

Description of Knowledge, Attitude, and Hygiene Sanitation Behavior among Food Handlers at “PJ” Catering, Surabaya

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ABSTRACT

Hygiene and sanitation are essential to ensuring food safety, particularly in the catering industry. The knowledge, attitudes, and practices (KAP) of food handlers significantly influence the quality and safety of food served. A preliminary study at “PJ” Catering Surabaya found that while food handlers had generally good knowledge, their attitudes and practices remained suboptimal. This gap between knowledge and practice is critical, as it increases the risk of food contamination, threatens consumer health, and can undermine trust in catering services. This study aimed to assess the hygiene and sanitation-related KAP of food handlers during food processing. A descriptive cross-sectional design was used, involving all seven food handlers through total sampling. Knowledge and attitudes were measured using structured questionnaires, and practices were observed directly. Data were analyzed descriptively using frequency distribution. Results showed that 71.4% of respondents had good knowledge and 71.4% had good attitudes. However, practices in ingredient selection, storage, and food serving were only sufficient (42.85–57.15%). These findings emphasize the need for continuous training and regular supervision to improve hygiene and sanitation practices. Strengthening these aspects is essential to ensuring consistent food safety, maintaining service quality, and protecting consumer health in catering operations.

INTRODUCTION

Nutrition services in institutions include nine types, namely the provision of food in health facilities, school food programs, food management in dormitories, social welfare institutions, special food consumption, food service in the transportation sector, employment sectors, business institutions, and food distribution in emergencies¹. Based on the type of institutional food procurement, it is divided into 3 types, namely: 1) commercial, 2) non-commercial, 3) semi-commercial². Examples of commercial food organizations are restaurants, cafeterias, and catering services³. Catering is the activity of providing service to consumers in an institution⁴.

Knowledge is an important element that greatly influences a person's actions. Attitude includes thoughts and feelings that are hidden responses to an object⁵. Based on the findings of Khomsam (2003), behaviors based on good understanding tend to last longer than actions that are not based on understanding⁶. Thus, the knowledge and good attitude of food handlers will have a direct effect on their behavior in implementing sanitary hygiene. If knowledge and attitudes are not balanced with correct practices, the risk of food contamination remains high⁷. Therefore, increasing the capacity of

food handlers through regular training and supervision is needed to maintain food safety and consumer health.

The results of Hartini's research (2022), stated that 53.8% of respondents had good knowledge and 61.5% of respondents had a positive attitude towards sanitation, but in behavioral data there were 53.8% of respondents who had bad behavior⁸. In schools in Andong and Simo sub-districts, it was found that 61.8% of respondents had a good level of knowledge related to sanitary hygiene, but in attitude data, 50% of respondents had poor personal hygiene attitudes and in behavioral data, 52.9% had poor hygiene behaviors⁹.

Food hygiene and sanitation are crucial aspects in ensuring food safety and quality, particularly in the catering industry, which processes and serves food in large quantities¹⁰. The proper implementation of hygiene and sanitation directly contributes to protecting public health and preventing the risk of foodborne illnesses. In Indonesia, BPOM data (2019) show that catering is one of the significant contributors to food poisoning cases, making the implementation of optimal hygiene standards essential¹². As food service providers, caterers hold a major responsibility to ensure that every stage of food processing complies with established food safety principles¹³.

In "PJ" Catering Surabaya, a preliminary study revealed a notable gap between the food handlers' good level of knowledge and their actual practices, particularly during ingredient selection, food processing, and food presentation. Such discrepancies are concerning, as each stage plays a critical role in preventing contamination and ensuring food safety. Therefore, this research was conducted to provide a comprehensive overview of the knowledge, attitudes, and hygiene–sanitation behaviors of food handlers in "PJ" Catering, serving as a basis for improvement through more targeted training and regular supervision.

MATERIALS AND METHODS

This research is a descriptive study with a cross-sectional design conducted at "PJ" Catering Surabaya from September 2024 to June 2025. The population in this study consisted of all food handlers at "PJ" Catering Surabaya, totaling 7 people. The sampling technique used was total sampling, where the total sample size was equal to the total population¹³.

The research instruments included structured questionnaires to measure knowledge (10 questions) and attitudes (12 questions), as well as observation sheets to assess behavior in three aspects: (1) selection and storage of food raw materials (18 statements), (2) food processing (18 statements), and (3) food serving (18 statements). The questionnaire used in this study had undergone validity and reliability testing prior to data collection to ensure the accuracy and consistency of measurements.

The cut-off points for knowledge and attitude scores were categorized as: good (75–100%), moderate (40–74%), and poor (0–39%). For behavior, the categories were: good (13–18 points), moderate (7–12 points), and poor (0–6 points).

This study obtained ethical approval and research permission from Poltekkes Kemenkes Surabaya, ensuring that all research procedures complied with institutional and ethical standards. Data were analyzed using univariate analysis to present frequency distributions.

RESULTS

Table 1 Characteristics of Food Handler in "PJ" Catering Surabaya

No	Gender	Total	
		n	%
1.	Man	4	57,15
2.	Woman	3	42,85
	Total	7	100
No	Age	Total	
		n	%
1.	<20 years old	1	14,3
2.	20-25 years	3	42,85
3.	>25 years old	3	42,85
	Total	7	100
No	Education History	Total	
		n	%
1.	High School/Vocational School	7	100
	Total	7	100
No	Length of Work	Total	
		n	%
1.	<1 year	1	14,3
2.	1-5 years	5	71,4
3.	>5 years	1	14,3
	Total	7	100

Source : Primary Data 2025

The majority of food handlers were male (57.15%), in the productive age range (20–25 years and >25 years), and all had a high school/vocational education background (100%). Most had 1–5 years of work experience (71.4%). These characteristics suggest that respondents are at an age and education level that can support the understanding and application of hygiene and sanitation practices. However, varying lengths of work experience may affect the consistency of SOP implementation in the field.

Table 2 Knowledge of Hygiene and Sanitation of Food Handler at "PJ" Catering Surabaya

No	Knowledge	Total	
		n	%
1.	Good Knowledge (75%-100%)	5	71,4
2.	Moderate/ Sufficient Knowledge (40% - 74%)	2	28,6
	Total	7	100

Source : Primary Data 2025

A total of 71.4% of respondents had good knowledge, while 28.6% had moderate knowledge. A good level of knowledge can serve as a strong basis for applying hygiene and sanitation principles. However, the presence of respondents with only moderate knowledge indicates the need for regular training to ensure uniform understanding.

Table 3 Sanitation Attitude of Food Handler at "PJ" Catering Surabaya

No	Attitude	Total	
		n	%
1.	Kindness (75%-100%)	5	71,4
2.	Moderate/Moderate Attitude (40% - 74%)	2	28,6
Total		7	100

Source : Primary Data 2025

Most respondents (71.4%) demonstrated good attitudes, while 28.6% showed moderate attitudes. This positive attitude is essential for fostering hygienic behavior, but it still requires a supportive work environment and supervision to be maintained.

Table 4 Sanitation Hygiene Behavior of Food Handler at "PJ" Catering Surabaya

No	Behavior Towards the Selection and Storage of Food Raw Materials at "PJ" Catering Surabaya	Total	
		n	%
1.	Good Behavior (score 13-18)	2	28,575
2.	Moderate/ Moderate Behavior (score 7-12)	3	42,85
3.	Bad Behavior (score 0-6)	2	28,575
Total		7	100

No	Behavior Towards Food Processing at "PJ" Catering Surabaya	Total	
		n	%
1.	Good Behavior (score 13-18)	3	42,85
2.	Moderate/ Moderate Behavior (score 7-12)	3	42,85
3.	Bad Behavior (score 0-6)	1	14,3
Total		7	100

No	Behavior Towards Food Processing at "PJ" Catering Surabaya	Total	
		n	%
1.	Good Behavior (score 13-18)	3	42,85
2.	Moderate/ Moderate Behavior (score 7-12)	4	57,15
Total		7	100

Source : Primary Data 2025

The analysis of hygiene and sanitation practices shows varying levels of compliance among food handlers in different stages of food processing. In the aspect of ingredient selection and storage, the majority of respondents (42.85%) demonstrated moderate practices, 28.575% showed good practices, and another 28.575% exhibited poor practices. This indicates that while some workers are able to maintain proper storage conditions—such as separating raw materials by type, applying FIFO and FEFO principles, and checking quality regularly—others still fail to consistently implement these procedures. Such inconsistencies may lead to contamination risks early in the production process.

For food processing, 42.85% of respondents had good practices, 42.85% moderate, and 14.3% poor. Although most handlers routinely washed ingredients and used clean utensils, issues such as

washing tools and raw materials in the same sink, using water without detergent, and irregular use of PPE (masks, gloves, haircaps) were still observed. These lapses can contribute to cross-contamination and compromise food safety standards.

Regarding food serving, more than half of respondents (57.15%) demonstrated moderate practices, while 42.85% performed well. However, the use of open containers without lids when transporting prepared food, along with low PPE usage and talking during food packing, presents a significant risk of microbiological contamination. These findings emphasize the need for stricter supervision, consistent training, and reinforcement of SOP adherence at all stages of food handling to ensure food safety and quality.

DISCUSSION

Based on Table 1, the characteristics of food handlers at “PJ” Catering Surabaya, in terms of gender, age, education, and length of work, show a diverse profile. Most respondents were male (4 people, 57.15%), while females accounted for 3 people (42.85%). This slightly contrasts with the stereotype that food handling work is dominated by women, suggesting that in certain business units, role division is based more on competence, readiness, and operational needs rather than gender norms.

Respondents were divided into two age groups, 20–25 years and > 25 years, each comprising 3 people (42.85%). This productive age range is considered optimal for tasks requiring precision and consistency, such as food hygiene and sanitation, consistent with Wahyuningsih et al. (2021) who found a positive correlation between productive age, work capacity, and procedural compliance. All respondents had a high school/vocational education (100%), which provides a solid foundation for understanding procedures and training. Safitri (2022) noted that secondary education supports comprehension of hygiene training, although supervision is still needed to ensure consistent application.

Regarding work tenure, most respondents had been employed for 1–5 years (71.4%), while one person each (14.3%) worked less than 1 year and more than 5 years. A medium tenure is generally sufficient for building hygiene skills, though Vanboi (2020) emphasized that regular training is vital regardless of tenure length. Josita Baringbing et al. (2023) also found that medium-tenure workers with regular training showed better hygiene behavior than long-tenured workers without training.

Based on Table 2, 71.4% of food handlers had good knowledge of food hygiene and sanitation, reflecting awareness of cleanliness from raw material selection to food serving. However, some respondents still had inadequate knowledge, indicating that training distribution had not been uniform. Improving the quality and frequency of training, providing continuous mentoring, and implementing

active supervision along with peer reminders are considered effective in building a solid team. The results of this analysis are relevant to the opinions of Alghifari and Porusia (2024), who stated that the high level of knowledge of food handlers contributes to compliance in carrying out safe sanitation practices, such as washing hands before work, using clean equipment, and avoiding cross-contamination during the food processing process.

Table 3 shows that 71.4% of respondents had a good attitude, while 28.6% had a moderate attitude. A good attitude reflects awareness of hygiene and safety during preparation and service, supporting service quality and customer satisfaction. Attitudes are shaped by individual and environmental factors, including adequate sanitation facilities, a cleanliness-focused work culture, and regular supervision. Dewi et al. (2020) emphasized that work culture, experience, and facilities significantly influence attitude formation.

In "PJ" Catering Surabaya, the behavior of food handlers is observed through three main categories, namely: (1) The behavior of food handlers in choosing and storing raw materials, (2) The behavior of food handlers in food management, and (3) The behavior of food handlers related to serving food.

1. Food Handler Behavior Towards Food Selection and Storage

Based on table 4, it can be said that the majority of respondents have quite good behavior related to how to choose and store raw materials, namely 42,85% and 28,575% of respondents have good behavior related to how to choose and store raw materials, while the remaining 28,575% of respondents have bad behavior related to how to choose and store raw materials. Good practices included pest-free storage, regular quality checks, weekly stock records, labeling, and separating storage for meat, fish, poultry, and frozen foods. FIFO and FEFO principles were applied. However, personal hygiene issues persisted, including incomplete PPE use (masks, hairnets, gloves, standard footwear) and talking without masks, risking cross-contamination. Anwar et al. (2021) stressed that sanitation standards require disciplined personal hygiene and consistent PPE use. Alghifari and Porusia (2024) added that poor hygiene can still cause cross-contamination despite correct storage procedures.

2. Food Handling Behavior Towards Food Processing

From table 4, it can be stated that the majority of respondents have good behavior related to food processing, namely 42,85% and 42,85% have sufficient behavior related to food processing, while the remaining 14,3% have bad behavior related to food processing. Positive practices included washing ingredients, using clean tools, applying SOPs, placing grooming reminders, and holding routine briefings. Weaknesses included washing tools and ingredients in the same place, using water without detergent, inconsistent PPE use, and talking without masks violating

Ministry of Health hygiene standards. Junaiha (2021) highlighted that microbial contamination risk remains high if hygiene standards are not consistently applied, even with SOPs in place.

3. Food Handlers' Behavior Towards Food Serving

From table 4, it can be stated that the majority of respondents have sufficient behavior related to food serving (57,15%) and 42,85% have good behavior related to food serving. Good practices included separating cooked from raw food, avoiding overnight preparation, using clean packing areas, separating containers for soupy foods, and transporting food in appropriate containers. However, 42.85% transported food in open containers without lids, risking exposure to dust, insects, or microorganisms. PPE use was still low, and talking without masks persisted. Dewi et al. (2020) identified serving as a critical control point where poor practices raise foodborne illness risk. Nurhayati et al. (2022) found that inconsistent PPE use and talking during packaging significantly increased microbiological contamination.

This study has several limitations. The small sample size (7 respondents) restricts generalizability beyond "PJ" Catering Surabaya. Data reflects only the study period and may not capture behavioral changes over time or in other contexts. Observations were limited to a specific period, so behaviors outside that timeframe may differ. External factors such as stress, workload, or incentives were not assessed. Biases may have occurred, including social desirability in interviews, the Hawthorne effect during observation, and potential observer bias due to the researcher's nutrition background.

CONCLUSIONS

This study shows that most food handlers at "PJ" Catering Surabaya have good knowledge (71.4%) and positive attitudes (71.4%) towards hygiene and sanitation, but their practices are mostly moderate, in the selection and storage of ingredients (45.85%), food processing (42.85%), and serving (57.15%). This gap between knowledge and practice indicates the need for targeted interventions to ensure consistent implementation of awareness in daily activities, in line with the study's objective of strengthening hygiene and sanitation compliance for improved food safety and consumer protection. To address this, ongoing training, strengthened supervision, and a supportive work culture are essential to strengthen hygienic practices and ensure compliance with SOPs. Adequate sanitation facilities, complete PPE, and adequate infrastructure must be maintained, while regular evaluations are needed to monitor progress and make targeted improvements, ultimately improving food safety, maintaining service quality, and protecting consumer health.

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