

Food Safety Compliance and Risk Perception as Determinants of Consumer Behaviour Toward Perishables in Manila Wet Markets

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Abstract

This study examines the effect of Food Safety Practices and Food Safety Risk Perception on Purchase Intention among consumers of perishable goods in wet markets within Manila. Utilizing Multiple Linear Regression Analysis, the research investigates how these two independent variables influence consumer purchasing behaviour in informal retail settings. The findings reveal that both Food Safety Practices and Food Safety Risk Perception have significant positive effects on Purchase Intention, indicating that consumers are more likely to buy perishable products when they perceive vendors to implement proper safety protocols and are aware of potential food-related health risks. Grounded in the Consumer Perceived Value Theory, the Theory of Planned Behaviour (TPB), and the Health Belief Model (HBM), this study provides a theoretical and empirical foundation for understanding food safety-driven consumer behaviour in traditional market environments. The results offer valuable insights for policymakers, vendors, and public health agencies in enhancing food safety standards and consumer education in wet markets.

Keywords: *Food Safety Practices; Food Safety Risk Perception; Purchase Intention; Wet Market; Perishable Goods; Multiple Linear Regression; Manila*

Introduction

Wet markets remain vital in the Philippine food distribution system, especially in urban areas like Manila where many consumers rely on them for affordable, fresh, and perishable goods. These markets offer direct access to products like seafood, meat, fruits, and vegetables, which are often preferred for their perceived freshness (Asche, Straume, & Vårdal, 2021). However, rising concerns about food safety

have begun to shape consumer behavior. The informal nature of wet markets—characterized by inadequate sanitation, limited refrigeration, and poor food handling—raises questions about the safety of perishable items (Bharti, 2020; Shin et al., 2019). As consumers become more health-conscious, their perception of food safety plays a growing role in whether they choose to purchase from these markets.

Several operational challenges further exacerbate food safety concerns, affecting consumer trust and purchase intention. Poor last-mile logistics lead to spoilage and contamination during transport (Lagin et al., 2022), while inconsistent pricing fails to reflect freshness or safety levels, reducing consumer confidence (Pan et al., 2020). Additionally, fragmented supply chains and limited inventory controls contribute to unpredictable product quality (Razmi, Baki, & Sabbaghnia, 2023). These issues increase consumers' perceived risk, especially regarding foodborne illness, and can significantly reduce their intention to buy. In this context, understanding how food safety practices and risk perceptions influence purchase intention is critical to sustaining the role of wet markets and improving food safety awareness and standards in the market industry.

Prior research has highlighted the significant influence of food safety practices and food safety risk perception on consumers' purchase intention, particularly in the context of perishable goods. Studies suggest that when consumers perceive that vendors follow safe food handling and hygiene standards, their confidence in purchasing increases (Asche, Straume, & Vårdal, 2021; Bharti, 2020). Conversely, a higher perception of food safety risk—such as fear of contamination or spoilage—tends to negatively affect consumer behavior (Shin et al., 2019; Razmi, Baki, & Sabbaghnia, 2023). These findings align with the Consumer Perceived Value Theory, the Theory of Planned Behavior, and the Health Belief Model, which collectively posit that consumers weigh health risks, perceived benefits, and environmental cues before deciding to purchase perishable products. Moreover, the effectiveness and efficiency of supply chains and last-mile logistics in wet markets directly impact these perceptions, as delays and mishandling can heighten safety concerns (Lagin et al., 2022; Chung, 2019).

Despite these insights, several gaps remain. While existing studies confirm the relationship between food safety and consumer behavior, most focus on structured retail environments, leaving wet markets—especially in the Philippine context—underexplored. Additionally, previous research has examined food safety risk and practices as separate constructs, but few studies have analyzed their combined effects on purchase intention in real market settings. Furthermore, the dynamic and informal nature of wet markets introduces unique variables such as vendor hygiene practices, supply chain fragmentation, and inconsistent product handling, which are rarely addressed in current literature. This study addresses these gaps by investigating how both food safety practices and risk perceptions simultaneously influence consumer purchase intention in wet markets, offering insights tailored to the local context and helping enhance food safety strategies in the informal retail sector.

Literature Review

Food Safety Practices

Food safety practices refer to the systematic implementation of hygiene and handling measures aimed at preventing foodborne illnesses and ensuring the health of consumers. Kamboj et al. (2020) define food safety as the collective approach involving cleanliness, personal hygiene, and contamination control across all stages of food production and consumption. According to Ehuwa, Jaiswal, and Jaiswal (2021), food safety encompasses appropriate behaviors and procedures to mitigate microbial hazards such as *Salmonella*, which pose significant threats to public health. Da Cunha (2021) emphasizes the importance of structured training and regulatory compliance in fostering safer environments within the foodservice industry.

Additionally, food safety practices are shaped by both individual behaviors and institutional standards, as indicated by Azanaw, Gebrehiwot, and Dagne (2019), who observed that education and awareness significantly affect the implementation of proper food handling protocols. In the context of evolving technologies, Kiran et al. (2024) highlight the use of next-generation sequencing as a transformative tool for enhancing traceability and pathogen detection within food systems. Food safety is further supported by data on consumer behavior and food handler practices, emphasizing the importance of both knowledge and application.

Within the broader concept of food safety, specific sub-variables—namely sanitation, food storage, and food disposal—play critical roles in ensuring overall food quality and safety. Sanitation involves rigorous personal hygiene and cleanliness of surfaces, equipment, and environments involved in food preparation; Misra and Gibson (2021) report that poor sanitation practices are directly linked to foodborne disease outbreaks. Food storage, which focuses on maintaining food at proper temperatures and conditions, is essential in inhibiting microbial growth and spoilage; Turner, Luo, and Buchanan (2020) discuss the necessity of effective storage techniques, especially in high-risk food items like microgreens.

In terms of food disposal, proper waste handling and segregation practices are fundamental to preventing secondary contamination and pest proliferation. Baptista, Rodrigues, and Sant'Ana (2020) emphasize that consumers, particularly those handling seafood, must be equipped with knowledge on proper disposal methods to mitigate food safety risks. Supporting this, Da Cunha et al. (2019) identify notable discrepancies between self-reported and observed safety practices among food handlers, further underscoring the need for behavioral interventions across all sub-variables. As Friedlander et al. (2020) argue, behavioral intentions, shaped by knowledge and external support, are pivotal in fostering adherence to sanitation, storage, and disposal protocols.

In the context of the market industry, food safety practices become both a public health imperative and a competitive necessity. Barnabas et al. (2024) report that food vendors in Nigeria's school feeding program demonstrate varied levels of food safety knowledge and compliance, often constrained by infrastructure and resource limitations. Similarly, Odeyemi et al. (2019) reveal widespread inconsistencies in food safety practices among consumers and vendors in developing countries, exacerbated by limited regulatory oversight and economic pressures.

Da Cunha (2021) highlights the significance of institutional efforts in improving vendor compliance through monitoring and training programs, particularly in informal market settings. Meanwhile, Kiran et al. (2024) suggest that leveraging genomic tools for surveillance can elevate safety standards across supply chains, making such tools increasingly relevant in open markets where traceability is limited. These findings demonstrate that the promotion of food safety in the market environment requires an integrated approach—one that combines technological innovation, behavioral change, and systemic policy support to ensure safe and sustainable food systems.

Food Safety Risk Perception

Food safety risk perception refers to an individual's cognitive and emotional evaluation of potential threats associated with food consumption, influenced by factors such as knowledge, trust, and personal experience. Nardi et al. (2020) define it as the subjective judgment consumers make about the likelihood and severity of harm resulting from food-related hazards. This perception shapes consumer behavior and policy responses, making it a crucial element in food safety governance. Alemu et al., 2023 emphasize that the way information is presented—whether through mass media, government reports, or social platforms—significantly affects public understanding and concern over food safety risks. Abe et al. (2020) illustrate how food risk perception has shifted over time, noting that historical food safety incidents can elevate long-term consumer sensitivity. Rembischevski and Caldas (2020) further argue that

risk perception is not solely determined by scientific knowledge but is also shaped by cultural, emotional, and psychological dimensions. Similarly, Girmay et al. (2022) highlight that food handlers often exhibit optimistic bias, underestimating risks even when they possess adequate knowledge, which can compromise food safety outcomes. Schmit et al. (2020) add that cognitive illusions, such as overconfidence and normalization of risk, often distort food safety judgments among handlers.

Food safety risk perception is closely linked with three critical sub-variables: quality, health, and safety. Consumers often associate food quality with visible attributes such as freshness, packaging, and certification, using these cues to assess risk levels (Akinwehinmi, Ogundari, & Amos, 2022). Quality indicators serve as heuristics, especially in emerging markets where food control systems may be perceived as less reliable. From a health perspective, Christiana et al. (2022) explain that perceived threats to personal health, such as contamination or pesticide residues, play a central role in shaping consumption decisions. This aligns with Faour-Klingbeil et al. (2021), who model risk perception as part of a broader framework of personal preventive behaviors tied to food safety concerns. Ha, Shakur, and Do (2020) emphasize that consumers' trust in information sources greatly influences how they link food risks to health outcomes, particularly in regions with frequent food safety controversies. In terms of safety, Byrd et al. (2021) applies the risk perception attitude framework to show that individuals with high perceived vulnerability and efficacy are more likely to adopt safe food handling behaviors. Yost & Cheng (2021) expand this understanding by noting that safety perceptions evolve in response to emerging food risks and societal narratives, making them dynamic and context-dependent.

Purchase Intention

Purchase intention refers to an individual's conscious plan or willingness to buy a particular product or service based on internal motivations and external influences. It serves as a predictive indicator of actual purchasing behavior and is a central construct in consumer behavior research. Peña-García et al. (2020) describe purchase intention as a psychological state that directly precedes the decision to engage in a transaction, influenced by attitudes, perceived value, and trust. Zhuang, Luo, and Riaz (2021) argue that purchase intention is shaped by both rational factors, such as product attributes, and emotional drivers like environmental concern in the case of green products. According to Wijekoon and Sabri (2021), purchase intention functions as a bridge between marketing stimuli (e.g., advertisements, influencer endorsements) and behavioral outcomes. Sohn and Kim (2020) further explain that in the context of social commerce, purchase intention is driven by social interaction, peer influence, and perceived credibility of sellers. Huang and Ge (2019) add that consumer attitudes, knowledge, and incentives also play a critical role in forming purchase intentions, particularly in markets for new or sustainable technologies such as electric vehicles.

Several key sub-variables influence purchase intention, notably willingness to pay, purchase decision, customer, and satisfaction. Willingness to pay represents a consumer's readiness to spend a certain amount for a product, often reflecting their valuation of quality, utility, or symbolic benefits. Yones and Muthaiyah (2023) highlight that exposure to user-generated content, such as TikTok eWOM (electronic word of mouth), increases both perceived product value and willingness to pay. Similarly, Rausch and Kopplin (2021) note that consumers are more willing to pay for sustainable products when they believe their purchase contributes to environmental well-being. In terms of purchase decision, Nawaz and Kaldeen (2020) emphasize the role of digital marketing in transforming purchase intentions into concrete buying actions by providing targeted, personalized messages. Febrian & Vinahapsari (2020) found that smartphone advertisements, when contextually relevant, positively impact both purchase intention and final purchase behavior. From the customer perspective, Li and Peng (2021) explain that influencer credibility and perceived congruence with the brand affect consumer engagement and trust, enhancing the likelihood of purchase. Lastly, satisfaction serves as both a consequence and reinforcement of purchase intention. McClure and Seock (2020) demonstrate that customer involvement in social media

pages of brands boosts satisfaction, which in turn elevates repurchase intention. Likewise, Alwan and Alshurideh (2022) affirm that brand equity strengthens the impact of digital marketing on purchase intention by enhancing customer confidence and post-purchase satisfaction.

Theory

To examine the effect of food safety on purchase intention within the market industry, this study adopts three foundational theories: Consumer Perceived Value Theory, the Theory of Planned Behavior (TPB), and the Health Belief Model (HBM).

Consumer Perceived Value Theory, as articulated by Zeithaml (1988) and further developed by Sweeney and Soutar (2001), posits that consumers evaluate products based on the trade-off between perceived benefits and sacrifices. In the context of food safety, this theory explains that consumers' willingness to purchase is influenced by how much value they place on the quality, safety, and health benefits of food items relative to their cost. According to Sánchez-Fernández and Iniesta-Bonillo (2007), perceived value is a multidimensional construct encompassing functional, emotional, and social dimensions. When market consumers perceive that food products meet safety standards and offer health benefits, their perceived value increases, positively influencing purchase intention.

The Theory of Planned Behavior (TPB), introduced by Ajzen (1991), provides a robust framework for predicting behavioral intentions based on three key components: attitudes toward the behavior, subjective norms, and perceived behavioral control. and Conner (2001) supports the model's effectiveness in predicting food-related behaviors. In this framework, food safety serves as a critical determinant of positive attitudes and social approval, thereby enhancing the intention to purchase.

Complementing these perspectives, the Health Belief Model (HBM), originally developed by Rosenstock (1974) and refined by Becker (1974), explains health-related behaviors based on individuals' perceptions of threat and benefits. In market environments, the HBM suggests that consumers are more likely to act—such as purchasing safe food products—if they perceive a high susceptibility to foodborne illnesses, recognize the severity of such risks, and believe that safe food products will effectively mitigate those risks. Champion and Skinner (2008) emphasize that perceived benefits, barriers, and cues to action all play a role in shaping consumer decisions, especially when health and safety are at stake.

Together, these theories provide a multidimensional lens through which to analyze how food safety perceptions shape consumer behavior in the market industry. While Consumer Perceived Value Theory emphasizes the value assessment process, TPB highlights the cognitive and social factors guiding behavioral intent, and HBM incorporates health-related motivations—collectively offering a comprehensive framework to understand and predict purchase intention driven by food safety concerns.

Hypothesis

Food Safety Practices Linked with Purchase Intention

The studies on the effect of food safety practices on purchase intention in the market industry consistently emphasize the role of food safety as a critical determinant in shaping consumer behavior and decision-making. Turner, Luo, and Buchanan (2020) emphasize that consumers' awareness of nutritional value, hygiene, and shelf life of food products, particularly fresh produce like microgreens, directly informs their willingness to purchase. Odeyemi et al. (2019) extend this by surveying food safety knowledge and practices among consumers in developing countries, revealing that trust in food safety strongly correlates with consumer confidence and, subsequently, purchase intention. Similarly, Baptista,

Rodrigues, and Sant'Ana (2020) focus on seafood consumers, finding that safety practices, such as proper handling and storage, significantly affect consumer perceptions and drive purchasing choices. Seo and Lee (2021), through the lens of the Theory of Planned Behavior, conclude that consumers' intentions to buy are influenced by their attitudes and perceived control over food safety risks. A Rizzo et al, (2021) support this by showing that visible, consistent food safety practices among handlers improve customer trust, which in turn enhances buying behavior.

While these studies share a common perspective that food safety positively influences purchase intention, they diverge in focus areas and research methodologies. Turner et al. (2020) examine food safety from a nutritional and scientific standpoint, whereas Odeyemi et al. (2019) and Baptista et al. (2020) apply a more consumer behavior-oriented lens rooted in survey data. On the other hand, Seo and Lee (2021) adopt a behavioral framework to highlight the psychological factors mediating food safety perception and purchase intention, offering a theory-based view. These diverse methodological and theoretical approaches underline the complex and multifaceted influence of food safety on consumer purchase behavior. Collectively, they affirm that effective and visible food safety practices—whether through hygiene, education, or communication—serve as a foundation for building consumer trust and strengthening purchase intention in the market industry (Costa et al., 2021).

H1: Food safety practices have a significant effect on purchase intention

Food Safety Risk Perception Linked with Purchase Intention

The studies on the effect of food safety risk perception on purchase intention in the market industry converge on the understanding that perceived risk plays a critical role in shaping consumer behavior and influencing their buying decisions. Nardi et al. (2020) present a meta-analytic review that consolidates how consumers' risk perceptions—particularly related to contamination, hygiene, and traceability, directly affect food purchasing attitudes. Similarly, Alemu et al. (2023) highlight that the way food safety information is communicated significantly alters risk perception, with patterned information presentation reducing uncertainty and strengthening purchase intention. Abe et al. (2020) further contribute longitudinal insights, showing how shifts in public perception over time impact consumer trust and willingness to purchase, emphasizing the need for consistent risk communication. Akinwehinmi, Ogundari, and Amos (2022) also find that heightened food risk perception can reduce consumer confidence unless mitigated by visible safety certifications, thus illustrating a preference for verified safety assurances in emerging food markets. Ling (2018) adds a psychological dimension, showing that higher perceived risks lead to more deliberate decision-making processes that either discourage or reshape purchase intentions based on trust and control factors.

Despite this common recognition of risk perception's influence, the studies differ in scope and analytical approaches. Nardi et al. (2020) adopt a broad meta-analytic method to generalize findings across diverse contexts, whereas Alemu et al. (2023) use a national survey in China to delve into cultural and informational influences on food risk perception. Girmay et al. (2022) and Chetioui et al. (2020) take a micro-level approach, examining the cognitive distortions and optimistic biases among food handlers and how these internal perceptions of safety impact external consumer perceptions. In contrast, Akinwehinmi et al. (2022) and Rembischevski and Caldas (2020) place greater emphasis on systemic and regulatory dimensions, analyzing how external cues like certification labels influence consumer responses. Meanwhile, studies like Zhang et al. (2020) and McClure and Seock (2020) explore digital platforms, suggesting that risk perception extends into online environments where live streaming and brand transparency affect consumer confidence and purchase behavior. These diverse methodologies and theoretical underpinnings reflect the complex relationship between perceived food safety risks and consumer decision-making. Collectively, they underscore that managing and communicating food safety

risks is crucial in sustaining consumer trust and driving purchase intention in today's increasingly information-sensitive market environments.

H2: Food Safety Risk Perception has a significant effect on purchase intention

Methodology

Research Participants and Data

The participants of this study were consumers of perishable goods in wet markets located throughout the City of Manila. Respondents completed a survey questionnaire that assessed their perceptions of food safety practices, food safety risk, and their purchase intentions regarding perishable goods.

A total of 112 respondents participated in the study, which exceeds the minimum sample size of 72, determined through priori statistical power analysis using G Power with power = 0.80, effect size = 0.15, and $\alpha = 0.05$. Statistical power analysis is the appropriate method for calculating the sample size when the goal is hypothesis testing and ensuring reliable results (Cohen, 1992; Barker et al., 2016).

Statistical Treatment

Multiple Linear Regression was used in this study to examine the relationship between multiple independent variables and the dependent variable. According to Petchko (2018), this type of analysis allows researchers to quantify the strength of the relationship between the dependent variable and several independent variables, while also determining the contribution of each independent variable, with the influence of other predictors statistically controlled.

This approach provides insights into how each independent variable influences the dependent variable within the context of the study.

Data Analysis

Multiple Regression Results

Table 1. Effect of Food Safety Practices on Purchase Intention

Predictor	Estimate	SE	t	p	Interpretation
Intercept ^a	1.247	0.22	5.67	< .001	
Food Safety Practices	0.22	0.0707	3.11	0.002	H1 Accepted
Food Safety Risk Perception	0.427	0.0702	6.08	< .001	H2 Accepted

Table 1 shows the multiple regression results. The results indicate that food safety practices positively influence purchase intention ($\beta = 0.22$; $p = 0.002$). This suggests that a one-unit increase in food safety practices is associated with a 0.22 increase in purchase intention. Therefore, H1 is accepted.

Furthermore, food safety risk perception has a significant positive effect on purchase intention ($\beta = 0.427$; $p < 0.001$). This indicates that a one-unit increase in food safety risk perception is associated with a 0.427 increase in purchase intention. As a result, H2 is accepted.

Conclusion

Food Safety Practices to Purchase Intention

Food safety practices significantly influence purchase intention for perishable goods in the market industry. The study reveals that improvements in food safety practices lead to a notable increase in consumer purchase intention, emphasizing the importance of ensuring safe handling and quality in food products. This finding is consistent with previous research that underscores the impact of food safety practices in shaping consumer perceptions and decision-making (Girmay et al., 2022; Nardi et al., 2020). Ensuring proper food safety practices is essential for businesses to foster consumer trust and encourage repeat purchases.

Food Safety Risk Perception to Purchase Intention

The effect of food safety risk perception on purchase intention is also significant. As food safety risk perception increases, so does consumer purchase intention, highlighting that consumers are more likely to buy perishable goods when they perceive food safety risks to be adequately addressed. This result aligns with studies that suggest consumer behavior is highly influenced by risk perceptions, particularly in contexts involving health and safety (Alemu et al., 2023; Akinwehinmi et al., 2022). These findings suggest that enhancing consumer awareness and perception of low-risk food safety practices can effectively drive purchasing behavior in the market industry.

Implications

For Theory Development

This study contributes to the advancement of three key theories in consumer behavior: Consumer Perceived Value Theory, the Theory of Planned Behavior (TPB), and the Health Belief Model (HBM). By integrating these theories, this research offers a nuanced understanding of how food safety perceptions influence purchase intention in the market industry. The findings reinforce Consumer Perceived Value Theory by showing that consumers weigh the benefits of food safety against the perceived costs, which in turn affects their purchase intention (Zeithaml, 1988; Sweeney & Soutar, 2001). Additionally, this study supports the Theory of Planned Behavior by demonstrating that attitudes toward food safety, social influences, and perceived behavioral control are significant predictors of purchase intention in the context of market consumers (Ajzen, 1991; Armitage & Conner, 2001). Furthermore, the Health Belief Model is validated in the market setting, emphasizing that consumer decisions are driven by perceptions of vulnerability to foodborne risks and the belief that food safety measures mitigate those risks (Rosenstock, 1974; Becker, 1974). Together, these theories provide a comprehensive framework for understanding consumer behavior in the context of food safety, extending existing literature on how safety concerns influence purchase decisions in the market industry.

Practical Implications

The findings emphasize the critical role of food safety practices in shaping consumer purchase decisions, suggesting that businesses in the market industry must prioritize food safety to enhance consumer trust and increase sales. Managers should invest in training for employees to ensure proper food

handling and safety protocols, as these directly impact consumer perceptions and, subsequently, purchasing behavior. Additionally, businesses should focus on clearly communicating food safety measures to consumers, potentially through certifications or transparent labeling, to alleviate food safety concerns and mitigate perceived risks. This could involve developing partnerships with food safety certification organizations or using marketing campaigns to inform consumers about the company's food safety standards. By aligning business practices with food safety priorities, businesses can boost customer loyalty and improve overall market performance.

For the Wet Market Industry

For the market industry, this study highlights the need for food safety to be a focal point in business strategies aimed at boosting consumer purchase intention. In a highly competitive market for perishable goods, understanding and addressing consumer concerns about food safety is essential for gaining consumer trust and improving sales outcomes. Market vendors and businesses must ensure that food safety practices are rigorously followed and publicly communicated to enhance consumer confidence. Implementing real-time monitoring of food safety conditions, offering certified safe products, and educating consumers on food safety risks could lead to increased purchase intentions and sustained growth in consumer demand. Furthermore, integrating food safety practices with broader marketing strategies, such as digital marketing and customer engagement, can help businesses in the market industry differentiate themselves and gain a competitive edge. By continuously enhancing food safety standards and consumer perceptions, businesses can drive long-term customer loyalty and achieve sustainable growth in the market sector.

Declarations

Ethics Approval and Consent to Participate

The objectives, contents, and conclusion of this research were evaluated by a Research Ethics Board of a University and were found meritorious. No violations of research ethics standards were found, as the researchers were cautious and courteous in their data-gathering. There is no potential conflict of interest to declare. Informed consent was secured from the participating companies before data gathering.

Availability of Data and Materials

Research data is gathered through an online survey which is available upon request.

Competing Interests

The authors declare that they have no competing interests

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