

Level of Awareness, Attitudes, and Practices on Food Handling and Sanitation Among Crews in Catering Service Establishments in Ormoc City

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Abstract

This study assessed food safety awareness, attitudes, and sanitation practices among catering crews in selected catering service establishments in Ormoc City, Leyte, and examined differences according to age, sex, and job title. Anchored in the Knowledge-Attitude-Practice Model and Theory of Planned Behavior, the study employed a descriptive-comparative research design involving 40 catering crew members from five establishments selected through purposive and quota sampling. Data were collected using an adapted 30-item structured questionnaire and analyzed through frequencies, percentages, weighted means, the Mann-Whitney U test, and the Kruskal-Wallis H test. Findings revealed high levels of food safety awareness (4.71), positive attitudes (4.72), and sanitation practices (4.68), with an overall weighted mean of 4.71. Respondents demonstrated strong awareness of food preparation cleanliness and positive attitudes toward food safety. However, proper reheating, confidence in sanitation procedures, and cold food temperature maintenance emerged as areas requiring improvement. Significant differences were identified in sanitation practices across age groups ($p = 0.0278$) and in awareness ($p = 0.0220$) and sanitation practices ($p = 0.0142$) across job titles. No significant differences were observed according to sex. The study recommends regular practical training, position-specific instruction, improved temperature monitoring, and strengthened sanitation supervision. The findings support Sustainable Development Goal (SDG) 3 (Good Health and Well-Being), SDG 8 (Decent Work and Economic Growth), and SDG 12 (Responsible Consumption and Production) by emphasizing foodborne illness prevention, safer working practices, and responsible food handling. The study contributes to public health and institutional sustainability by providing localized evidence to guide food safety education, sanitation management, and continuous improvement in catering operations.

Keywords: Catering Crews; Food Handling; Food Safety Awareness; Knowledge-Attitude-Practice Model; Sanitation Practices; Sustainable Development Goals; Theory of Planned Behavior

1. Introduction

Food safety and sanitation are essential in catering establishments, where large-scale food preparation, storage, and service increase the risk of foodborne illnesses. The World Health Organization (2022) emphasizes proper food handling, sanitation, and continuous training to protect public health. In Ormoc City, the growing demand for catering services highlights the need to assess employees' compliance with food safety standards. This study examines the awareness, attitudes, and sanitation practices of catering crews in selected establishments, including differences according to age, sex, and job title.

Catering establishments provide food services for large gatherings, making proper preparation, storage, transportation, and sanitation essential to consumer safety. Inadequate handling procedures may increase contamination risks and compromise public health. The World Health Organization (2022) emphasizes strengthening food safety systems, while Alemayehu et al. (2021) identifies continuing gaps in food handlers' knowledge and practices. This study assesses catering crews' awareness of food safety standards, attitudes toward compliance, and actual sanitation practices in Ormoc City.

Existing studies emphasize the importance of knowledge, training, and attitudes in food safety compliance. Escario, M.G. F. (2025) highlighted employee awareness in restaurant sanitation, while Ballada et al. (2023) identified unsafe practices among food stall handlers. Ermeje et al. (2024) and Babor et al. (2024) associated food safety knowledge and training with improved hygiene, although Labao et al. (2024) noted limitations in self-reported practices. Internationally, Putri, M. S., & Susanna, D. (2021) identified deficiencies in hand hygiene and food storage, while Rifat et al. (2022) emphasized cultural and resource-related barriers. Alemayehu et al. (2021) reported that only 34.1% of food handlers demonstrated high food safety knowledge. Similarly, Labana et al. (2024), Fekadu et al. (2024), Lema et al. (2020), and Han et al. (2019) highlighted the importance of awareness, training, and consistent sanitation compliance. Collectively, these findings indicate that knowledge does not always translate into safe food-handling practices.

The World Health Organization's Global Strategy for Food Safety (2022–2030) emphasizes stronger food control systems, sanitation, and food safety education. In the Philippines, contaminated food, unsafe water, and inadequate sanitation contribute to gastrointestinal diseases (DOH, 2022). Eastern Visayas recorded approximately 4,000 suspected cholera cases and 32 suspected deaths in 2022, reflecting regional public health concerns. Rojas (2020) also reported infrequent food safety training among restaurant personnel in Tacloban City. These conditions underscore the importance of examining sanitation practices among catering crews in Ormoc City, where catering services support social and corporate gatherings.

The study is anchored in the Knowledge-Attitude-Practice (KAP) Model and the Theory of Planned Behavior (TPB). The KAP Model, conceptualized by Launiala (2009), explains how knowledge influences attitudes and practices. Food safety awareness provides the foundation for appropriate handling behaviors (WHO, 2022), while Alemayehu et al. (2021), Putri and Susanna (2021), and Fekadu et al. (2024) emphasize the relationship between knowledge, attitudes, and actual sanitation practices. The TPB, developed by Ajzen (1991), explains behavior through attitudes, subjective norms, and perceived behavioral control (Cameron et al., 2012). Paulino et al. (2025) further identified social and cultural influences on food-handling practices. Guided by these frameworks, the study examines catering crews' awareness, attitudes, and sanitation practices, with age, sex, and job title serving as demographic grouping variables.

Previous studies primarily examined restaurants, street vendors, and institutional food establishments, with limited attention to catering operations. Existing research also relied heavily on self-reported practices, geographically restricted samples, and short-term assessments. These limitations highlight the need for localized evidence on food safety awareness, attitudes, and sanitation practices among catering crews. Accordingly, this study assesses these dimensions in selected catering establishments in Ormoc City and determines whether significant differences exist according to age, sex, and job title, providing a basis for improved training, supervision, and sanitation procedures.

The study supports SDG 3 (Good Health and Well-Being) by addressing foodborne illness prevention through proper food handling and sanitation. It also aligns with SDG 8 (Decent Work and Economic Growth) by promoting safer workplace practices and employee competence, and SDG 12 (Responsible Consumption and Production) through responsible food preparation, storage, and service. These connections emphasize the relevance of food safety to public health, workplace conditions, and responsible catering operations.

This study contributes to public health sustainability by identifying food safety awareness and sanitation concerns that may inform preventive interventions. Institutionally, the findings may guide catering managers, the Department of Health, and local government units in strengthening training, supervision, and regulatory

compliance. From a socio-economic perspective, improved food-handling practices may enhance consumer confidence, service quality, and the long-term reliability of catering establishments in Ormoc City.

2. Material and methods

2.1 Research Design

The study employed a descriptive-comparative research design. The descriptive component determined the respondents' demographic profiles and levels of awareness, attitudes, and sanitation practices regarding food handling. The comparative component examined significant differences in these variables when respondents were grouped according to age, sex, and job title. This design was appropriate for describing existing conditions and comparing independent groups without examining relationships between continuous variables.

2.2 Locale of the Study

The study was conducted in five catering service establishments in Ormoc City, Leyte, namely Bong's Catering, Sal's Catering, Kang Patrick's Catering, AZ Corner Catering, and Marta's Catering. These establishments provided catering services for weddings, birthdays, corporate events, and other celebrations. The researchers visited the selected establishments to gather information regarding their crews' food-handling and sanitation practices.

2.3 Respondents of the Study

The respondents comprised 40 catering crew members directly involved in food preparation, handling, storage, service, and sanitation. They included cooks, kitchen assistants, servers, food dispatchers, and other service personnel. Of the total respondents, 10 were from Bong's Catering, eight from AZ Corner Catering, eight from Marta's Catering, seven from Kang Patrick's Catering, and seven from Sal's Catering.

2.4 Sample and Sampling Procedure

The study employed purposive and quota sampling techniques. Purposive sampling identified catering establishments that were actively operating in Ormoc City, provided services for social and corporate events, and had operated for at least one year. Quota sampling determined the distribution of 40 respondents across the five establishments based on their respective crew sizes. Eligible respondents were current catering employees directly handling food or food-contact surfaces who voluntarily agreed to participate and provided informed consent.

2.5 Research Instrument

Data were collected using a structured questionnaire adapted from Okoli, C. E., et al. (2025), entitled "Assessment of Safety Awareness and Practices among Workers and the Sanitation Standards of Contact Surfaces in Selected Abattoirs in Abuja." The instrument was modified to reflect the responsibilities and working conditions of catering crews in Ormoc City. The questionnaire contained 30 items divided equally into three dimensions: food safety awareness, attitudes toward food safety, and sanitation practices involving food handling and storage. Responses followed a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The Knowledge-Attitude-Practice Model guided the instrument's organization, while the World Health Organization Global Strategy for Food Safety 2022–2030 and Philippine food safety and sanitation guidelines provided supporting content references. Permission to adapt the original questionnaire was requested from its authors, although written confirmation was not established in the manuscript.

2.6 Data Gathering Procedure

The researchers personally administered the questionnaires to eligible catering crews in the selected establishments. Before distribution, respondents were informed about the study's objectives, procedures, voluntary participation, confidentiality, and potential minimal risks. Completed questionnaires were collected and reviewed for completeness and accuracy. Responses were subsequently organized, coded, and securely handled for academic analysis.

2.7 Data Analysis Techniques

The collected data were analyzed using descriptive and nonparametric statistical procedures. Frequencies and percentages described respondents' demographic characteristics according to age, sex, and job title. Weighted means determined their levels of food safety awareness, attitudes, and sanitation practices based on ten items for each dimension. Mean scores were interpreted using the following ranges: 4.21–5.00 (High), 3.41–4.20 (Moderately High), 2.61–3.40 (Moderate), 1.81–2.60 (Low), and 1.00–1.80 (Very Low). The Mann-Whitney U test examined differences between male and female respondents, while the Kruskal-Wallis H test assessed differences across age groups and job-title categories. Statistical significance was evaluated at the 0.05 level, with p-values below 0.05 indicating statistically significant differences.

2.8 Ethical Considerations

The study observed ethical principles of informed consent, voluntary participation, confidentiality, beneficence, justice, and respect for persons. Respondents received information about the research objectives, procedures, potential risks, and their right to decline participation, skip questions, or withdraw without consequences. Participation involved minimal risk, no experimental intervention, and no monetary compensation. Respondents were not required to disclose their names, and collected information was coded, securely stored, and reported without identifying individuals. All qualified participants were treated fairly and without discrimination. The researchers remained available to address concerns and followed the institutional research procedures of Western Leyte College of Ormoc, Inc. The information collected was intended solely for academic purposes and to support recommendations for improving food safety and sanitation practices in catering establishments.

3. Results and Discussion

3.1 Demographic Characteristics of Catering Crews

3.1.1 Age, Sex, and Job Distribution

Among the 40 respondents, 57.5% were aged 18–25, followed by 27.5% aged 26–35, 10.0% aged 46 and above, and 5.0% aged 36–45. Most respondents were male (75.0%), while 25.0% were female. Regarding job titles, 47.5% were waiters or waitresses, 20.0% food dispatchers, 12.5% cooks, 12.5% service crew, 5.0% kitchen staff, and 2.5% assistant cooks. Respondents came from Bong's Catering (25.0%), AZ Corner Catering (20.0%), Marta's Catering (20.0%), Kang Patrick's Catering (17.5%), and Sal's Catering (17.5%). The findings indicate that the respondents were predominantly young male employees, with nearly half assigned to food service duties. These demographic characteristics provide a basis for examining variations in food safety awareness, attitudes, and sanitation practices. Paulino et al. (2025) emphasized the relevance of social and contextual factors in food safety compliance.

3.2 Levels of Food Safety Awareness, Attitudes, and Sanitation Practices

3.2.1 Awareness of Basic Food Safety Practices

Respondents demonstrated high food safety awareness, with an overall weighted mean of 4.71 (Strongly Agree). Maintaining clean food preparation surfaces received the highest mean (4.83), while awareness of proper reheating temperatures received the lowest (4.55). All awareness indicators were rated high.

These findings suggest that catering crews understand essential food safety principles, particularly cleanliness and contamination prevention. However, the comparatively lower awareness of proper reheating temperatures indicates a need for additional instruction on temperature-related food safety procedures.

3.2.2 Attitudes Toward Maintaining Food Safety

The respondents demonstrated positive attitudes toward food safety, obtaining an overall weighted mean of 4.72 (Strongly Agree). The belief that food safety is as important as food taste received the highest mean (4.83), while confidence in performing proper sanitation practices received the lowest (4.60). The findings indicate strong recognition of food safety responsibilities and willingness to follow sanitation standards. Nevertheless, the relatively lower confidence in implementing proper sanitation procedures suggests that practical demonstrations, supervision, and continuous training may strengthen employees' ability to apply these standards.

3.2.3 Food Handling and Storage Sanitation Practices

Sanitation practices obtained an overall weighted mean of 4.68 (Strongly Agree). Checking food for spoilage before serving received the highest mean (4.90), while maintaining cold food temperatures until service received the lowest (4.25). All sanitation indicators remained within the high category. These findings suggest that respondents generally reported observing appropriate food-handling and storage procedures. However, maintaining cold food temperatures emerged as an area requiring improvement. Regular temperature monitoring, adequate refrigeration, and supervision may help strengthen food safety compliance.

3.2.4 Overall Assessment of Awareness, Attitudes, and Practices

The combined assessment yielded an overall weighted mean of 4.71 (High). Attitudes obtained the highest mean (4.72), followed by awareness (4.71) and sanitation practices (4.68). At the establishment level, Sal's Catering recorded the highest mean (5.00), followed by AZ Corner Catering (4.95), Kang Patrick's Catering (4.74), Marta's Catering (4.56), and Bong's Catering (4.40). The findings indicate consistently high self-reported awareness, attitudes, and sanitation practices across the selected establishments. These results are consistent with the Knowledge-Attitude-Practice framework, which emphasizes the relevance of knowledge and attitudes to behavior. However, the slightly lower sanitation practice scores highlight the need to reinforce practical compliance, particularly in reheating and cold food storage. The establishment-level means provide descriptive comparisons but do not establish statistically significant differences.

3.3 Differences in Food Safety Awareness, Attitudes, and Practices According to Demographic Characteristics

3.3.1 Differences According to Age Group

The Kruskal-Wallis H test revealed no significant differences across age groups in awareness ($H = 6.723$, $p = 0.0813$) and attitudes ($H = 5.795$, $p = 0.1220$). However, sanitation practices differed significantly ($H = 9.117$, $p = 0.0278$). Respondents aged 26–35 recorded the highest sanitation practice mean (4.909), while those aged 36–45 recorded the lowest (4.400). Respondents aged 18–25 obtained a mean of 4.600. The findings indicate that sanitation practices varied across age groups despite generally high awareness and attitudes. Younger employees recorded lower practice scores than those aged 26–35, suggesting a potential need for additional practical training. However, the overall statistical result does not establish which specific age groups differed significantly.

3.3.2 Differences According to Sex

The Mann-Whitney U test revealed no significant differences between male and female respondents in awareness ($U = 195.000$, $p = 0.1324$), attitudes ($U = 165.500$, $p = 0.6156$), or sanitation practices ($U = 189.000$, $p = 0.2101$). Female respondents obtained slightly higher means in awareness (4.800), attitudes (4.740), and practices (4.780) than male respondents, whose corresponding means were 4.683, 4.713, and 4.650. These results indicate that sex was not associated with statistically significant differences in the three measured dimensions. Although female respondents obtained slightly higher descriptive scores, these differences were insufficient to establish meaningful group variation at the 0.05 significance level.

3.3.3 Differences According to Job Title

The Kruskal-Wallis H test identified significant differences across job titles in awareness ($H = 13.147$, $p = 0.0220$) and sanitation practices ($H = 14.226$, $p = 0.0142$), but not in attitudes ($H = 9.639$, $p = 0.0861$). Assistant cooks recorded means of 5.000 across all three dimensions, while kitchen staff obtained the lowest awareness (4.200) and sanitation practice (3.750) means. Waiters and waitresses recorded means of 4.568 for awareness, 4.605 for attitudes, and 4.600 for practices. These findings suggest that employees' awareness and reported sanitation practices differed according to their occupational responsibilities, although attitudes remained statistically comparable. The relatively lower scores among kitchen staff and waiters or waitresses indicate areas for position-specific training. However, the small number of respondents in certain job categories limits the interpretation of individual group differences.

3.4 Implications for Food Safety Training and Sanitation Management

3.4.1 Priority Areas for Improving Food Safety Compliance

The findings identified proper reheating, cold food temperature maintenance, and practical sanitation compliance as areas requiring additional attention. Although respondents consistently reported high awareness, positive attitudes, and appropriate practices, sanitation scores varied significantly according to age group and job title. These results support regular, practical food safety training emphasizing temperature control, cross-contamination prevention, food storage, and sanitation procedures. Position-specific instruction, improved supervision, accessible sanitation supplies, and collaboration with local health authorities may help strengthen consistent food safety practices across catering establishments.

4. Conclusion & Recommendations

The study revealed that catering crews in selected establishments in Ormoc City demonstrated high levels of food safety awareness (4.71), positive attitudes (4.72), and sanitation practices (4.68). Most respondents were young adult males, predominantly waiters and waitresses. Although overall results indicated favorable food safety compliance, proper reheating, confidence in sanitation procedures, and cold food temperature maintenance required further improvement. Significant differences were found in sanitation practices across age groups and in awareness and sanitation practices across job titles, while no significant differences were observed according to sex. These findings highlight the importance of continuous training and supervision to strengthen food safety practices in catering establishments.

Catering establishments should conduct regular, practical food safety training emphasizing proper handwashing, prevention of cross-contamination, safe food storage, reheating, and temperature monitoring. Particular attention should be given to younger employees and personnel with lower sanitation practice scores. Establishment managers should strengthen supervision, provide adequate sanitation supplies and equipment, and implement routine monitoring of food-handling procedures. Collaboration with local health authorities is also recommended to support sanitation inspections and food safety education. Future researchers should consider larger samples, broader geographical coverage, and observational or experimental approaches to assess actual sanitation compliance and training effectiveness.

The study was limited to 40 catering crew respondents from five selected catering service establishments in Ormoc City, Leyte, using purposive and quota sampling techniques. Its findings were based on self-reported questionnaire

responses, which may not fully reflect actual food-handling and sanitation practices. The small number of respondents in certain age and job-title categories also limited the interpretation of group differences. Furthermore, the study focused exclusively on selected catering establishments, excluding other food service businesses, thereby limiting the generalizability of the findings to broader populations and geographical settings.

5. Compliance with ethical standards

The authors declare no conflict of interest, and no external funding was reported for this study. The researchers acknowledge the participation of the catering crews from five selected catering service establishments in Ormoc City, Leyte, and the institutional involvement of Western Leyte College of Ormoc, Inc. Participation was voluntary, and informed consent was obtained after respondents were informed of the study's purpose, procedures, and their right to withdraw. Data were collected through non-invasive survey questionnaires, with confidentiality maintained by excluding identifying information and using the responses solely for academic purposes.

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