

Street Food: Hygiene Practices and Knowledge Among Food Hawkers Towards Customer Satisfaction

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Abstract

Street food has become an important element of people's diets since it is easily accessible and affordable in urban areas, and it is woven into our modern lifestyle. However, many street food hawkers do not possess formal education and often lack basic knowledge and practices regarding food safety. Therefore, this paper aims to identify the hawkers' hygiene knowledge and review the hawkers' hygiene practices in relation to customer satisfaction. Content



analysis is used on 32 journals published from the past five years worldwide to review how hawkers' hygiene knowledge and hawkers' hygiene practices have affected customer satisfaction. As a result, it was discovered that most of the hawkers did not attend food safety training and did not have a high level of food hygiene and safety knowledge. Furthermore, it was found that most of the hawkers did not practice proper personal hygiene, especially in hand hygiene practices. The findings also indicated that customer satisfaction is influenced by hawkers' hygiene practices, specifically personal hygiene, cleanliness of their premises and equipment, and food hygiene. The study concluded that hygiene knowledge and practices among hawkers should be emphasised to produce good and safe food for customers to consume. Future researchers are encouraged to broaden the data collection to include more respondents who can provide a more general perspective on the issues.

Keywords: street food, food hawker, food hygiene knowledge, food hygiene practice, customer satisfaction



1. Introduction

Hawker food, also known as street food, refers to low-cost local traditional dishes that are typically offered in open-air facilities in urban areas, frequently near public housing estates and transportation hubs (Taverner, 2022; Chong & Stephenson, 2020). The term 'street food,' which is also defined as synonymous with some other common terms such as 'hawker food,' 'ready-to-eat food,' or 'prepared-on-demand food,' refers to food prepared by lower-income small entrepreneurs from stalls they had set up for on-site consumption or takeaways by their customers (Toh et al, 2001 as cited in Chong & Stephenson, 2020). The vastly increasing urban population in developing countries has prompted an increase in the number of street food vendors (SFVs) in many cities, in order to meet the demand for low-cost, easily available ready-to-eat (RTE) meals (Mwove et al., 2020). Unfortunately, street food is mostly produced and sold on streets in underdeveloped countries without sufficient hygienic procedures (Teffo, 2017 as cited in Raza et al., 2021), putting consumers at risk of bacterial contamination, which can lead to gastroenteritis and other foodborne illnesses (Ahmed et al., 2017; Alimi, 2016; Atter et al., 2015; De Lima et al., 2019; Oscar, 2020 as cited in Raza et al., 2021).

Unhygienic practices are the leading cause of foodborne infections in Southeast Asian countries, including Malaysia, with street food sellers and school canteen operators being the most prominent causes of outbreaks (Dewanti-Hariyadi & Gitapratiwi, 2014 as cited in Hanan et al., 2021). Food contamination and foodborne infections could occur as a result of inappropriate food handling (Adem et al., 2023; Abu Bakar et al., 2020). Street food sellers are thought to feed more than half of the urban population in poor nations, but if not controlled or properly handled, they can be a source of numerous foodborne infections and illnesses (Marutha & Chelule, 2020).

Most street food vendors have little or no formal education and frequently lack adequate food safety knowledge and skills (Samapundo et al., 2015 as cited in Nkosi & Tabi, 2021). According to Krishnasree (2018), the majority of food vendors were aware of proper food handling procedures but during food preparation, it was not followed properly, resulting in increased levels of microbial contamination in their produce. Food handlers showed a strong understanding of food hygiene but were slightly lacking in terms of time and temperature management, as well as cross-contamination, despite their positive attitude and hygiene practices (Adem, et al., 2023; Abu Bakar et al, 2020). Even though street foods provide a nutritious and economical source of food for urban areas, health risks remain a concern if the dishes are not cooked in a sanitary manner (Othman & Dawood, 2020). Therefore, based on the scenario mentioned in the problem statement section, this study offers a tremendous need to identify the hawkers' knowledge and practices of street food hygiene towards customer satisfaction. This study develops two (2) research objectives, which are to identify the hawkers ' hygiene knowledge and to review hawkers' hygiene practices towards customer satisfaction.

2. Method

In reviewing how hawkers' hygiene knowledge and hawkers' hygiene practices have affected



customer satisfaction, this study analysed the publication of online journals related to this topic. Data was sourced from three databases: Google Scholar, Scopus, and Emerald. The article was reviewed using the keywords hawker's food, street foods, hygiene practices, and customer satisfaction. Content analysis is the process of analysing presentations of behaviour or qualitative data from self-reports. Content analysis is the process of analysing self-reported behaviour or qualitative data presentations. The content analysis method has been used to examine journals and uncover insights into food hawkers' hygiene practices and customer satisfaction knowledge. It is a useful method to study the content of a journal, as historically, content analysis has been used in investigating printed and online media content. After the journals relating to the investigated topic had been gathered, further review and analysis were performed to identify the key messages and themes of the stories

3. Results

Overall, 32 journals from the past five years worldwide reported findings associated with hygiene practices and knowledge among food hawkers towards customer satisfaction. Further analysis of these journals revealed several aspects of hawkers' hygiene knowledge and practices. The findings from the systematic literature review are presented below.

	Author	Attend food safety	Have high food hygiene and	
		training	safety knowledge	
1.	(Krishnasree, 2018)		X	
2.	(Yahaya et al., 2018)	×	✓	
3.	(Minh, 2017)	✓		
4.	(Ferari et al., 2021)	×		
5.	(Nkosi, 2021)	×	X	
6.	(Othman & Sheikh Dawood, 2020)	✓		
7.	(Odundo et al., 2018)	×		
8.	(Adem et. al., 2023)	✓	✓	
9.	(Lee et al., 2017)	✓		
10.	(Mwove el., 2020)	×	X	
11.	(Addo-Tham, 2020)	✓		
12.	(Marutha & Chelule, 2020)	✓	✓	
13.	(Ma et al., 2019)	×		
14.	(Alamo-Tonelada, 2018)	X		
15.	(Nkhebenyane & Thekisoe, 2021)	X	X	
16.	(Adane et al., 2018)	X		

Table 1. Hawkers' Hygiene Knowledge

 \mathbf{X} = Authors' findings disagree with the statement



The journals analysed the hygiene knowledge of street food hawkers, determining whether they had attended food safety training and possessed a high level of food hygiene and safety knowledge. Many of the authors stated that the hawkers did not attend any food safety training. According to Odundo et al. (2018), most vendors (81%) did not have formal training in food preparation because they either learned it through observation or from their parents. On the contrary, some authors mentioned that the hawkers did attend food safety training. As suggested in 'Regulation 30' in the Report for Maintenance of Food Premises by the Ministry of Health, all food vendors supposedly attended the food handlers training sessions (Othman & Sheikh Dawood, 2020). According to Lee et al. (2017), food handlers' knowledge and attitudes about food safety varied depending on their education level, work experience, and participation in safe food handling training.

Furthermore, the findings indicated that street food hawkers lacked a high level of knowledge regarding food hygiene and safety. Krishnasree (2018) claimed that there were no respondents that were aware of the temperature danger zone (5°C–60°C), and most of the respondents (58%) believed that microbial contamination in cooked meals would not occur. This was supported by Nkosi (2021), who reported that a large percentage of street food vendors (76%) lacked basic safety knowledge. However, other authors argue that street food hawkers have high food hygiene and safety knowledge. According to Abu Bakar et al. (2020), most respondents (96.7 %) were aware that failing to keep food at the proper temperature could result in foodborne illness.



Table 2. Hawkers' Personal Hygiene

	Author	Practice proper	Have good body	Wearing protective
		handwashing	hygiene	gear
1.	(Raza et al., 2021)	X	X	
2.	Krishnasree, 2018)			✓
3.	(Mamun et al., 2020)			X
4.	(Minh, 2017)		X	
5.	(Sabbithi et al., 2017)			X
6.	(Thanh, 2021)	✓		✓
7.	(Ferari et al., 2021)	X		X
8.	(Othman & Sheikh Dawood, 2020)		X .	X
9.	(Nkosi, 2021)	X		
10.	(Odundo et al., 2018)	X		X
11.	(Adem et. al., 2023)	✓		✓
12	(Lee et al., 2017)	✓	✓	✓
13	(Mwove et al., 2020)	X	X	X
14	(Hassan & Fweja, 2020)	X	✓	✓
15	(Addo-Tham, 2020)	X		
16	(Marutha & Chelule, 2020)	✓		
17	(Ma et al., 2019)	X		✓
18	(Trafialek et al., 2018)	×		x
19	(Soon, 2019)	×		✓
20	(Nkhebenyane & Thekisoe, 2021)	X	✓	X
21	(Adane et al., 2018)		✓	X

* \checkmark = Authors' findings agree with the statement

 \mathbf{X} = Authors' findings disagree with the statement

Next, findings from journals were analysed about hawkers' personal hygiene practices. Out of the 32 journals examined, 21 mentioned hawkers' personal hygiene practices. The findings from the analysed journal were divided into three aspects of personal hygiene: hand washing, body hygiene, and protective gear usage. Most of the journals found that hawkers did not practice proper hand washing in their operation. According to Mwove et al. (2020), many hawkers (56.9%) simply used cold water to wash their hands, while about 40.8% washed their hands with cold water and soap. Nkosi (2021) reported that only 30.8% of hawkers correctly stated the correct hand washing procedure when preparing and serving food: they should wash their hands with soap and warm running water, then wipe them dry with a clean, dry cloth. However, findings from Abu Bakar et al. (2020) show that some hawkers did practice proper hand washing when handling food. The author reported that 97.8% of hawkers responded positively to food safety and hygiene practices, indicating that they agreed with comments about handwashing and maintaining clean, short fingernails. Most respondents cleaned their hands before and after handling food, according to this study.



Furthermore, half of the analysed journals stated that hawkers practice good body hygiene. According to Hassan and Fweja (2020), 63% to 97% of hawkers practice acceptable hygiene and sanitary standards, such as keeping fingernails short and clean, avoiding hand cuts, regular handwashing with soap prior to cooking food, and washing utensils in warm or cold water with soap. Conversely, the other half of the journals reported that hawkers did not adhere to good body hygiene. Minh (2017) revealed that street vendors had poor personal hygiene practices—only 33%. According to Othman and Sheikh Dawood's (2020) study in George Town, Penang, 27% of hawkers are still wearing jewelry, 25% have dirty nails, and 60% have untidy clothes.

Furthermore, in terms of protective gear usage among hawkers, it was discovered that most hawkers did not wear proper protective gear such as hair covers, masks, aprons, and gloves. Mamun et al. (2020) conducted a study in Dhaka City, Bangladesh, and found that only 27.6% of street vendors used or were completely equipped with hand-washing facilities, even though more than half of them were not wearing clean and tidy clothes and masks. According to Nkhebenyane and Thekisoe (2021), when disseminating unwrapped food, all the vendors (100%) stated that they did not use gloves, and only 9% of the vendors said they used masks when appropriate, whereas 64% said they used aprons while working. This outcome coincides with the previous findings from Abu Bakar et al. (2020), where it was found that when handling food, many of the respondents (94.4 %) demonstrated good practice by wearing protective equipment such as a cap or head cover, mask, and gloves. Plus, Soon (2019) noted that among 82.22% of hawkers who wore hair covers, they completely covered their hair, and 77.90% of street food vendors kept their attire clean and presentable, while 57.95% used clean aprons when handling food.



	Author	Location is	Practice proper	Pest Control	Avoid
		safe and clean	cleaning and sanitizing		Cross-Contamination
1.	(Raza et al., 2021)	X	X		
2.	(Krishnasree, 2018)	X	✓	x	
3.	(Mamun et al., 2020)		X		
4.	(Sabbithi et al., 2017)		X		
5.	(Ferari et al., 2021)		X		X
6.	(Nkosi, 2021)		X		X
7.	(Adem et al., 2023)		X		✓
8.	(Mwove et al., 2020)	X	X	x	
9.	(Hassan & Fweja, 2020)	x	X	x	
10.	(Addo-Tham, 2020)		X	✓	
11.	(Marutha & Chelule, 2020	~	×		X
12.	(Ma et al., 2019)	~	X		
13.	(Alamo-Tonelada, 2018)		✓	x	
14.	(Trafialek et al., 2018)		X		
15,	(Soon, 2019)	x		X	X
16.	(Nkhebenyane &	x	✓	X	X
	Thekisoe, 2021)				
*~=	Authors' findings agree with	n the statement			

- Authors mindings agree with the statement

 \mathbf{X} = Authors' findings disagree with the statement

Most of the authors reported that the premises location is not safe and clean. Mwove et al. (2020) noted that nearly all vendors (98.6%) operating in unclean areas had booths that were both dirty and unsanitary. Raza et al. (2021) also stated that food carts are frequently located above drains, which can lead to microbial contamination, and because they are on the streets, near roads, food for sale may be affected by dust and waste. Conversely, a few authors stated that the premises' location is safe and clean. Ma et al. (2019) explained that although 75% of the vendors were conscious of environmental surroundings, laws, trash, contaminated water, pests, toilets, and sewage, the surroundings around most of the stalls (67.8%) were clean. Other than that, the findings show that almost all the authors noted that the hawkers did not practice proper cleaning and sanitizing. According to Raza et al. (2021), poor sanitary conditions are most likely to blame for the high degree of microbial contamination, as street vendors do not process or prepare food in suitable establishments. This statement was supported by Abu Bakar et al. (2020), who mentioned that only 3.3% of respondents agreed that work surfaces should be cleaned before, during, and after all three phases of food handling. A minority of the authors expressed that the hawkers practice proper cleaning and sanitizing. Krishnasree (2018) said that many respondents stated that they clean their kitchen equipment and apparatus daily.



Furthermore, most of the authors disagree that the hawkers have applied pest control. Flies and other crawling insects are attracted to the waste surrounding them, which was found in 52.4% of the street food vendors (Mwove et al., 2021). Soon (2019) also mentioned that several open-air restaurants are located near open drains, where pests such as stray dogs and cats can easily enter the premises in Malaysia. However, only one author agreed that the hawkers have applied pest control. According to Addo-Tham (2020), 84.1% of the hawkers had protected their food from flies. Moreover, many authors deny that the hawkers avoid cross-contamination. Marutha and Chelule (2020) reported that 84.2% of the street food vendors were observed handling food before passing on money to the customers. According to Ferari et al. (2021), another observed occurrence was the hawkers reusing the same utensils without first executing proper hygiene procedures, demonstrating that many of them unconcerned about food cross-contamination. The hawkers who avoided are cross-contamination are only confirmed by one author. Abu Bakar et al. (2020) explained that most respondents (96.7%) were aware that cross contamination may occur if they used the same knife and cutting board for meat and vegetable items.

	Author	Practice proper time & temperature control	Aware of the food safety hazard	Practice proper packaging
1.	(Krishnasree, 2018)		X	X
2.	(Raza et al., 2021)	X		
3.	(Ferari et al., 2021)	X		
4.	(Nkosi, 2021)	X		
5.	(Adem, et al., 2023)	✓	✓	
8.	(Mwove et al., 2020)	X	X	X
9.	(Addo-Tham, 2020)	✓		✓
10.	(Marutha & Chelule, 2020)	X	X	
11.	(Alamo-Tonelada, 2018)			✓
12.	(Soon, 2019)	✓		x

Table 4. Hawkers' Food Hygiene Practices

The findings from journals analysed hawkers' food hygiene practices. Out of 32 journals analysed, 12 journals mentioned hawkers' food hygiene practices in terms of proper time and temperature control, food safety hazards and packaging. For time and temperature control practices, the analysed journals found that most of the hawkers did not practice proper time and temperature control. According to Ferari et al. (2021), 47.5% of hawkers have no suitable temperature control equipment, especially for hot dogs and savory snacks, or it was in a poor state of conservation and operation. The author also added that 46.0% of hawkers do not store foods at the proper time and temperature to avoid microbial growth. Conversely, findings from Abu Bakar et al. (2020) mention that the percentage of disagreement was highest for the



claims of keeping food away from the temperature danger zone and reheating meals until blazing hot (13.3 %). This demonstrated that, while the majority of hawkers kept cooked food below -18°C and hot food above 63°C until serving, a small percentage of hawkers were unaware of the proper holding temperature.

Many journals that mention food safety hazards indicate a lack of awareness among hawkers. When examining the standard cooking procedures used by these hawkers, it was discovered that approximately 32% of them agree with the practice of reusing oil when cooking, with some revealing that they reuse the oil for up to six days (Krishnasree, 2018). Aside from that, they are unaware of the chemical changes that occur when oils are heated repeatedly. The study of Marutha and Chelule (2020) conducted in Polokwane, South Africa, found that even though 82.1% of hawkers washed raw food properly before cooking and selling it, 45.2 % of them reused the same water to clean other washable ingredients. On the contrary, a study by Abu Bakar et al. (2020) found that only 8.9% of hawkers though that food that had fallen to the floor should not be thrown away and may be used for further processing. However, the vast majority of hawkers (91.1%) agreed that dropped food could be contaminated and should be thrown away.

Furthermore, according to the analysed journal, most of the hawkers did not follow proper food packaging practices. Despite the fact that foods were produced and served on clean utensils or packaging materials, 52.25% of the food hawkers did not properly preserve cutlery, plates, or packaging materials, making them more prone to contamination (Soon, 2019). A similar outcome was reported by Krishnasree (2018); it was found that half of the hawkers used newspapers to package items such as masala vada, baji, idli, cookies, and other baked goods, and these foods were served with bare hands. On the contrary, a study conducted in Ghana by Addo-Tham (2020) found that the majority of food hawkers used plates (or bowls) or plain rubber (92.8% and 96.8%, respectively), while only a few vendors used disposable bowls (takeaway bowls) or newspaper.



	Author	Customer satisfaction	Customer satisfaction	Customer satisfaction
		towards hawkers'	towards hawkers'	towards hawkers' food
		personal hygiene	premise & equipment	hygiene practices
			hygiene	
1.	(Hanan et al., 2021)	✓	✓	
2.	(Othman & Sheikh Dawood,		✓	
	2020)			
3.	(Gupta et al., 2018)	✓	✓	
4.	(Chong, & Stephenson,			✓
	2020)			
5.	(Ozcelik, & Akova, 2021)			✓
6.	(Gopi & Samat, 2020)		✓	
7.	(Theng et al., 2017)	✓		
8.	(Ma et al., 2019)	✓		
9.	(Nkhebenyane & Thekisoe,	✓		
	2021)			
10.	(Chang et al., 2020).		✓	✓
* 🗸	= Authors' findings agree with th	ne statement		
X =	= Authors' findings disagree with	h the statement		

Table 5. Customer Satisfaction Towards Hawkers' Hygiene Practices

Hence, the analysis of journals reveals customer satisfaction with hawkers' hygiene practices. Out of the 32 journals examined, 10 mentioned customer satisfaction with hawkers' hygiene practices. Findings from the analysed journals were divided into three aspects of customer satisfaction, which are customer satisfaction towards hawkers' personal hygiene, customer satisfaction towards hawkers' food hygiene practices. 5 out of 10 journals stated that the hawkers' personal hygiene influences customer satisfaction. A recent study by Hanan et al. (2021) discovered that most respondents prioritise cleanliness before purchasing food from the street. According to Theng et al. (2017), consumers' intentions to purchase food from hawkers in Selangor and Kuala Lumpur are statistically different based on food handlers' practices of tasting food with fingers and palms, wearing nail polish, and touching cooked food with bare hands. Moreover, about 6% of respondents said they never buy street foods, highlighting the fact that street food vendors do not maintain appropriate hygiene and that buying street vended foods is a waste of money (Nkhebenyane & Thekisoe, 2021).

Additionally, aspects of customer satisfaction with hawkers' premises and equipment hygiene were examined in the journals. Five journals reported a correlation between customer satisfaction and the cleanliness of hawkers' premises and equipment. Hanan et al. (2021) expressed that with a mean score of 4.62, customers agreed that stall cleanliness is an essential aspect that influences Malaysian perceptions of street food vendors. However, consumers' perceptions of the physical environment, such as physical facilities, equipment



conditions, and hawker appeal, are negative because Penang's street food is not as clean as expected. According to Gupta et al. (2018), street food consumers are also concerned about incorrect waste disposal, the use of dirty utensils for storage and preparation, poor storage locations, the use of low-quality raw materials, particularly fats, and a lack of drinkable water at the meal preparation site. Other than that, customer satisfaction with hawkers' food hygiene practices was reported in three different journals. Consumer reactions to food hygiene procedures have been studied, and the results show that food handling techniques have a considerable impact on repurchase intentions (Chong & Stephenson, 2020, as cited in Gupta et al., 2019; Henderson, 2010; Hiamey & Hiamey, 2018). In addition, Ozcelik & Akova (2021) discovered that for visitors eating street food, the health and hygienic nature of the food is a significant aspect that can influence their behavior. According to Chang et al. (2020), customers agree to be concerned about the safety and quality of street food.

4. Discussion

4.1 Hawkers' Hygiene Knowledge

To ensure that the food is safe to be consumed and that customers are satisfied with the food they purchased, street food hawkers should possess knowledge of food hygiene. More than half of the respondents think that food safety is vital, that licensing improves safe food handling, and that regular food inspections are necessary for long-term quality control in street food handling systems (Krishnasree, 2018). Raza et al. (2021) advised that in order to increase the safety of street food, street food vendors must be trained in food safety and quality. Most of the street food vendors, specifically 273 (91.0%), demonstrated a high level of knowledge regarding food hygiene. Previous research has revealed a link between food handling knowledge and practice. Despite having basic food safety knowledge, more than 66 percent of vendors in Shijiazhuang, China, were still irresponsible with food hygiene practices (Yahaya et al., 2018; Liu et al., 2014). Street food vendors who do not complete food handler training will be fined up to RM 10,000 or imprisoned for up to two years, and the hawkers will be required to complete additional training to improve their level of knowledge, attitudes, and practices, while food vendors who do not care about premises cleanliness and food poisoning will be required to repeat the course (Othman & Sheikh Dawood, 2020).

4.2 Hawkers' Hygiene Practices

Based on the findings above, it was concluded that the majority of the hawkers did not practice proper personal hygiene, especially in handwashing practices. Most of the hawkers demonstrate poor hand washing. The major problem is that the hawkers did not frequently wash their hands before handling, preparing, or serving foods. Additionally, some hawkers were unaware of the correct hand washing procedure. Hassan and Fweja (2020) emphasise that hand washing without soap results in poor dirt removal, which may promote microbial growth. In addition, most hawkers lacked safe premises and equipment. According to the analysed journal, most of the authors mentioned that the hawkers practice poor cleaning and sanitizing on their premises. Poor sanitary conditions are most likely to blame for the high degree of microbial contamination, as street vendors do not process or prepare food in



suitable establishments (Raza et al., 2021). In terms of food hygiene practices, the majority of authors found that hawkers exhibit poor compliance with time and temperature control, leading to food hazards. Raza et al. (2021) stated that microbial contamination is more likely in preprepared foods that haven't been adequately preserved. Aside from that, hawkers are unaware of the chemical changes that occur when oils are heated repeatedly (Krishnasree, 2018).

4.3 Hawkers' Hygiene Practises Towards Customer Satisfaction

Before purchasing street food, customers consider a variety of factors, including hawkers' hygiene practices. A clean environment is also vital for establishing a positive first impression on customers and increasing customer loyalty. The consumer considers the importance of cleanliness, including the utensils, the atmosphere, the food, the way the food is handled by the vendor, and the initial impression before entering the stall (Hanan et al., 2021). Consumers in Kuala Lumpur and Selangor were willing to buy food from vendors where the food handlers followed appropriate hygiene standards, except for a few practices, indicating that the majority of consumers were concerned about the hygienic status of food handlers (Theng et al., 2017). The findings indicate that hawkers' personal hygiene, the cleanliness of their premises and equipment, and the quality of their food all have an impact on customer satisfaction.

5. Conclusion

This paper has analysed the hygiene knowledge and practices of hawkers and their impact on customer satisfaction by assessing 32 academic journals using the content analysis method. The findings from the analysed journals reveal that hawkers had inadequate knowledge of food hygiene. The majority of the findings indicate that a significant number of hawkers did not attend food safety training, and their knowledge of food hygiene and safety was found to be inadequate. It was also revealed that the majority of the hawkers did not practice proper personal hygiene, did not have proper and safe premises and equipment, and did not practice proper food hygiene. According to the analysed journal, hawkers' hygiene practices have a positive impact on the satisfaction of most customers. Hawkers' personal hygiene and the cleanliness of their premises and equipment primarily influence customer satisfaction. This demonstrates that the physical appearance of the street food service, including the physical facilities, the manner in which the service is performed, and the knowledge and hygiene of the street food hawkers, play a crucial role in establishing confidence and trust in customers, ultimately leading to their loyalty. The study concluded that hygiene knowledge and practices among hawkers should be emphasised in order to produce good and safe food for customers to consume. However, it is less clear how hawkers' hygiene practices are related to customer satisfaction in Malaysia. Future researchers are encouraged to broaden the data collection to include more respondents who can provide a more general perspective on the issues. It's important to note the higher proportion of street food hawkers who practice poor hygiene, as revealed by this study. Related authorities should devise ways to train street food vendors on basic food hygiene skills, as well as certify their businesses.



References

Abu Bakar, N. A. N., Abdullah, N., Yusof, N.M. Y.@ M., & Ishak, N. (2020). Assessing food hygiene knowledge and practice of on-campus food handler during pandemic COVID-19. *International Journal of Academic Research in Business and Social Sciences*, *10*(12), 1305–1316. https://doi.org/10.6007/IJARBSS/v10-i12/8617

Adane, M., Teka, B., Gismu, Y., Halefom, G., & Ademe, M. (2018). Food hygiene and safety measures among food handlers in street food shops and food establishments of Dessie town, Ethiopia: A community-based cross-sectional study. *PloS ONE*, *13*(5), e0196919. https://doi.org/10.1371/journal.pone.0196919

Addo-Tham, R., Appiah-Brempong, E., Vampere, H., Acquah-Gyan, E., & Gyimah Akwasi, A. (2020). Knowledge on food safety and food-handling practices of street food vendors in Ejisu-Juaben Municipality of Ghana. *Advances in Public Health*, 2020. https://doi.org/10.1155/2020/4579573

Adem, A. Y., Werkneh, A. A., Yimer, F., & Belew, M. T. (2023). Food Hygiene Practices and Associated Factors Among Street Food Vendors in Northeastern Ethiopia: A Cross-Sectional Study. *Global Social Welfare*, *10*(3), 275–283. https://doi.org/10.1007/s40609-023-00303-9

Alamo-Tonelada, C., Silaran, F. Y., & Bildan, M. C. A. (2018). Sanitary conditions of food vending sites and food handling practices of street food vendors: Implication for food hygiene and safety. *International Journal of Education and Research*, *6*(3), 31–34. Retrieved from https://onlinelibrary.wiley.com/doi/pdf/10.1155/2014/701316

Chang, F. S., Chu, C. H., & Shahril, A. M. (2020). Consumer's perception towards street food in Malaysia. *EPRA International Journal of Research and Development*, *5*(2), 343–352.

Chong, K. L., & Stephenson, M. L. (2020). Deciphering food hawkerpreneurship: Challenges and success factors in franchising street food businesses in Malaysia. *Tourism and Hospitality Research*, 20(4), 493–509. https://doi.org/10.1177/1467358420926695

Dhir, C. (2014). FOODSAFE- For Food Handlers and Food Service Managers: International Food Safety and Hygiene Principles. *Hospitality Plus*. Retrieved from https://www.amazon.com/FOODSAFE-Food-Handlers-Service-Managers-ebook/dp/B00NQ WOTME?asin=B00NQWOTME&revisionId=b8db5a1c&format=1&depth=1

Ferrari, A. M., Oliveira, J. D. S. C., & São José, J. F. B. D. (2021). Street food in Espírito Santo, Brazil: A study about good handling practices and food microbial quality. *Food Science and Technology*. https://doi.org/10.1590/fst.31620

Gopi, B., & Samat, N. (2020). The influence of food trucks' service quality on customer satisfaction and its impact toward customer loyalty. *British Food Journal*, *112*(10), 3213–3226. https://doi.org/10.1108/BFJ-02-2020-0110

Gupta, V., Khanna, K., & Gupta, R. K. (2018). A study on the street food dimensions and its effects on consumer attitude and behavioural intentions. *Tourism Review*. https://doi.org/10.1108/TR-03-2018-0033



Hanan, F. A., Sadri, N. B., & Yusup, N. Q. B. (2021). Customers' perception on Malaysian street food quality. *International Journal of Academic Research in Business and Social Sciences*, *11*(13), 73–87. https://doi.org/10.6007/IJARBSS/v11-i13/8503

Hassan, J. K., & Fweja, L. W. (2020). Food hygienic practices and safety measures among street food vendors in Zanzibar Urban District. *eFood*, 1(4), 332v338. https://doi.org/10.2991/efood.k.200619.001

Krishnasree, V., Nethra, P. V., Dheeksha, J., Madumitha, M. S., Vidyaeswari, R., & Lakshya, P. (2018). A pilot study on assessing the sustainability of food safety and hygienic practices in street food handling system. *Asian Journal of Dairy and Food Research*, *37*(4), 321–325. https://doi.org/10.18805/ajdfr.DR-1381

Lee, H. K., Abdul Halim, H., Thong, K. L., & Chai, L. C. (2017). Assessment of food safety knowledge, attitude, self-reported practices, and microbiological hand hygiene of food handlers. *International Journal of Environmental Research and Public Health*, *14*(1), 55. https://doi.org/10.3390/ijerph14010055

Ma, L., Chen, H., Yan, H., Wu, L., & Zhang, W. (2019). Food safety knowledge, attitudes, and behavior of street food vendors and consumers in Handan, a third-tier city in China. *BMC Public Health*, *19*(1), 1–13. https://doi.org/10.1186/s12889-019-7475-9

Mamun, S., Alam, S., Zaher, M. A., & Huq, A. O. (2020). Food safety knowledge, attitudes and behavior of street food vendors and consumers in Dhaka City. *Bangladesh Journal of Microbiology*, 37(2), 48–51. Retrieved from https://www.researchgate.net/publication/348269771_Food_Safety_Knowledge_Attitudes_an d_Behavior_of_Street_Food_Vendors_and_Consumers_in_Dhaka_City?enrichId=rgreq-be26 08ac64e63c0219cf8afb3fac4dc7-XXX&enrichSource=Y292ZXJQYWdIOzM00DI2OTc3M TtBUzo5Nzc3MTUzOTgxOTcyNTBAMTYxMDExNjkyNDkxNQ%3D%3D&el=1_x_2&_e sc=publicationCoverPdf

Marutha, K. J., & Chelule, P. K. (2020). safe food handling knowledge and practices of street food vendors in Polokwane Central Business District. *Foods*, 9(11), 1560. https://doi.org/10.3390/foods9111560

May, R. Y. Y., Abd Aziz, K., Abd Latif, R., Latip, M. S. A., Kwan, T. C., & Kadir, M. A. A. (2021). The success factors affecting street food stalls for gastronomic tourism competitiveness: A case of Petaling Jaya Old Town. *International Journal of Early Childhood Special Education (INT-JECSE)*, 13(1), 241–256. https://doi.org/10.9756/INT-JECSE/V13I1.211026

Minh, N. P. (2017). Food safety knowledge and hygiene practice of street vendors in Mekong River Delta Region. *International Journal of Applied Engineering Research*, *12*, 15292–15297. Retrieved from https://www.tsijournals.com/articles/food-safety-knowledge-and-hygiene-practice-of-street-v endors-in-mekong-river-delta-region-13572.html

Mwove, J., Imathiu, S., Orina, I., & Karanja, P. (2020). Food safety knowledge and practices



of street food vendors in selected locations within Kiambu County, Kenya. *African Journal of Food Science*, *14*(6), 174–185. https://doi.org/10.5897/AJFS2020.1929

Nkhebenyane, J., & Thekisoe, O. (2021). Street food handlers' food safety knowledge, attitudes and self-reported practices and consumers' perceptions about street food vending in Maseru, Lesotho. *British Food Journal*. https://doi.org/10.1108/BFJ-07-2020-0595

Nkosi, N. V., & Tabit, F. T. (2021). The food safety knowledge of street food vendors and the sanitary conditions of their street food vending environment in the Zululand District, South Africa. *Heliyon*, 7(7), e07640. https://doi.org/10.1016/j.heliyon.2021.e07640

Odundo, A., Okemo, P., & Chege, P. (2018). An assessment of food safety practices among street vendors in Mombasa, Kenya. *International Journal of Health Sciences and Research*, 8(5), 235–243. Retrieved from http://ir-library.ku.ac.ke/bitstream/handle/123456789/18434/An%20Assessment%20of%20Fo od%20Safety....pdf?sequence=1

Othman, A. S., & Sheikh Dawood, S. R. (2020). Street food consumption and hygiene issues in George Town, Penang. *European Proceedings of Social and Behavioural Sciences*. https://doi.org/10.15405/epsbs.2020.10.02.44

Ozcelik, A., & Akova, O. (2021). The impact of street food experience on behavioural intention. *British Food Journal*. https://doi.org/10.1108/BFJ-06-2020-0481

Raza, J., Asmat, T. M., Mustafa, M. Z., Ishtiaq, H., Mumtaz, K., Jalees, M. M., ... Rehman, H. (2021). Contamination of ready-to-eat street food in Pakistan with Salmonella spp.: Implications for consumers and food safety. *International Journal of Infectious Diseases*, *106*, 123–127. https://doi.org/10.1016/j.ijid.2021.03.062

Sabbithi, A., Reddi, S. L., Kumar, R. N., Bhaskar, V., Rao, G. S., & Rao, S. (2017). Identifying critical risk practices among street food handlers. *British Food Journal*. https://doi.org/10.1108/BFJ-04-2016-0174

Soon, J. M. (2019). Rapid food hygiene inspection tool (RFHiT) to assess hygiene conformance index (CI) of street food vendors. *LWT - Food Science and Technology*, *113*, 108304. https://doi.org/10.1016/j.lwt.2019.108304

Taverner, C. (2022). Street Food: Hawkers and the History of London. Oxford UniversityPress.Retrievedhttps://books.google.com.my/books?hl=en&lr=&id=BbOiEAAAQBAJ&oi=fnd&pg=PP1&dq=hawker+food+known+as+street+food&ots=SdARq3bZHJ&sig=BRkhgpAkCgWWp-UgQiNApe6amfg&redir_esc=y#v=onepage&q=hawker%20food%20known%20as%20street%20food&f=false

Thanh, P. T., Nguyen, H. T. H., Ngan, L. T. B., Nguyen, D. M. D., Phan, G. H., & Nguyen, T. M. N. (2021). No one left behind: risk communication to the street vendors during COVID-19 social distancing. *Library Hi Tech*. https://doi.org/10.1108/LHT-03-2021-0100

Theng, L. S., Adnan, S. A. B. M., Jaafar, N. M., Jaafar, S. N. A., & Mahyudin, N. (2017).



Comparative study of consumers' knowledge and attitudes towards food safety and purchase intention of night market foods containing poultry in low and high food poisoning cases states. *Malaysian Applied Biology*, *46*(3), 131–141. https://core.ac.uk/reader/162019170

Trafialek, J., Drosinos, E. H., Laskowski, W., Jakubowska-Gawlik, K., Tzamalis, P., Leksawasdi, N., ... Kolanowski, W. (2018). Street food vendors' hygienic practices in some Asian and EU countries–A survey. *Food control*, 85, 212–222. https://doi.org/10.1016/j.foodcont.2017.09.030

Yahaya, F., Suriani, I., Saliluddin, S. M., & Jibrin, A. G. (2018). Factors associated with food hygiene practices among street food vendors in selected food vending locations of Bauchi Metropolis, Nigeria. *International Journal of Public Health and Clinical Sciences*, 5(2), 196–208. Retrieved from https://www.academia.edu/download/88326861/458.pdf.

Zanin, L. M., da Cunha, D. T., de Rosso, V. V., Capriles, V. D., & Stedefeldt, E. (2017). Knowledge, attitudes and practices of food handlers in food safety: An integrative review. *Food Research International*, *100*, 53–62. https://doi.org/10.1016/j.foodres.2017.07.042

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