

Examining Food Safety Practices of Food Delivery Riders Using the KAP Theory

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Abstract

The COVID-19 pandemic has prompted consumers to consistently pay attention to the safety of their environment, including the source from which they obtain their food. Because of this, the volume of food orders has increased as people are reluctant to dine outside their homes. However, there is a lack of understanding of food safety practices developed by online takeaway food ordering suppliers (OTFOS). Although OTFOS are educated on food safety, it is not known whether they practice them in the work environment. Therefore, this conceptual paper aims to provide an insight into the importance of applying appropriate knowledge, attitudes, and practices (KAP), especially among food delivery riders who work for OTFOS. The study will focus on food safety issues, especially food safety procedures. In addition, this study is relevant to academics as it contributes to KAP theory, particularly food safety and hygiene in the online takeaway food ordering (OTFO) sector. The findings will help the government and suppliers to fully emphasise the need for comprehensive food safety knowledge and practices among OTFO stakeholders.

Keywords:

KAP theory, food ordering, food rider, food safety, online takeaway food ordering

1 Introduction

It is estimated that around 600 million people, almost a tenth of the world's population, fall ill as a result of consuming contaminated food (WHO, 2019). In addition, 420,000 people die each year from this problem, resulting in a loss of 33 million healthy life years (WHO, 2019). According to the Centres for Disease Control and Prevention (CDC), foodborne illness affected approximately 48 million people in the United States annually, resulting in 128,000 hospitalisations and 3,000 deaths (CDC, 2022). In Malaysia, cases of foodborne illness fluctuated. In Pahang, Malaysia, the frequency of reported incidents fluctuated between 2013 and 2018, with an annual average of 21 outbreaks (Zakaria et al., 2022).

Consumers in Malaysia have good food safety knowledge, positive attitudes, and self-reported practices. However, food safety knowledge was negatively and insignificantly related to food safety practices, while attitude significantly influenced food safety practices (Soon et al., 2020). In the food service industry, for example, most food handlers working on a contract basis, who make up the majority of the workforce and have comparatively lower levels of education, have not compromised on food hygiene standards (Saad et al., 2013). More than half of the cases of poisoning in Malaysia were attributed to unhygienic food handling practices and inadequate cleanliness measures at food premises (Soon et al., 2020).

Since the pandemic, the use of OTFO has increased in many parts of the world, including Malaysia. For this reason, there is a growing tendency among customers to prioritise the food safety measures implemented by food vendors (Dsouza & Sharma, 2020). The third-party platform does not oversee compliance to food policies or regulations by food vendors. Monitoring the adherence to food regulations at business locations is the responsibility of regulatory authorities. However, it is not known whether food safety regulations include food delivery riders.

The evaluation and analysis of the knowledge, attitudes, and practices (KAP) of food delivery riders on food safety are of importance to promote the provision of hygienic, nutritious, and safe food to customers (Gyebi et al., 2021; Luo et al., 2022). Under OTFO, it is not compulsory for food delivery riders to attend food safety training (Yuchen, 2020), which is part of the mandatory training for food handlers in Malaysia. Assessing the food safety knowledge of food delivery riders allows them to be trained on how to handle food, especially when transporting food to customers. Food delivery riders can contaminate food if they are unable to handle food properly during the time of delivery (Pigatto et al., 2017).

There have been several deaths from OTFO in several countries such as China and Vietnam (Jiang et al., 2020; Lu et al., 2020; Nguyen & Vu, 2020). In China, the cases are related to food mishandling and food temperature (Jiang et al., 2020). In Vietnam, on the other hand, food delivery caused 37 cases of coronavirus infection in a hospital that was the epicentre for COVID-19 (Nguyen & Vu, 2020). Although these incidents have occurred in different countries, it is not impossible for this to happen in Malaysia. Thus, the purpose of this conceptual paper is to develop the importance of applying

appropriate knowledge, attitudes, and practices (KAP) in assessing food delivery riders for food safety and hygiene.

2 Literature Review

2.1 Food safety regulation in the food service industry

Food safety is an integral part of the food service industry. It is the responsibility of food service workers to ensure that all food products are safe for consumption by following the appropriate safety protocols and guidelines. Food service workers are involved in a variety of aspects related to food safety, from supplying raw ingredients to the preparation of meals and their distribution to customers (Disanto et al., 2020).

Conventional food safety training methods used to be limited to a select group of employees within a single organisation, with other workers often rejecting the policies because they did not understand the procedures involved (Bryan, 1990). However, with the introduction of new food safety regulations, this is changing. Originally, the Hazard Analysis Critical Control Point (HACCP) was introduced in food manufacturing because it was considered too complex to be used in the food service sector (Sun & Ockerman, 2005). In 1974, the Minnesota Food Service Quality Assurance programme developed a set of guidelines for the food service industry that outlined ingredient quality, preparation time, temperature, and processing procedures (Rivituso & Snyder, 1981).

Since then, many countries have implemented the programme, including the European Union and the United Kingdom (Taylor, 2008a). Food service workers must follow food safety guidelines, including proper food storage and handling, food preparation, cleaning and sanitising, and temperature control. The HACCP system was developed to address operational food safety hazards by establishing an appropriate food safety system and ensuring its efficient management (Taylor, 2008b).

In Malaysia, the protection of food safety, quality, and integrity is based on the Food Act 1983 and the Food Regulations 1985 (FAO, 2014). Various guidelines, certifications, and accreditations have been developed and are monitored by the Food Safety and Quality Division, Ministry of Health (MOH). These include HACCP, Food Defence, Food Handler Certification, and Trust MyCatering (Bahagian Keselamatan dan Kualiti Makanan, 2022). However, it is not mandatory for food service establishments and food premises to comply with the guidelines and regulations established by the MOH. For example, Trust MyCatering was developed to ensure compliance with food safety requirements in the catering industry (BKMM, 2023).

In the case of OTFO companies, they act as intermediaries between the customers and the restaurants. This means that they do not produce or prepare food themselves. Instead, they provide a platform through which customers can order food from restaurants and a delivery service that ensures that food is delivered to customers. However, this does not mean that OTFO companies should not adhere to or follow any guidelines or regulations. OTFO companies should ensure that the restaurants they partner with comply with the relevant guidelines and regulations, and ensure that the

delivery personnel they employ follow the required health and safety protocols. This will help to ensure that the food delivered to customers is safe and of high quality.

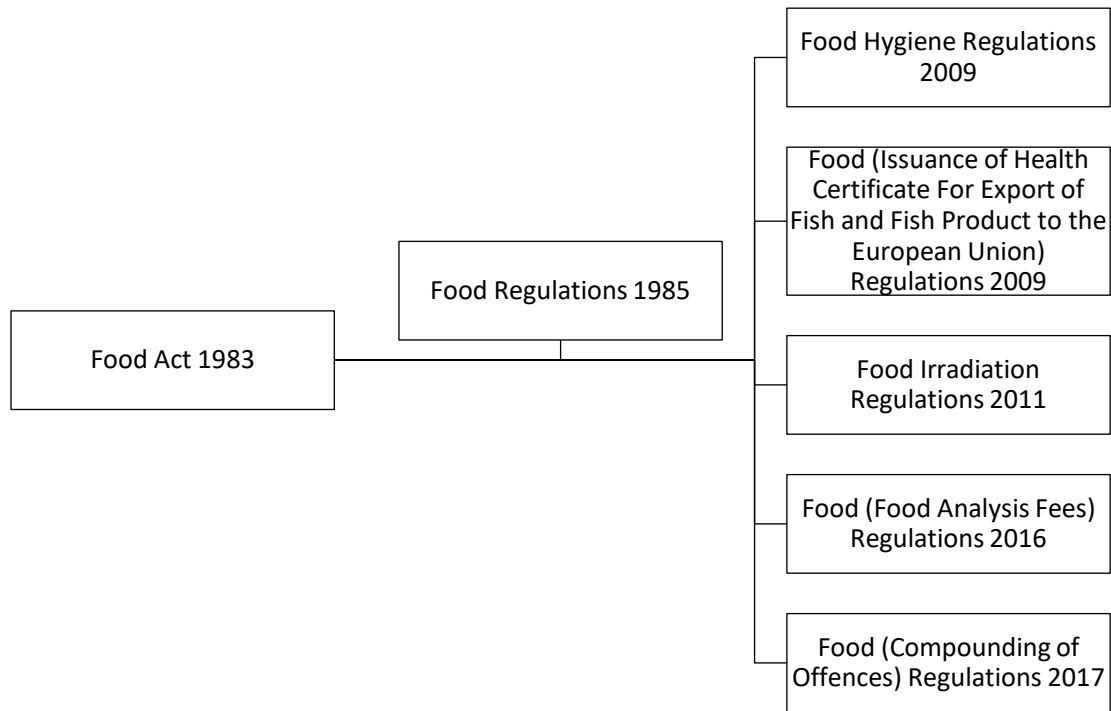


Figure 1: Malaysia's Food Act and Regulations
Source: Bahagian Keselamatan dan Kualiti Makanan (2022)

2.2 Food safety in the food ordering platform

In the context of food ordering, conventional methods involve a three-part system that includes consumers, vendors, and food delivery personnel (Gunden et al., 2020). The workflow begins with the customer browsing a restaurant menu, placing an order, and forwarding it to the food vendor. The vendor then notifies the food delivery personnel, who picks up the food and delivers it to the customer. This direct distribution channel is straightforward as it involves one food vendor and one food delivery personnel, reducing the likelihood of accidents. In addition, the restaurant is obliged to comply with the guidelines for food premises established by regulatory authorities.

However, this is in contrast to the OTFO platform, whereby there is a company intermediary who manages all orders and food delivery personnel. During the COVID-19 pandemic, OTFO platforms became increasingly popular in countries such as the United Kingdom, the United States, and Malaysia (Niu et al., 2021). This happened for various reasons, such as people having to work from home (Leung & Low, 2020) and not being able to dine outside and enjoy the lifestyle. People appreciate the convenience and ability to order food anytime, anywhere through a personalised mobile application and

device (Dsouza & Sharma, 2020). There is no risk of getting infected by going out in public and being exposed to the virus.

However, the case is different in India, where OTFO suppliers such as Swiggy and Zomato are popular (Dsouza & Sharma, 2020). Changes in the external environment, especially government policies, have impacted food delivery personnel or riders (Vaidyanathan, 2022; Parwez & Ranjan, 2021). Despite the potential to generate employment opportunities, the platform economy faces several challenges, including inadequate remuneration, lack of social security provisions, and digital surveillance that increases job insecurity. The COVID-19 pandemic and subsequent lockdown measures have further exacerbated the vulnerability of food delivery personnel, leading to unemployment, diminished earnings, heightened health hazards, social marginalisation, and occupational distress (Vaidyanathan, 2022; Parwez & Ranjan, 2021).

In addition, there has been increased concern about the sourcing of raw materials for food preparation and the evaluation of restaurant partners for safety (Dsouza & Sharma, 2020). OTFO companies should prioritise transparency around the food delivery process by improving communication about safety measures throughout the value chain (Burlea-Schiopoiu et al., 2022). This ensures that customers receive important information promptly, while enabling businesses to remain competitive in a highly competitive industry.

Additionally, it is advisable to minimise interpersonal contact as a precaution. To gain customers' trust, OTFO suppliers have implemented specific measures to enhance food safety (Dsouza & Sharma, 2020). In Malaysia, for example, several companies popular with food delivery, such as Domino's Pizza and Foodpanda, are implementing 'zero contact' delivery (Sani, 2020). The same measure has been taken by a well-known online kitchen company in India, Rebel Foods. Various safety measures were implemented, such as the use of masks, sanitation protocols, temperature screenings, and the introduction of redesigned packaging (Dsouza & Sharma, 2020). In Finland, the pandemic has led to stricter rules for food distribution via packaging (Sauramäki et al., 2021). Elderly people are encouraged to stay at home and the food delivery personnel will take careful and discreet measures to ensure the protection of both parties.

The issue and the measures discussed have shown that the OTFO supplier plays an important role during the pandemic. Food delivery personnel or riders must have good basic knowledge of food safety to promote good attitudes that are reflected in their practices. Therefore, the use of KAP was proposed to examine and assess food riders on food hygiene and safety.

2.3 Theoretical framework – Knowledge, Attitudes, and Practices (KAP)

KAP theory is best known in the field of public health to explore the healthy habits of individuals (Luo et al., 2022). KAP was developed in the 1950s and is often used to study food handling and food safety (da Cunha et al., 2022). The theory states that individuals entrusted with food handling responsibilities are more likely to adopt and

implement effective food safety practices if they have the necessary knowledge and positive attitudes towards food safety (Baş et al., 2006).

Numerous research studies have employed the KAP theory as a framework to examine the implementation of food safety and hygiene practices among individuals involved in food handling (Al-Kandari et al., 2019; Elshoryi et al., 2020; Gyebi et al., 2021; Trafialek et al., 2018). Table 1 presents a list of previous research that has used the KAP model to study food safety in the food service industry. Previous research has primarily focused on food handlers and used quantitative methods to investigate food safety concerns. However, there are few studies that have specifically addressed the issue of food safety in the OTFO sector using qualitative methods.

Table 1: Previous studies on the usage of KAP among operators in the food service industry

| Date | Author | Study focus | Category | Method |
|------|---|--|--|---|
| 2023 | Al Bayari, Taha, Suliman, & Osaili | Religious and organisational commitment in food hygiene | Food handlers | Questionnaire |
| | Jubayer et al. | COVID-19 knowledge, attitudes, and practices | Food handlers in various food industries | Questionnaire |
| | Asha'ari & Kamarulzaman | KAP | Muslim food truck vendors | Questionnaire |
| | Adhianata, Adi, & Qomaruddin | KAP | Chefs in restaurants | Questionnaire |
| 2022 | Nawawi, Ramoo, Chong, & Abdullah | Food handling | Street vendors | Review |
| | Abdul-Rashid et al. | Relating KAP to the Food Safety Assurance System in Malaysia | Food handlers at government hospitals | - |
| | Azanaw, Engdaw, Dejene, Bogale, & Degu | KAP | Street food vendors | Questionnaire |
| 2021 | Gyebi, Annan, Apprey, Asamoah-Boakye, & Asare | Food safety and hygiene, and microbial quality of food | Food service providers | Questionnaire |
| | Sirichokchatchawan, Taneepanichskul, & Prapasarakul | Predictors of knowledge, attitudes, and practices | Food handlers | Face-to-face interviews and questionnaire |
| | Tuglo et al. | KAP of food safety | Street food handlers | Questionnaire |

| | | | | |
|------|--|---|---|---|
| | da Vitória, de Souza Couto Oliveira, de Almeida Pereira, de Faria, & de São José | KAP | Food handlers in school kitchens | Questionnaire |
| | Ahmed, Akbar, & Sadiq | KAP | Food handlers | Questionnaire |
| 2020 | Elsahoryi et al. | Food allergen | Restaurant staff | Questionnaire |
| | Kwol, Eluwole, Avci, & Lasisi | Role of hygienic-sanitary standards | Food handlers in restaurants, hotels, and hospitals | Questionnaire |
| | Taha, Osaili, Vij, Albloush, & Nassoura | Food safety knowledge, attitude, commitment, and behaviour levels | Food handlers in restaurant | Questionnaire |
| | Hamed & Mohammed | KAP | Food handlers | Questionnaire |
| | Ncube, Kanda, Chijokwe, Mabaya, & Nyamugure | KAP | Food handlers in Zimbabwe | Questionnaire |
| 2019 | Al-Kandari, Al-abdeen, & Sidhu | Food safety and hygiene | Food handlers in a restaurant | Face-to-face interviews and questionnaire |
| | Elobeid, Savvaidis, & Ganji (2019) | Food safety training | Fast food | Questionnaire |
| | Gruenfeldova, Domijan, & Walsh | Food safety knowledge, practice and training | Food handlers | Questionnaire |

2.4 Conceptual framework

The study is designed and interpreted based on the conceptual framework presented in Figure 2. Despite the use of qualitative methods in this study, it is anticipated that the findings would be consistent with theoretical propositions. Based on KAP theory, food delivery riders will be assessed on three key components, namely knowledge of food safety, attitudes toward food safety, and actual practices that ensure food safety.

The study assumes that food delivery riders will acquire food safety knowledge from the OTFOS. The attitudes of food delivery riders are as important as the food practices of the OTFOS. It is assumed that the OTFOS will provide food safety knowledge to food delivery riders, promote food safety attitudes, and establish food safety practices. A favourable outcome on all these elements signifies the successful implementation of a

robust food safety system by food delivery riders, ultimately leading to the delivery of safe food to customers.

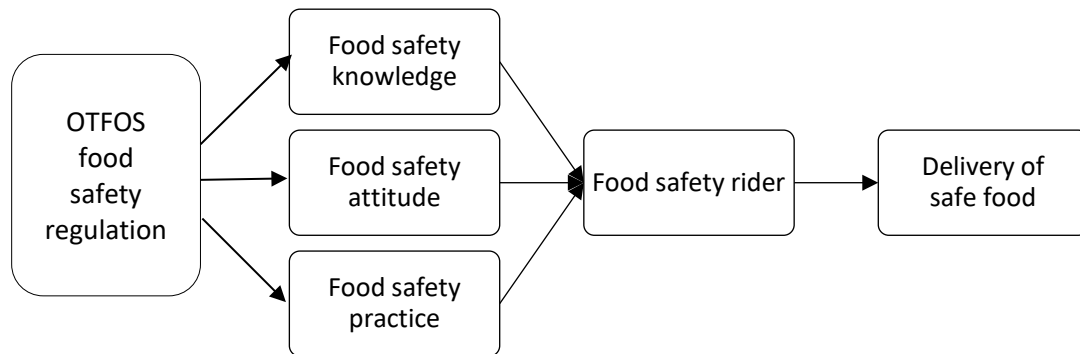


Figure 2: Conceptual framework of KAP on food safety among food delivery riders
Source: Author

3 Methodology

This study used a qualitative approach by utilising semi-structured interviews as the method for data collection. A qualitative approach allows for a better understanding of the situation or phenomenon and provides an in-depth perspective that allows for an understanding of a complex or unknown issue. The qualitative approach was deemed appropriate for this research because it allows the researcher to gain deep insights on the food safety measures developed by the OTFOS for their food delivery riders.

In selecting participants, the researcher used convenience sampling to meet the requirements of the study. This form of sampling is essentially strategic and requires an attempt to establish a good match between the research questions and the sample (Pierre & Jackson, 2014). The inclusion criterion included participants who worked as food delivery riders in any OTFOS, whether local or international. The sample size will be 10 participants as suggested by Mthuli et al. (2021). If the study finds that the responses of the 10 participants are not similar, additional participants will be included until the data is saturated.

The development of the interview protocols was based on KAP theory, which had been applied in many studies in the field (Elsahoryi et al., 2020; Kwol et al., 2020; Gyebi et al., 2021; Luo et al., 2022). After transcribing the interviews, the data will be analysed using thematic analysis according to the patterns that emerge from the data.

4 Conclusion

In conclusion, food safety is a critical aspect of the food industry, which is about preventing foodborne illness and reducing the risks associated with food consumption. To ensure food safety, essential elements such as food safety management, food safety culture, and food safety training must be implemented. In addition, consumer food handling practices, risky food consumption behaviours, knowledge and attitudes towards food safety and foodborne illness are also critical to maintaining food safety.

This study conceptually examined the notion of food safety in the online takeaway food ordering industry. The classification of this platform as an industry has been misinterpreted by various stakeholders. A significant portion of stakeholders perceive that it is associated with the restaurant industry, while the other portion classifies it as a management company. It is important to emphasise that OTFO companies have a high level of expertise in food handling as they are vulnerable to the possibility of exposing their customers to foodborne illnesses. Using the knowledge, attitudes, and practices (KAP) theory, both academicians and industry practitioners can assess the need for tailored food safety protocols for the OTFO industry. In addition, OTFO companies can protect their employees and clients from various hazards that may occur during operations.

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6 About the author

Nurul Syazana Hishamuddin holds a PhD in Management from the University of Exeter. She also obtained an MSc in Hospitality Management from the Technological University of Dublin, Ireland, formerly known as Dublin Institute of Technology. Her research focuses on the online takeaway food ordering sector and the food and beverage industry, particularly in relation to the adoption of technology by food vendors and consumers. Her passion has led her to win several awards such as the Best Presenter Award 2023 from Universiti Teknologi MARA, Malaysia and the Young Researcher Award 2022 from Universiti Utara Malaysia.

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