areas?	2.91	Always Practiced
4. Do you use separate cutting boards and utensils for different types of food?	2.93	Always Practiced
5. Do you regularly clean and sanitize your work area and equipment?	2.99	Always Practiced
6. Do you follow the correct cooking and reheating procedures?	2.89	Always Practiced
7. Do you regularly monitor and record temperature logs for food storage and cooking?	2.90	Always Practiced
8. Do you immediately report any food safety or quality issues to your supervisor?	2.94	Always Practiced
9. Have you received any feedback or performance evaluations on your food handling practices and compliance to food safety and quality standards?	2.91	Always Practiced
Mean	**2.92**	**Always Practiced**

Proper food handling practices are essential in ensuring food safety and minimizing the risk of food contamination and foodborne illnesses. According to Kibret and Abera (2012), inadequate infrastructure, limited access to potable water, insufficient sanitation facilities, and improper food storage conditions may adversely affect food quality and safety. These factors highlight the importance of maintaining appropriate hygiene practices and operational standards in food service establishments. Furthermore, Diab and Dwyer (2016) emphasized that competent and adequately trained food handlers play a critical role in maintaining food safety standards and preventing foodborne illnesses. Consistent adherence to proper food handling procedures contributes not only to the protection of public health but also to the credibility and reputation of food service establishments. The findings of the present study therefore underscore the importance of sustaining effective food handling practices as a fundamental component of food safety and quality management.

Storing perishable and non-perishable goods. Table 6 presents the level of safety and quality practices of kitchen staff in selected food service establishments with respect to the storage of perishable and non-perishable goods. The findings revealed an overall mean score of 2.98, interpreted as Always Practiced, indicating a consistently high level of compliance with recommended food storage practices among the respondents.

Among the practices assessed, respondents reported consistently ensuring that stored goods were protected from damage and contamination and that food items were stored at least six inches above the floor and away from walls. In contrast, the provision of feedback or performance evaluations regarding compliance with food safety and quality standards in food storage received a lower rating, corresponding to the interpretation of Sometimes Practiced.

This finding suggests that while food storage procedures are routinely implemented, mechanisms for monitoring and evaluating compliance may not be conducted as consistently. The high overall rating indicates that appropriate storage practices for perishable and non-perishable goods are generally observed within the participating establishments. Proper storage procedures are essential for maintaining food quality, preventing contamination, reducing spoilage, and ensuring compliance with food safety standards. Consistent adherence to these practices contributes to the preservation of food quality and supports the effective implementation of food safety management systems in food service establishments.

Table 6

Level of Kitchen staff safety and quality practices in food service establishments in terms of storing perishable and non – perishable goods

Description	Average Weighted Value (AWV)	Interpretation
1. Do you store perishable goods in designated areas with proper refrigeration or freezing temperatures?	2.93	Always Practiced
2. Do you properly label and date perishable and non-perishable goods to ensure proper rotation?	2.94	Always Practiced
3. Do you store non-perishable goods in dry, cool, and clean areas, away from direct sunlight and moisture?	2.92	Always Practiced
4. Do you ensure that stored goods are not damaged or contaminated, and that they are stored at least six inches off the floor and away from walls?	2.98	Always Practiced
5. Do you regularly check the temperature of storage areas, refrigerators, and freezers to ensure they are at the correct temperature?	2.95	Always Practiced
6. Do you maintain a first-in, first-out (FIFO) system for stored goods to ensure proper rotation and minimize waste?	2.92	Always Practiced
7. Do you regularly clean and sanitize storage areas, refrigerators, and freezers to prevent the growth of bacteria and other microorganisms?	2.95	Always Practiced
8. Do you report any issues or concerns with stored goods, such as damaged or expired items, to your supervisor immediately?	2.90	Always Practiced
9. Have you received any feedback or performance evaluations on your compliance with food safety and quality standards in the storage of perishable and non-perishable goods?	2.74	Sometimes Practiced
Mean	**2.91**	**Always Practiced**

Proper storage of perishable and non-perishable food products is a critical component of food safety and quality management. Perishable food items, such as dairy products, fresh fruits, and baked goods, require careful monitoring of temperature, humidity, and storage conditions to preserve product quality and prevent contamination. In addition, effective traceability systems are essential for documenting the production history, handling processes, and movement of food products throughout the supply chain. According to Magina and Vlachos (2004), the successful implementation of food traceability systems depends on the efficient collection, storage, transmission, and management of information in real time, enabling food establishments to maintain product integrity and respond effectively to food safety concerns.

Empirical evidence further highlights the importance of proper food storage practices. Belgica (2024) reported that street food vendors in Estancia, Iloilo demonstrated a high level of knowledge regarding food storage techniques, including safe food handling and proper organization of stored products. The findings suggest that continuous reinforcement of food safety knowledge may contribute to consistent compliance with recommended storage practices. Similarly, Matriano et al. (2014) found that 71% of fixed food establishments in Olongapo City utilized appropriate lockers, racks, and storage containers for non-perishable goods. However, the study also revealed gaps in compliance, particularly in maintaining recommended storage temperatures and ensuring proper segregation of food items. These findings underscore the need for continuous monitoring and adherence to established food storage standards to safeguard food quality and minimize food safety risks.

Quality and Protection of Food. Table 7 presents the level of safety and quality practices of kitchen staff in selected food service establishments in terms of food quality and protection. The findings revealed an overall mean score of 2.93, interpreted as Always Practiced. This result indicates a consistently high level of adherence to practices related to maintaining food quality and safeguarding food products from contamination and other food safety hazards. The high rating suggests that kitchen staff regularly implement measures designed to preserve food quality and ensure food protection throughout the preparation, handling, and storage processes. Such practices may include proper food labeling, prevention of cross-contamination, adherence to sanitation procedures, and maintenance of hygienic food preparation environments. Consistent implementation of these measures is essential for promoting food safety, protecting consumer health, and supporting the overall quality of food service operations.

Food quality has been identified as a critical determinant of customer satisfaction and organizational performance in the food service industry. According to Kisang et al. (2012), food quality positively influences customers' perceptions of restaurant image and contributes significantly to consumer satisfaction. Consequently, maintaining high standards of food quality and protection is essential for sustaining customer confidence and organizational credibility. Empirical studies likewise support the importance of food safety

and quality practices in food service establishments. Besa and Dunton (2024) reported high levels of compliance with safety and sanitation practices among food handlers, which were significantly associated with service quality outcomes. Similarly, Allafi et al. (2020) found that Filipino food handlers in Kuwait demonstrated strong performance in personal hygiene and sanitation practices. However, the study also identified deficiencies in critical food safety control measures, including temperature management and proper utensil sanitation. These findings highlight the importance of continuously strengthening food protection practices to ensure comprehensive compliance with food safety standards and to minimize potential risks to consumers.

Table 7

Level of kitchen staff safety and quality practices in food service establishments in terms of quality and protection of food

Description	Average Weighted Value (AWV)	Interpretation
1. Do you check the quality and freshness of food items before accepting delivery?	2.97	Always Practiced
2. Do you store food items properly to ensure their freshness and quality is maintained?	2.96	Always Practiced
3. Do you regularly check food items for signs of spoilage or damage, such as mold or odors?	2.91	Always Practiced
4. Do you use proper utensils and tools, such as gloves and hairnets, to protect food from contamination?	2.88	Always Practiced
5. Do you follow the correct procedures for washing and sanitizing utensils, equipment, and surfaces to prevent cross-contamination?	2.97	Always Practiced
6. Do you monitor food preparation and cooking times to ensure that food is cooked to the correct temperature?	2.91	Always Practiced
7. Do you follow the correct procedures for cooling and reheating food items to minimize the risk of bacterial growth?	2.94	Always Practiced
8. Do you properly label and date food items to ensure proper rotation and minimize the risk of spoilage?	2.93	Always Practiced
9. Have you received any feedback or performance evaluations on your compliance with food safety and quality standards in the preparation and protection of food items?	2.96	Always Practiced
Mean	**2.93**	**Always Practiced**

Significant Difference on the Level of Kitchen Staff Safety and Quality Practices in Food Service Establishments When Data are Analyzed According to Respondents' Profile

Table 8 presents the results of the test of significant differences in the level of kitchen staff safety and quality practices when grouped according to selected profile variables, using a 0.05 level of significance. The findings indicate that statistically significant differences were observed with respect to location, years of operation, and type of establishment, as evidenced by p-values less than 0.05. These results suggest that the level of safety and quality practices varies across establishments based on these profile characteristics. In contrast, no statistically significant difference was found when establishments were grouped according to the number of employees, as indicated by a p-value greater than 0.05. This finding suggests that the number of employees does not significantly influence the level of kitchen staff safety and quality practices among the participating food service establishments.

Table 8

Chi-Square Test of Significant Difference on the level of kitchen staff safety and quality practices in food service establishments when data are analyzed according to profile

Variable	Chi-Square Value	P-Value	Decision	Interpretation
Level of Kitchen Staff Safety and Quality Practices in Food Service Establishment and Location	130.141	0.000	Reject Ho	Significant Difference
Level of Kitchen Staff Safety and Quality Practices in Food Service Establishment and Number of Employee	12.858	0.303	Fail to Reject Ho	No Significant Difference
Level of Kitchen Staff Safety and Quality Practices in Food Service Establishment and Number of Years in Operation	154.962	0.000	Reject Ho	Significant Difference
Level of Kitchen Staff Safety and Quality Practices in Food Service Establishment and Type of Establishment	73.578	0.000	Reject Ho	Significant Difference

The results revealed statistically significant differences in the level of kitchen staff safety and quality practices when establishments were grouped according to location, years of operation, and type of establishment. These findings suggest that organizational and contextual characteristics may influence the implementation and maintenance of food safety and quality practices within food service establishments. Variations in location may reflect differences in operational environments, accessibility to resources, and exposure to regulatory monitoring. Similarly, years of operation may be associated with the accumulation of organizational experience, established procedures, and adaptation to evolving food safety standards. Differences

across establishment types may also be attributed to variations in operational requirements, customer expectations, and service delivery models.

The findings further indicate that the implementation of food safety and quality practices is not uniform across all categories of establishments. Rather, these practices appear to be shaped by factors associated with the characteristics of the establishment itself. Consequently, location, years of operation, and type of establishment may be considered important factors in understanding variations in kitchen staff safety and quality practices.

In contrast, no statistically significant difference was observed when establishments were grouped according to the number of employees. This result suggests that workforce size, by itself, may not be a determining factor in the implementation of food safety and quality practices. Regardless of the number of personnel, establishments may be capable of maintaining comparable levels of compliance with food safety and quality standards through the consistent application of policies, procedures, supervision, and staff training. The finding implies that organizational commitment to food safety may be more influential than workforce size in ensuring adherence to established safety and quality practices.

Conclusion. The study concludes that the participating food service establishments in Dipolog City were largely young, medium-sized fast-food businesses situated along highways and employing between 10 and 99 personnel. Within these establishments, kitchen staff consistently demonstrated strong adherence to food safety and quality practices, with "Always Practiced" ratings across food handling, storage of perishable and non-perishable goods, and food protection, indicating high compliance with established standards. However, significant differences emerged when practices were compared by location, years of operation, and type of establishment, suggesting that organizational and operational characteristics influence the level of implementation. In contrast, no significant variation was observed when grouped by workforce size, implying that the number of employees does not affect safety and quality practices. Overall, the findings highlight both the strengths of food safety compliance in Dipolog's fast-food sector and the contextual factors that shape its consistency across establishments.

Recommendations. Based on the findings, the following recommendations are advanced to sustain and strengthen food safety and quality practices in food service establishments, while addressing organizational challenges and guiding future research directions.

1. Food service establishments should sustain and strengthen the implementation of food safety and quality practices through continuous staff development programs, regular monitoring, and periodic evaluation of compliance with established food safety standards. Such initiatives may help maintain high standards of food safety and quality across operations.

2. Management should institutionalize regular training, supervision, and performance assessment mechanisms to reinforce adherence to food safety protocols and promote continuous improvement in food handling, storage, and food protection practices.

3. Given that workforce size did not significantly influence safety and quality practices, food service establishments should focus on strengthening organizational policies, staff competencies, and compliance monitoring systems to ensure consistent implementation of food safety standards regardless of employee count.

4. Future studies may expand the scope of investigation by including a larger sample size and broader geographic coverage to enhance the generalizability of the findings. Researchers may also employ mixed-methods approaches to obtain a more

comprehensive understanding of food safety and quality practices and explore their relationship with variables such as customer satisfaction, regulatory compliance, operational performance, and the incidence of foodborne illnesses.

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