

AN ASSESSMENT OF FOOD SAFETY CULTURE
AMONG FOOD VENDORS IN A NIGHT MARKET
IN MERU, KLANG

by

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Dissertation submitted in partial fulfilment
of the requirement for the degree
of Bachelor of Health Science (Honours)
(Nutrition)

January 2026

CERTIFICATE

This is to certify that the dissertation entitled “AN ASSESSMENT OF FOOD SAFETY CULTURE AMONG FOOD VENDORS IN A NIGHT MARKET IN MERU, KLANG” is the bonafide record of the research work by Ms. “NURFARAH LINA BINTI SUKUR” during the period from May 2025 to January 2026 under my supervision. I have read this dissertation and find that it conforms to the acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for a Bachelor of Health Science (Honours) (Nutrition).

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DECLARATION

I declare that this dissertation results from my investigations, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or currently submitted as a whole for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research, and promotional purposes.

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LIST OF ABBREVIATIONS

FSC	Food Safety Culture
GFSI	Global Food Safety Initiatives
DBKL	Dewan Bandaraya Kuala Lumpur
SDG	Sustainable Development Goal
MBDK	Majlis Bandaraya Diraja Klang
JePEM	Jawatankuasa Etika Penyelidikan Manusia

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The assessment of food safety culture among food vendors in a night market in Meru, Klang.

ABSTRACT

The maintenance of food safety standards in night markets requires a thorough evaluation of food vendors' food safety culture (FSC). The purpose of this study is to assess the food safety culture among food vendors in a night market in Meru, Klang, and the association of food safety culture scores with demographic and experience-related factors. For this cross-sectional study, 149 food vendors from three night markets in Meru were examined for the relationship between FSC scores and demographic and experience-related factors. The data were evaluated using nonparametric statistics to find cultural consistency. The descriptive analysis found work pressure as the most consistent indicator (median = 5.00, IQR = 0.00) and risk judgment as the lowest-ranked indicator (median = 3.33, IQR = 1.5). The inferential statistics found there is no difference in the level of food safety culture and demographic factors ($p > 0.05$), but there is a difference in the level of food safety culture and experience-related factors ($p < 0.05$). The study comes to the conclusion that focused educational initiatives and time are the main factors that determine the quality of FSC.

**Penilaian budaya keselamatan makanan dalam kalangan penjual makanan di pasar
malam di Meru, Klang.**

ABSTRAK

Pengekalan piawaian keselamatan makanan di pasar malam memerlukan penilaian menyeluruh terhadap budaya keselamatan makanan (FSC) penjual makanan. Tujuan kajian ini adalah untuk menilai budaya keselamatan makanan dalam kalangan penjual makanan di pasar malam di Meru, Klang, dan kaitan skor budaya keselamatan makanan dengan faktor demografi dan pengalaman. Bagi kajian keratan rentas ini, 149 penjual makanan dari tiga pasar malam di Meru mengkaji hubungan antara skor FSC dan faktor demografi dan pengalaman. Data dinilai menggunakan statistik bukan parametrik untuk mencari konsistensi budaya. Analisis deskriptif mendapati tekanan kerja sebagai penunjuk yang paling konsisten (median = 5.00, IQR = 0.00) dan pertimbangan risiko sebagai penunjuk kedudukan terendah (median = 3.33, IQR = 1.5). Statistik inferensi mendapati tiada perbezaan dalam tahap budaya keselamatan makanan dan faktor demografi ($p > 0.05$), tetapi terdapat perbezaan dalam tahap budaya keselamatan makanan dan faktor berkaitan pengalaman ($p < 0.05$). Kajian ini menyimpulkan bahawa inisiatif pendidikan yang tertumpu dan masa merupakan faktor utama yang menentukan kualiti FSC.

CHAPTER 1: INTRODUCTION

1.1 Background of the study

A new source of income for many people has emerged in recent years due to the growing number of food vendors in night markets. In Asian countries such as India, Pakistan, and China, the street food trade has reached new dimensions and is recognized as a phenomenon of great economic and sociocultural importance (Salamandane et al., 2023). This trend has led to the formation of entire communities of food vendors in specific areas. The behavior, beliefs, and practices within these communities are often shared by a shared culture. One important concept that can be applied in this context is food safety culture. Food safety culture is defined as the shared values, beliefs, and norms that affect mindset and behaviour toward food safety in, across, and throughout an organization (GLOBAL FOOD SAFETY INITIATIVE [GFSI], 2018). It has been applied to evaluate human behavior about food safety, particularly in unofficial commercial contexts like street food vendors.

Generally, night markets were considered as temporary open markets which operated in public spaces and had similar physical characteristics as other markets (Khursiah Abd Aziiz, 2011). Besides, the night market is set up in informal settings. Malaysia's night markets were based on the concept of open-air shopping, with street vendors or small traders occupying designated areas of the street to set up stalls (Xu et al., 2024).

Nowadays, the night market has become a crucial attraction for a country's economy. In China, studies from the China Tourism Research Institute and UnionPay Business Big Data Joint Laboratory have shown the percentage of domestic night consumption during National Day 2020 for tourists and nationwide are 31.71% and 30.67%,

respectively, and the night economy accounted for a very high share (Li, 2021). In Malaysia, various types of informal businesses exist, such as night markets and food trucks. According to Dewan Bandaraya Kuala Lumpur (DBKL), night markets in Kuala Lumpur have a total number of 11,208 units, making up the largest share of informal business types at 34.9% (Mohd Amirul Rafiq Abu Rahim & Hao, 2025).

Due to its wide selection of food and goods, Malaysia's night market has emerged as one of the country's top tourist destinations. Studies show the categories of goods operated by businesses in the night market involved such things as fast food, apparel, fruit, vegetables, fresh meat, beverages, and other daily items, totaling seven types (Xu et al., 2024). This led to an increasing number of consumers going to the night market to purchase goods. According to a study, night markets were not only convenient places to attract locals to buy goods but were also places where tourists traveled to experience local characteristics, especially in Asian cities (Xu et al., 2024).

Food safety in Malaysia is regulated by laws such as the Food Act 1983. These rules include requirements for food handling, cleanliness, and facilities. However, maintaining consistent and strict enforcement of these rules can be difficult due to the distinctive and sometimes informal characteristics of night market activities. Thus, it becomes especially crucial to comprehend the food safety culture of food sellers in these environments in order to promote safe food practices.

The main factor influencing positive food safety outcomes is a strong food safety culture characterized by high knowledge and comprehension. According to a study, the concept of Food Safety Culture (FSC) came into being as a result of major food safety incidents that raised public awareness and demonstrated the importance of taking preventative measures to ensure food safety (Pai et al., 2024). Individuals with greater

knowledge and understanding of food safety culture are more inclined to adhere to safe food handling practices, recognize risks promptly, and implement preventive measures, thereby enhancing food safety.

It is important to identify the level of food safety culture in food vendors to understand the underlying effects. While night markets in Malaysia hold considerable economic and social importance, and food safety culture is acknowledged as vital, there is a necessity for targeted evaluations of food safety culture among food vendors operating in these informal environments. This study aims to assess the food safety culture among food vendors in the night market in Meru, Klang. By identifying the level of food safety culture in food vendors, this research seeks to contribute valuable insights that can improve the food safety standards in night markets.

1.2 Problem statement

The food safety culture is considered to be one of the risk factors for foodborne illnesses. A study from Sheehama and Singh (2025) shows the observed negative attitudes may reduce motivation for food safety compliance, heightening the risk of foodborne disease outbreaks. The sellers' beliefs, attitudes, and practices toward food safety can influence their mindset towards food safety practices in night markets. It is the sellers' responsibility to guarantee that the food they sell satisfies food safety standards. However, 70.9% of the sellers did not undergo regular medical check-ups, and only 28.2% wore uniforms during food preparation, indicating low adherence to hygiene regulations (Sheehama & Singh, 2025). These aspects are important for the night market because the rising numbers of food vendors can be a potential trigger for public health concerns if the food safety does not meet the standards. Factors leading to low compliance may be built into the vendor community's food safety culture. Therefore, this study will assess the food

safety culture of the food vendors that shapes their attitudes and behavior towards food safety in the night market.

1.3 Research questions

- I. What is the level of food safety culture among food vendors in the night market in Meru, Klang?
- II. Which factors of food safety culture are most and least practiced among the food vendors?
- III. What is the difference in the level of food safety culture based on sociodemographic characteristics (e.g., age, gender, year of experience, and years of working at the current operation)?

1.4 Objectives

General objective

- To assess the food safety culture among food vendors in a night market in Meru, Klang

Specific objectives

- To assess the level of food safety culture among food vendors in the night market in Meru, Klang.
- To identify which factors of food safety culture are most and least practiced among the food vendors.
- To compare the level of food safety culture based on sociodemographic characteristics (e.g., age, gender, year of experience, and years of working at the current operation).

1.4 Study Hypothesis

Null hypothesis

There is no difference in the level of food safety culture based on sociodemographic characteristics (e.g., age, gender, year of experience, and years of working at the current operation).

Alternative hypothesis

There is a difference in the level of food safety culture based on sociodemographic characteristics (e.g., age, gender, year of experience, and years of working at the current operation).

1.6 Significance of study

The findings of this study will contribute greatly to the food vendor community in Meru as food safety culture plays a crucial role in food safety practices of food and beverages. The purpose of this study is to analyze the current food safety culture among food vendors working in the night market community. Furthermore, this study will specifically fill in the knowledge gap on the food safety culture of food vendors at the night market in Meru. Thus, food vendors can identify the areas of improvement in aspects of food safety in night markets and improve their attitude and behaviour when handling foods. Local authorities will be guided on what should be emphasised in the night market setting. For the community, this research will help to enhance the reputation of the night market in Meru as a safe and clean source of food. The study's findings directly support Sustainable Development Goal (SDG) 3: Good Health and Well-being, which targets a significant decrease in mortality and diseases caused by hazardous compounds and contamination of air, water, and soil by 2030. This is achieved by identifying gaps in food handling practices and enhancing the vendors' food safety culture. For researchers, this study will help to uncover under-researched areas in food safety culture that have yet to be explored. Furthermore, this study aligns with Sustainable Development Goal (SDG) 11: Sustainable

Cities and Communities. By promoting hygienic food handling in night markets, the research contributes to a cleaner and safer urban environment. This directly supports the goal of reducing the adverse per capita environmental impact of cities, including through improved waste management by 2030.

CHAPTER 2: LITERATURE REVIEW

2.1 Rising Popularity of Night Markets and Its Implication for Food Safety

Nowadays, more people are visiting night markets to purchase food and beverages rather than buying food from restaurants. The night market serves a variety of dishes sold by the vendors at a cheaper and more affordable price. A study shows that consumers frequently visit night market because they are influenced by three main factors which are price perception, convenience and concept (Mazlan et al., 2017). A study strongly indicates that convenience does play a prominent role for today's consumers in making their own selection decision at night market (Mazlan et al., 2017). A continuously growing number of consumers in the night market can increase the risk of foodborne disease. This is due to more customers increase the pressure on food vendors to get food ready and serve meals quickly. This additional pressure results in less strict adherence to food safety procedures or shortcuts. Thus, this will lead to the food in the night market being contaminated or exposed to various pathogens if the food is not handled with proper hygiene.

2.2 Concept of food safety culture

2.2.1 Definition of Food Safety Culture

A study describes food safety culture is a long-term construct existing at the organisational level, relating to the deeply rooted beliefs, behaviours, and assumptions that are learned and shared by all employees, which impact the food safety performance of the organisation (Pai et al., 2024). However, when considering the context of a night market, this can be adapted to refer to the community of food vendors. The phrase 'deeply rooted' implies that the culture around food safety is mostly unchanging, shaped by tradition, and frequently ingrained in unintentional beliefs. Consequently, a variety of methods, including instruction, peer observation, communication, and the development of standards, are used

to learn and spread this culture. Food safety culture plays a crucial role in shaping the food vendors' beliefs, behaviours and attitudes towards food safety. Thus influencing their safe food handling procedures, contamination control, regulatory compliance, and food safety. The adoption of Food Safety Culture (FSC) as a component of quality management systems in food processing industries as well as the integration of behavioural sciences to understand employee motivations and attitudes towards food safety were significant turning points in the evolution of FSC (Pai et al., 2024).

2.2.2 Indicators of Food Safety Culture

Food safety culture is a complex concept composed of several key elements or aspects that affect food handling behaviours, which researchers have sought to define and describe. Researchers have attempted to identify and characterise these indicators in order to better understand and evaluate food safety culture in different contexts. According to Griffith (2010), he identified six indicators of food safety culture which are management systems, styles and processes, leadership, communication, commitment, environment and risk perception, awareness and risk-taking behaviour. However, a further study of indicators of food safety culture has been explored by Ungku Fatimah (2014) in on-site food service operations.

The first indicator is management and coworker support. It is defined as coordinated activities or policy and procedure to direct or control food safety and coworkers support with regard to practicing safe food handling in the workplace (Ungku Fatimah et al., 2014). In night markets, where vendors generally work alone or in small groups, the existence (or lack) of clear instructions and assistance from leaders or fellow vendors can have significant consequences on food safety measures. According to Catedral (2018), improving management guidance will ensure employee compliance in the practice of food

safety. Management guidance is vital for setting clear expectations and encouraging consistent safe handling, even for individual vendors in busy night markets.

The second indicator is communication. Communication refers to the quality of the transfer of food safety messages and knowledge among management, supervisory staff and coworkers (Ungku Fatimah et al., 2014). As Griffith (2010) similarly highlights, effective communication is crucial for disseminating information regarding potential dangers, recommended practices, and food safety events. Considering the temporary nature of certain vendors and the possibility for language hurdles, clear and accessible methods of communication are crucial.

The third indicator is self-commitment. Self-commitment refers to employees' values and beliefs about food safety practices (Ungku Fatimah et al., 2014). In night markets, since sellers have an important amount of independence, their personal beliefs and values play a key role in defining their actions towards food safety. A study by Catedral (2018) further supports this by asserting that vendors have to understand food safety knowledge importance and advocate for it.

The fourth indicator is the environment support. It relates to the availability and quality of infrastructure that support the food safety culture (Ungku Fatimah et al., 2014). Night markets can create infrastructural issues, with inadequate access to clean water, garbage disposal facilities, and adequate sanitation. The accessibility of these facilities will have an impact on the vendors' capacity to sustain safe food handling standards. It works positively and negatively. If sufficient facilities are available then there is support for food safety but also if absent then food safety is perceived not to be important (Griffith, 2010). In a study of night markets, Catedral (2018) noted that vendors often perceive facilities like toilets, hand-washing stations, and stall sizes as inadequate, which can consequently lead to difficulties in adhering to proper food handling practices.

The fifth indicator is work pressure. Work pressure is defined as the various aspects of pressure associated with food preparation and service that affects safe food handling practices (Ungku Fatimah et al., 2014). The hectic atmosphere and large number of consumers in night markets can put huge pressure on vendors. This pressure may result in inefficiencies and sacrifices in food safety procedures. Food safety and quality were generally not the same among vendors when they are in the middle of rush hours (Catedral, 2018). In this context, it is critical to understand how work pressure affects food safety culture.

The last indicator is risk judgment. It refers to organizational risk awareness and risk judgment decisions with regard to food safety (Ungku Fatimah et al., 2014). Night vendors are continuously making judgements concerning food safety hazards, such as determining the freshness of materials, minimising cross-contamination, and managing food storage. The focus on risk judgement is important because it emphasizes the capacity of vendors to appropriately recognise and evaluate potential risks. According to Catedral (2018), this judgement might be jeopardised when vendors see written food safety regulations and procedures as mere cover-ups for future legal action.

2.3 Night market and Food Vending

2.3.1 Characteristics of Night Markets

A night market is a temporary marketplace that operates from the evening till late at night, offering a distinctive fusion of food service and shopping. According to (Khursiah Abd Aziiz, 2011), night market is defined as temporary open markets which operated in public spaces and had similar physical characteristics as other market. The night market has a non-permanent schedule. Some night markets are working on weekends or weekdays. The night market is a public spaces market that commonly located main roads, parking lots and

residential areas (Khursiah Abd Aziiz, 2011). The night market consists of temporary stalls with a limited infrastructure. A night market stall typically consists of a canopy and foldable tables, designed for quick setup and breakdown. The food vendors in the night market have limited access to essential utilities such as consistent water supply and proper sanitation facilities. The basic facilities, such as clean water and waste disposal space, are usually not found in the area of the night market. A study investigated and analyzed the recycling of waste from the night market and found that there were no particular garbage bins for the night market in the area (Xu et al., 2024). Furthermore, the night market has an open-air environment. This led to exposure to harmful gases produced from barbecues, generators burning gasoline, and frying in iron pots (Xu et al., 2024). The gases caused the air to be filled with potent smells and a lot of smoke. Another characteristic of the night market is the layout of vendor spaces. It was found that the businesses were less flexible due to the narrow and crowded nature of the night market after they had entered the night market early, resulting in the emergence of high and low-crowd-density zones in the night market space (Xu et al., 2024). This will put pressure on the food vendors for speed and efficiency to serve the customers quickly. This may cause the food vendors to skip important food safety procedures. In conclusion, the inherent characteristics and operational nature of a night market provide unique challenges for ensuring the highest standards of food safety.

2.3.2 Food Safety Challenges in Night Markets

The unique characteristics of night markets present significant food safety concerns. Understanding food safety issues is essential because they affect vendor behaviour and the culture around food safety as a whole. One of the food safety issues is cross-contamination. Cross-contamination can be due to cramped spaces in the night market, especially during peak hours. Vendors work in cramped spaces with little room for surface area for cooking, serving, and preparation. This makes it challenging to create

separate compartments for various kinds of food. It becomes very challenging to keep raw materials and prepared foods physically apart in a small room. A study shows many of these street foods do not have an ideal layout for food safety and can lack some equipment found in conventional food service establishments, and many stalls will use the same cutlery and cutting boards to chop raw and ready-to-eat (RTE) food, which is a proven risk factor for cross-contamination (KIRCHNER et al., 2021). The second food safety issue is waste management. The night market often lacks proper sanitation facilities in the night market area. A study shows there were no particular garbage bins for the night market in the area and that there were one red and eight blue garbage bins (located in the park to the south of the night market) within 20 meters of the night market (Xu et al., 2024). This leads to improper disposal of the waste and results in terrible environmental conditions. This environment will attract pests around the stalls. Fruit flies and common houseflies can be vectors for foodborne pathogens and can transfer these bacteria to food and food contact surfaces (KIRCHNER et al., 2021).

However, food vendors' behaviour and the prevalent food safety culture at the night market significantly worsen or minimise these environmental issues. Vendors might develop a belief that certain behaviours, such as using the same cutting board for raw and RTE food, are considered normal or efficient. The normalisation of this behaviour can lead to an accepted norm within the market's informal culture. A study shows that experienced employees tended to have less favorable perceptions on managers' visible commitment to food safety, management consistency in enforcing food safety, and coworkers support to ensure safe food production (Ungku Fatimah et al., 2014). These kinds of beliefs, especially among experienced vendors, can lead to a generalised complacency that

normalises unsafe behaviour and thus undermines the overall standards for food safety in the night market environment.

2.4 Factors influencing food safety culture

2.4.1 Demographic factor

The age of food vendors can vary. Studies on the relationship between age and food safety culture have produced contradictory findings, even though food sellers are often 18 years old. There have been conflicting results from studies on age and food safety culture. A study on different age groups with risk judgement factor shows a significant difference among respondents. The Bonferroni post-hoc test showed that agreement scores for the risk judgment factor for the older age group (between 50 and 60 years old) were significantly higher than the youngest age group (between 18 and 29 years old) (Ungku Fatimah et al., 2014). This finding suggests that the study's elder respondents were prone to recognise the possible risks related to food. Gender influence in food safety culture is complex. The gender roles in the society might affect the food handling behaviour. As an example, the cleaning and hygiene roles are usually for women. A study from Ungku Fatimah (2014) shows that the level of agreement toward the factor of risk judgement is significantly higher in female respondents, with a mean of 5.57, compared to male respondent mean is 5.07 (Ungku Fatimah et al., 2014). This result shows a possible association between gender and one of the indicators of food safety culture.

2.4.2 Experienced-related factor

Years of food service experience refers to the total period of time a person has spent working in the food service sector in any form. Competent vendors may put efficiency and speed before anything else, which might result in shortcuts that jeopardise food safety. Furthermore, greater management and coworker support among employees will strengthen

the employees' understanding of food safety procedures and make them more inclined to follow the guidelines and standards of food safety ordered by the leader. A study on different years of food service with management and coworker support factor shows respondents with less than a year of work experience have a significantly higher mean than the respondents who had more years of experience (Ungku Fatimah et al., 2014). This finding suggests that less experienced respondents showed stronger agreement with aspects of management and coworker support related to food safety. The reason for this result might be that newer staff members are more dependent on existing procedures and guidelines, or maybe they are more open to these support systems because of their recent training.

Years worked at the current operation refers to the length of time the vendor has been working solely at the night market. While experienced night market vendors are probably more aware of the particular food safety issues in that area, beginner food vendors may have a greater awareness of and perspective on food safety in night markets. A study from Ungku Fatimah (2014) shows that the level of agreement of management and coworker support is significantly higher in new employee respondents, with a mean of 5.95, compared to the employees who worked longer (over 20 years), with a mean of 5.46. Long-term vendors may be more deeply involved in dangerous behaviours if they are normal or tolerated in the particular night market culture. Long-term exposure to the night market's established norms may cause people to become less aware of the need for strong guidance and encouragement from coworkers in order to enforce food safety.

2.5 Previous study on food safety culture

Food safety culture in the food business has been the subject of several studies. Catedral (2018) has conducted a study of food safety culture in the night market at Cebu Night Market, located in Cebu City. In his study, he found that night market vendors in Cebu

City exhibit good safety culture in the factors of self-commitment, communication and management and coworker support (Catedral, 2018). His research makes some suggestions for improvements. As an example, in management, increased visibility of leadership will ensure consistent enforcement of food safety policies at all levels in the organization (Catedral, 2018). Similar to his research, Catedral (2018) focuses on night markets. But his study location is located in a different country, which is the Philippines. Although Catedral (2018) offered useful information, the focus of this study will be the vendors who sell food at the Meru night market, that has distinctive features of its own. This geographical difference is important because food safety culture may be impacted by local rules, cultural practices, and customer expectations, which may differ significantly between the Philippines and Malaysia.

2.6 Conceptual framework

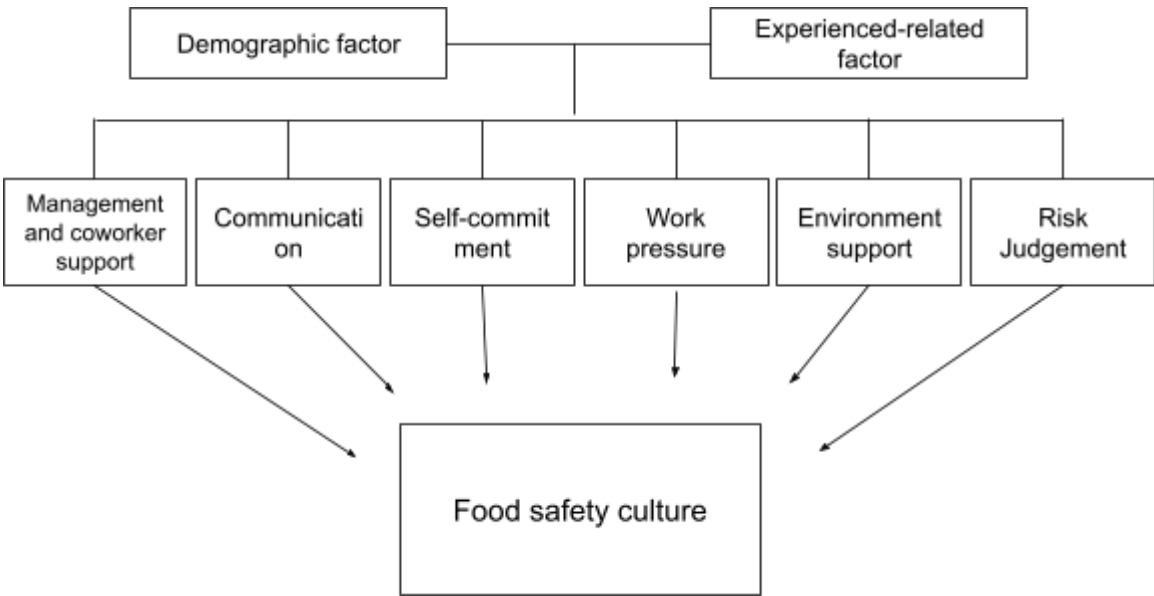


Figure 2.1 Conceptual framework

CHAPTER 3: METHODOLOGY

3.1 Study design

A quantitative study will be used in the study. A cross-sectional study design will be used to assess the food safety culture among food vendors in a night market. A cross-sectional study is an observational study that analyzes data from a population at a single point in time (Wang & Cheng, 2020). Data on exposure (sociodemographic characteristic) and outcomes (level of food safety culture) can be collected simultaneously within a defined population at a particular moment in time using a cross-sectional technique.

3.2 Study location

This study will be carried at Meru, Klang District, a suburban of Selangor. Meru is one of the towns in the Klang district with a population of over 7,404 people (Meru (Town, Malaysia)—Population Statistics, Charts, Map and Location, 2020). There are a total of seven night markets located at Meru, Klang which are Pasar Malam Dato Bandar Meru, Pasar Malam Batu 8 Jalan Bukit Kapar, Pasar Malam Taman Meru Empat, Pasar Malam Taman Meru Indah, Pasar Malam Raja Mokhtar and Pasar Malam Jalan Paip (Majlis Bandaraya Diraja Klang (MBDK), 2025). The night market is operated starting from 4PM until 10PM on every Monday, Tuesday, Saturday, Wednesday, and Sunday. This particular night market was selected as the study's focus because it reflects a typical busy urban night market in the Selangor region, complete with a wide variety of food sellers serving a sizable local population. The growing number of foreigners in Meru also adds to the variety of consumers and food options available at these night markets. Meru's diverse population, which includes Malay, Chinese, and Indian residents, is represented in the variety of regional cuisine offered by food vendors, including Yong Tau Foo, Cendol, and Murtabak.

Because of its accessibility and the chance to speak with merchants directly, Meru is an ideal spot to examine their food safety culture in detail.

In this study, the researcher focused on three specific night market located in Meru which are Pasar Malam Dato Bandar Meru, Pasar Malam Taman Meru 4 and Pasar Malam Jalan Paip. This deliberate choice was made to ensure a representative sample of the various characteristics that characterise Meru's night market environment. Pasar Malam Dato Bandar Meru is located at Jalan Muafakat 1 at Taman Dato Bandar Meru portrays a busy and high-volume location with 102 food vendors registered with MBDK. Meanwhile Pasar Malam Jalan Paip and Pasar Malam Taman Meru 4 with 75 food vendors and 54 food vendors registered with MBDK respectively, represent operations on a medium or smaller scale size, enabling comparison across various activity levels. Furthermore, all three night market operating on different days. Pasar Malam Jalan Paip and Pasar Malam Taman Meru 4 are operating on weekends, sunday and saturday respectively while Pasar Malam Taman Dato Bandar Meru is operating on weekday, which is Monday. The distinct schedules of each night market are essential for giving a more realistic representation of the food safety culture under different operational demands and traffic from consumers. On top of that, the researcher's decision in choosing three markets instead of a broad review of all markets allowed for facilitating more thorough data gathering and ongoing vendor involvement, which is essential for comprehending complex components of food safety culture.

3.3 Target population

The target population of this research is all food vendors located at the night market at Pasar Malam Dato Bandar Meru, Pasar Malam Taman Meru 4 and Pasar Malam Jalan Paip, Pekan Meru. This includes all ages and genders of vendors available at the night market. These will guarantee a wide range of indicators of food safety culture that may

influence the food vendor's belief, attitude and practices toward food safety behaviour in the night market. The variety in demographic and experience-related characteristics of the food vendors can improve the research's ability to assess the level of food safety culture and compare the indicators of food safety culture with sociodemographic characteristics.

3.4 Selection criteria

Inclusion criteria

- Open to all food vendors located at Pasar Malam Dato Bandar Meru, Pasar Malam Taman Meru 4 and Pasar Malam Jalan Paip.
- Malaysian food vendors
- Vendors who prepare or handle ready-to-eat food or beverages.
- Vendors who have been operating for at least one month at the night market
- Vendors who can understand and respond to the questionnaire (in Malay or English)

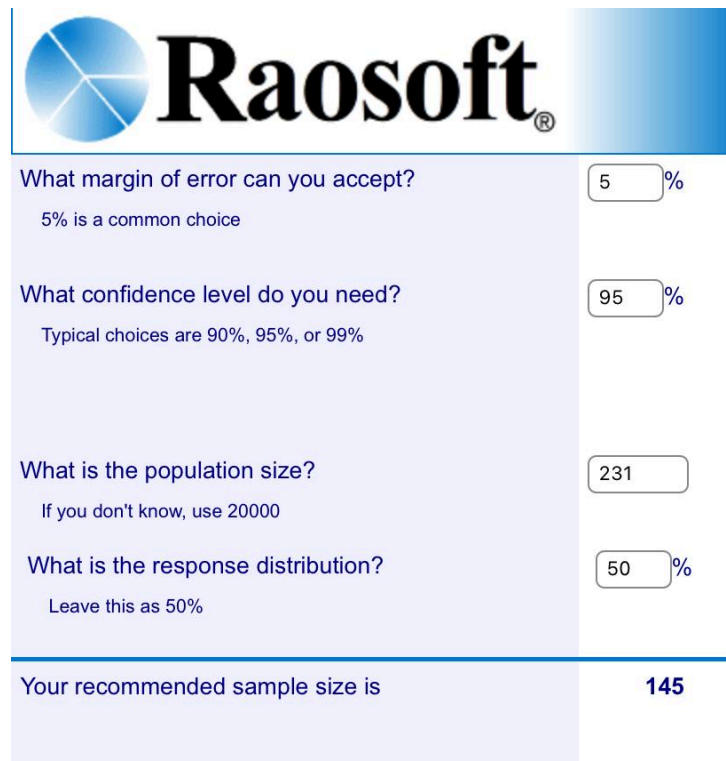
Exclusion criteria

- Vendors who do not sell food or beverages (e.g., clothing, accessories)
- Food vendors who only sell pre-packaged or factory-sealed items (no direct food handling).
- Vendors who refuse to participate or do not complete the questionnaire
- Vendors with communication barriers (e.g., language difficulties) that prevent reliable data collection.

3.5 Sample size calculation

The sample size was determined using the Raosoft sample size calculator to calculate the appropriate sample size for a known population. The target population in the study was food vendors at night markets in Meru, Klang. The population size of food vendors in the three night markets is 231 food vendors, according to the data provided by the Majlis Bandaraya Diraja Klang (MBDK) (2025) for the year 2025. The required sample

size for the population of approximately 231 is 145 respondents (with confidence interval = 95%, margin of error = 5%). This value was considered as 50% of the population from the subject criteria for all ages and food vendors located at the three specific night markets in Meru.



The image shows the Raosoft sample size calculator interface. It features a blue header with the Raosoft logo. Below the header, there are four input fields with corresponding labels and suggestions. The first field is 'What margin of error can you accept?' with a value of 5% and a suggestion '5% is a common choice'. The second field is 'What confidence level do you need?' with a value of 95% and a suggestion 'Typical choices are 90%, 95%, or 99%'. The third field is 'What is the population size?' with a value of 231 and a suggestion 'If you don't know, use 20000'. The fourth field is 'What is the response distribution?' with a value of 50% and a suggestion 'Leave this as 50%'. At the bottom, a blue bar displays 'Your recommended sample size is 145'.

Input	Value
What margin of error can you accept?	5%
What confidence level do you need?	95%
What is the population size?	231
What is the response distribution?	50%
Your recommended sample size is	145

Figure 3.1 Raosoft sample size calculator

3.6 Sampling method and subject recruitment

The sampling method used will be convenient sampling. Each respondent's chance of taking part in the study will not be established, and it is up to them to decide whether or not to complete the survey. The participants will take part in the study and if they demonstrate consent, they will be selected and added to the sample (Golzar et al., 2022). This study will continue to recruit participants until the required total number of respondents has been met. The researcher will distribute the survey using Google Form and the Google Form will be shared in the form of a QR code. The QR code will be printed on a flyer and it

will be distributed to the food vendors in the night market. The Google Form will be accessed by participants after they scan the attached QR code. They will have to click a specific button on the form to give their informed consent before they can access and answer the survey questions. The researcher will be at the night market from 3.00 p.m. until 4.30 p.m. to distribute the flyers to the food vendors. The timing to distribute the flyers also considered avoiding peak hours and busy business times of the food vendors in the night market. Thus, the food vendors will have some time to answer the questionnaire before they start their business.

3.7 Study instrument

This study utilizes a self-administered questionnaire, which is distributed via QR code by using a Google Form to collect data from the respondents. The questionnaire was developed based on Ungku Fatimah's (2014) research of the prior instrument, which Catedral (2018) modified to the night market context. Therefore, authorisation from the author is obtained before beginning the translation process. Each questionnaire was initially written in English, thus, it was translated into Bahasa Malaysia. The translation assisted participants in better understanding how to answer questions. After translating the questionnaire, the assigned certified translator proofread both the English and the Bahasa versions. A few adjustments had been done to ensure the translation is easier to read and understand for all types of ages and races. The questionnaire is divided into two parts (A and B), which consist of 32 questions.

Part A (Sociodemographic)

This section asks questions about demographic data, including age, gender, educational level, night market, registration with Majlis Bandaraya Diraja Klang (MBDK), years of food service experience, years of working at the current operation, work status,

types of food sold, number of workers/helpers at the stall and food handling training attended.

Part B (Indicator of food safety culture)

Food safety culture is defined as the shared values, beliefs, and norms that affect mindset and behaviour toward food safety in, across, and throughout an organization (GLOBAL FOOD SAFETY INITIATIVE [GFSI], 2018). This section asks questions about the six indicators of food safety culture, including management and coworker support, communication, self-commitment, environment support, work pressure and risk judgment. The questionnaire consists of 21 questions with a scale from 1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Slightly agree, 5 = Agree and 6 = Strongly agree, which is used by respondents to determine how much they agree with statements about their beliefs, attitudes, and practices towards food safety in night markets. The respondent's level of food safety culture was assessed using the questionnaire, comprising the six indicators of food safety culture. Each of the 21 questions receives a score ranging from 1 to 6, and the mean and standard deviation of the item scores determine the scale scores for the indicators of food safety culture. Higher scores indicate higher agreement and understanding towards food safety culture in the night market. To confirm the reliability of the questionnaire, Catedral (2018) has used Cronbach's alpha to evaluate the reliability of the research instrument in the night market. The instrument administered to the night market vendors resulted in the internal-consistency coefficient value of 0.916, which is described as reliable (Catedral, 2018).

3.8 Data collection

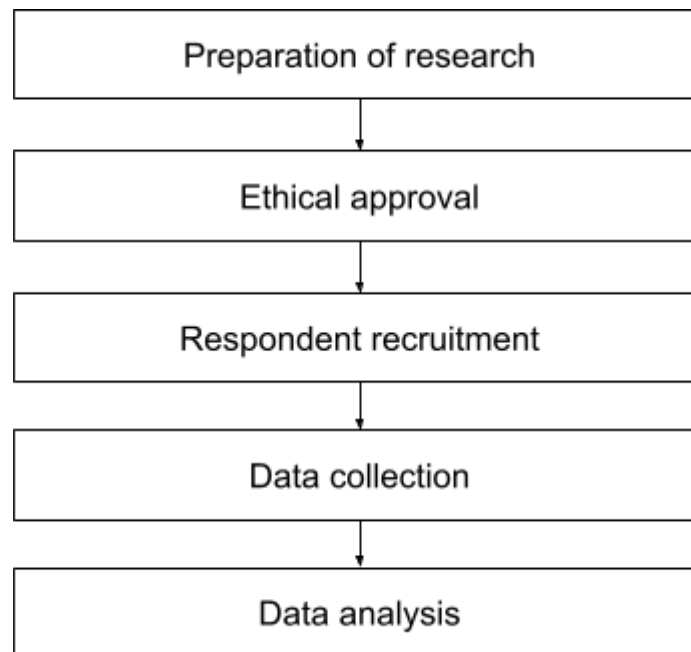
An extensive research plan and approval from Jawatankuasa Etika Penyelidikan Manusia (JePEM) at Universiti Sains Malaysia are the first steps in ensuring the study is ethically sound and protected the participants. For this research, the data-gathering process

will be transparent and systematic. The questionnaire will be distributed using Google Form and the Google Form will be share in the form of QR code. The QR code will be printed on a flyer and it will be distributed to the food vendors in the night market. The researcher will ask permission and consent from each vendor before the researcher shares the questionnaire with the vendors. The aim of this research is to convince the food vendors from the Pekan Meru night market to participate in this research. The researcher will approach the food vendors at the night market based on the selection criteria. Respondents will be chosen depending on the inclusion and exclusion criteria of the research. Afterwards, those who volunteer to participate will then be asked for informed permission. This approach aided the researcher in collecting a varied and representative sample of individuals who shared different demographic and experience-related characteristics.

The questionnaire will be developed using Google Forms to collect data to make it easier for the food vendors to participate. In general, online questionnaires are easier to complete than paper-based ones, especially when they offer multiple-choice and clear answers. The questionnaire included a section for sociodemographic information such as age, gender, and years of experience. The indicators of food safety culture sections are used to assess the level of food safety culture of the food vendors in the night market.

The researcher needs to inform each respondent of the requirements for completing the questionnaire shortly before they begin filling it out and acquire the participants' agreement. The questionnaire will take about 15 minutes to complete. To ensure a huge volume of participation, the promotion of research will be blasted via Facebook in the Meru Klang Residents group over the two-month data collection period. Data collection will continue until the researcher accomplishes the aim of collecting the estimated number of sample sizes.

3.9 Study flowchart



3.2 Flowchart of research

3.10 Data analysis

After the data has been collected, the analysis will be conducted using IBM SPSS Statistics version 27.0. Descriptive statistics will be used to assess the overall level of food safety culture among food vendors in the night market. This will mostly involve determining the frequency distributions and means standard deviations for every item or dimension on the food safety culture questionnaire. The mean score will give a general overview of the level of food safety culture, with the standard deviation indicating the variability of responses, and frequency distributions will show how common certain practices, beliefs, or attitudes are among the vendors.

Further descriptive analyses will be conducted to determine which aspects of food safety culture are most and least practiced by the food vendors. In order to achieve this, the mean scores of different food safety culture indicators will be ranked from highest to lowest. This research will point out the current food safety culture's strengths and weaknesses and

offer essential details for focused changes. Every statistical analysis will be conducted with a significance threshold of $p < 0.05$.

Lastly, the overall food safety culture score was calculated by aggregating the scores of the six food safety culture indicators. Higher scores indicate a higher level of food safety culture. An inferential statistics will be used to compare the level of food safety culture based on sociodemographic characteristics. The food safety culture score will be used as the dependent variable, and sociodemographic characteristics will be used as independent variables. As the food safety culture scores were not normally distributed, non-parametric statistical tests were applied. The Mann-Whitney U test was used for comparisons involving two groups (e.g. gender and food handling training), while the Kruskal-Wallis test was used for comparisons involving more than two groups (e.g. age, years of foodservice experience, and years worked at the current operation). These tests were used to determine if the median food safety culture scores across different groups differed significantly ($p < 0.05$). For variables with more than two groups, post-hoc comparisons were performed if a significant difference was discovered to identify exactly which specific groups varied from one another

3.13 Ethical clearance

The ethical clearance for this study on the assessment of food safety culture among food vendors in the night market at Meru, Klang, is obtained from the Ethics Committee of Universiti Sains Malaysia via Jawatankuasa Etika Penyelidikan Manusia (JEPeM). This research is carried out in compliance with ethical standards and guidelines to guarantee participant rights and anonymity. Researchers are expected to follow the approved protocol, protect participant confidentiality, obtain informed consent, and address any ethical concerns that may come up during the research process, including the participants' right to withdraw from the study at any time without facing any repercussions. By getting ethical

approval and carrying out research in an ethical manner, researchers prioritise the rights of study respondents while also improving the integrity and credibility of the researcher's work.