



ICH 2019
International Conference on Humanities

**STREET FOOD CONSUMPTION AND HYGIENE ISSUES IN
GEORGE TOWN, PENANG**

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Abstract

The era of globalization has witnessed the growing phenomenon of consumption or consumerism in parallel with socio-cultural change and improvement in economic progress. However, Penang street food poor business placement causes issue of cleanliness and food safety to emerge. This study was carried out to explore the aspects of street food consumption in the city of George Town and its relation to hygiene issues. The George Town city area was selected because it is known as a World Heritage Site by UNESCO and a gastronomic city that turn it into a popular tourist destination in Malaysia. This study focuses on hawkers' attitude towards street food cleanliness. It also reflects the consumers' perception on food and hygiene issues. Questionnaire instruments have been used in this study through random sampling methods. The population of the study involved 200 respondents, consisting of 100 local consumers/local tourists and 100 international tourists whom experienced consuming street foods around the city of George Town. For the hawker's category, the researchers have collected 30 respondents to answer the questionnaires. Researchers have also used in-depth interviews with seven street food vendors/hawkers. The findings revealed that hygiene issues amongst street food operations are serious issue although there were variations in terms of findings for local and international consumers. Thus, the government and street food vendor/hawkers should address the issues of hygiene practices through various initiatives and measures.

2357-1330 © 2020 Published by European Publisher.

Keywords: Street food, consumption and hygiene.



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1. Introduction

Street food is a ready-made meal and drinks provided by hawkers specifically in streets and open places (Food and Agricultural Organization [FAO], 1989). According to Food and Agricultural Organization (FAO; 2009) street food is a significant contributor to the diet of most people in developing countries. The transformation in community lifestyle has an impact on the current development of consumerism. In other words, socio-cultural change in society influenced changes street food consumption patterns. Therefore, in order to make all states in Malaysia maintained its presence as a tourist destination; each state could brand its cities and promote its street food to raise the reputation of the state. As destination branding is the cornerstone of survival in today's competitive tourism industry, the benchmark of a city reputation depends on its strong branding which distinguished itself from its competitor (Qu et al., 2011). In this case, food has the potential to become one of the tourist attraction in the destination. While, food is gaining momentum in planning a travel itinerary which soon became commonly known as food destinations; food tourism has become one of the fastest growing segments in the tourism industry (World Tourism Organization [UNWTO], 2012). Previous studies had showed that food played an important role in touristic experience (Kivela & Crofts, 2006) and as a means to fascinate travellers to destinations (Enright & Newton, 2004; Smith & Costello, 2009; Tikkanen, 2007; Yuksel, 2001). The street food sector offers numerous business opportunities for budding entrepreneurs. Street food have great influence in the tourism industry (Jalis et al., 2009); the local foods served in certain destinations yields benefits in two folds - it boost up the local tourism sector and gain loyalty from potential retuning customer. Street foods symbolize the roots and identity of a community and it was perceived as a fundamental aspect for tourist to gain great experiences which proofs to be an imperative platform for economic reason (Quan & Wang, 2004). Despite street food sales being one of the significant contributors in developing economy, however the rise in foodborne diseases in evolving countries had associated street food as a risk. There are many studies conducted on street food hygiene issues in developing countries. Street food is accountable for 691 food poisoning cases and 49 deaths from 1983 to 1992 in Malaysia (Lianghui et al., 1993). Thus, this study was conducted to examine the linkages between street foods and hygiene issues in George Town, Penang, Malaysia. The objectives of the study include exploring hawkers' attitudes toward cleanliness of street food and consumers' perceptions regarding street food hygiene issues.

2. Problem Statement

Food quality is an important part of the food consumption process. According to Henson and Traill (1993) food quality can be divided into four parts: food safety, nutrition, food value, and food packaging. Yuksel and Yuksel (2002) in his study found that product quality was considered as a determining factor in satisfaction of the food consumed. Cronin and Taylor (1992) discovered that satisfaction is critical element as it reflects subjective client assessments on the food execution and consumption experience. Zeithaml et al. (1996) further supported the idea that overall satisfaction is a post-purchase attitude determined by the expectation of the customer, the quality of the product or service and also the price. The product or service must be at least as good as it is supposed to be. This shows that in order to make the customers feel satisfied, the producer needs to ensure that their service or product is well delivered from

every aspect including cleanliness. Street food is an important component of the food supply chain as it meets the important needs of the urban population (FAO, 2008). Majority of the developing countries are witnessing the increase in street food businesses (Draper, 1996). Street food is one of the attractions in the city. The street foods consumption pattern is largely related to urban life, especially in developing countries. The busy lifestyle of urban dweller has also led to a rise in the pattern of street food consumption. According to Winarno and Allain (1986) urbanization has encouraged an increase in the quantity of street food businesses in most cities around the world but Van T-Riet et al. (2001) also argues that the economic downturn and high inflation rates have increased the cost of living which translated into the increase of unsafe food in urban areas.

Street foods offer economic benefits to hawkers and residents by showing great varieties of ingredients, processing, marketing and usage. Street food has also become an essential part of people's diet because it is easily accessible and affordable in urban areas and integrated into our present lifestyle. It also plays a significant role in providing employment opportunities for millions of men and females with limited educational qualifications or vocational skills. Despite street foods being nutritious and affordable food source for the urban communities, health risk remains a concern in the event the foods were not prepared in a hygienic way. Street vendors' living amongst others in the city was common. However, the health status of consumers depends on the safety and hygiene practices of the street vendors. If the street vendor do not care about their health and address the issue of hygiene, the consumer's health will be effected (Dawson & Canet, 1991). Hygienic water supply is the most important component in street foods preparation. These are conflicting approaches, but both World Health Organization (WHO) and Pan American Health Organization (PAHO) recommend the use of the critical hazard controls approach (HACCP) as the most effective and flexible way to improve street food safety (Arambulo et al., 1994). The street foods in Penang is reputable amongst the local and foreign tourist however the poor business placement creates worries on the cleanliness and safety of the foods. Most vendors run their businesses on the sidewalks and on the roads, which could endanger the safety of consumers as well the vendors. In this respect, street food vendors have put the health and safety of public consumers at high risk unless they take precaution measures and cautious while preparing and handling the street foods served.

3. Research Questions

Based on the problem statement, the researchers focused on several research questions:

- 3.1. What is the hawker's attitude towards the issue of cleanliness of street food?
- 3.2. What is the consumer's perception of the issue of hygiene on street food?

4. Purpose of the Study

This paper aims to study the Street Food consumption and hygiene issues based in George Town, Penang. Food quality is an important part of the food consumption process. This study was carried out to explore the aspects of street food consumption in the city of George Town and its relation to hygiene issues among the consumer's perception on hawker's attitude.

5. Research Methods

George Town was chosen as a study area as this area is a focal point for street food consumption in Penang. The research was conducted in Gurney Drive, Chulia Street or better known as Penang Road and Padang Brown which are hotspots that serves a variety of street foods. In addition, the selection of George Town's as a study area was due to its unique and internationally recognized food destination. The study area is shown in the map below (see Figure 1).



Figure 01. Map of Penang (George Town City)
Source: Penang Strait.com (2014)

5.1. Target Participants

The sample group of this study were outlined as follow:

1. 200 consumers (100 locals and 100 foreigners)
2. 30 hawkers

The researcher gets the consumers to answer the questionnaires and conducted in-depth interviews with seven street food vendors.

5.2. Sampling Method and Data Collection

The sampling method was conducted via simple random sampling. Through this technique, each member of the population has an equal chance of being selected as a subject (Gaganpreet Sharma, 2017).

The researcher sourced respondents randomly by approaching peoples who were consuming street foods. The hawkers were selected amongst those who run their business around George Town. This study was conducted using quantitative and qualitative research method. Data collection methods were administered through questionnaires, interviews, and observations.

5.3. Analysis Data

This study was using mixed methods (combination of quantitative and qualitative methods). According to Creswell and Plano Clark (2007) data collection through this mixed-method has long been used but incorporating it into a research design is a new approach. Creswell and Plano Clark (2007) further stated that mixed-method approach is a study which involved collecting and analysing data through both quantitative and qualitative methods in one study. The qualitative data collected through questionnaires and in-depth interviews were analysed using content analysis to explore hawker's attitude street food in George Town. The quantitative data collected were analysed using *Statistical Package for Social Sciences* (SPSS) with frequency analysis to explore consumer's perceptions and hawker's attitudes on the issues of street food hygiene in George Town.

6. Findings

6.1. Consumers' perception on street food hygiene issues in George Town

Street food can be exposed to the dangers of different pollutants (microbes, parasites, physical and chemical) that sometimes make the food harmful to consumers (FAO, 2008). The quality of food hygiene depends on identifying and control potential hazards. Its strict and systematic nature requires an appropriate method of analysis for hygiene issues. Table 01 shows the *perception of consumers when they first arrived at street food stalls* while Table 02 shows consumers' *perception on street food (before and after arriving at street food stalls)*.

Table 01. Perceptions of Consumers when they first Arrived at Street Food Stalls

Perception of consumers when they first arrived at street food stalls	Frequency N=200		Percentage %	
	Local Consumers	International Consumers	Local Consumers	International Consumers
Clean	44	38	22.00	19.00
Dirty	56	62	28.00	31.00

Source: Field Work (2018)

Table 02. Consumers' perception of street food (before and after being in street food stalls)

Is that perception similar to perception before you come to the street food stall?	Frequency N=200		Percentage %	
	Local Consumers	International Consumers	Local Consumers	International Consumers
Yes	63	69	31.50	34.50
No	35	31	17.50	15.50
Both	2	-	1.00	-

Source: Field Work (2018)

Based on Table 01 and Table 02, local consumers opined that the food stalls first visited by them was dirty were 56 people (28 %) while only 44 people (22 %) agreed that the food stall visited by them was clean. A total of 63 peoples (31.50%) admitted that their perceptions are the same as perceptions prior to visiting street food stalls. While 35 peoples (17.50%) stated that the pre-and current perception of street food stalls is not the same as what they have imagined. In the category of international consumers, a total of 62 respondents (31 %) responded that the street food stalls visited was dirty and only 38 people (19 %) admitted that the street food stalls visited was clean. In short, 69 peoples (34.50%) admitted that perceptions before they arrived at the street food stalls were the same as the first sight at the stalls. However, as many as 31 people (15.50%) stated that their perceptions are not the same as the others.

The findings of the study on consumer perceptions on street food hygiene based on Table 01 and Table 02 shows that the average consumer perceived the street food environment during their first visit was dirty. Hence, the majority (refer to table 02) state that the perception is the same as their expectations before coming to consume street foods. The key factor of customer satisfaction is service quality (Ha & Jang, 2010a; 2010b). According to Kahar (2008) customer satisfaction is one of the business terms which measure the extent of a product or service provided by the organization fulfils the customer's expectations [Kepuasan pelanggan adalah salah satu syarat perniagaan untuk mengukur sejauh mana produk atau perkhidmatan yang disediakan oleh sesebuah organisasi untuk memenuhi harapan pelanggan]. For example, customer expectation or in other words customer satisfaction is reflected through the fulfilment of customer needs and expectations in order to establish customer loyalty towards the products or services offered. If the user received positive impact, the user will spread positive information about the product which in turn generate profits to the organisation and vice versa.

In this study, consumer perception of physical environment such as physical facilities, equipment conditions and the appearance of hawkers is underwhelming because street food in Penang is not as clean as anticipated. Traditionally, street food vendors are unhygienic; lack of clean water supply, proper food storage equipment; poor sanitation facilities and waste disposal in their vending areas (Titarmare et al., 2009).

6.2. Consumers' Perception of Hawkers Appearance

The street foods businesses play an important role in developing countries to meet food demand amongst urban dweller. Street food fed millions of people daily with a diverse foods choices which were relatively inexpensive and accessible (Latham, 1997). Nevertheless, there are significant health reports related to street food (Omemu & Aderoju, 2008). Street food vendors often do not have licenses and were not trained in food safety and sanitation while working under informal surroundings (FAO, 2009). Thus, this study has also gained the perception of consumers towards the appearance of hawkers. Table 03 shows the finding of local and international consumers' perceptions of hawker's appearance. Obviously, there is a perceptual difference between local and international users regarding hawkers' appearance.

Table 03. Analysis of Local and International Consumers' Perceptions of Hawker's Appearance

ITEM	QUESTIONS	Local Consumers N=100				International Consumers N=100			
		Yes	Frequency (%)	No	Frequency (%)	Yes	Frequency (%)	No	Frequency (%)
1	Food vendors wear neat/tidy clothes	40	40.0	60	60.00	52	52.00	48	48.00
3	Hawkers wear jewelry	27	27.00	73	73.00	9	9.00	91	91.00
4	Hawkers wear hat when preparing food	26	26.00	74	74.00	52	52.00	48	48.00
5	Hawkers are not hygiene (i.e. dirty nails)	25	25.00	75	75.00	39	39.00	61	61.00

Source: Field Work (2018)

Table 03 shows the perception of local and International consumers on the appearance of hawkers. This is a very important selection criterion for an individual to choose a food stall. The findings show that for item 1, the *'local food vendor wearing tidy clothes'*, **60 %** from local consumers' said *'no'* for this item, meaning that hawker's were untidy while **40 %** responded that the hawkers were clean. In contrast, **52 %** of the international consumers responded *'yes'* where they perceived the hawker clothing is neat/tidy. There is a perceptual difference between local and international consumers at the location of the stall. The result of this research shows that international consumers enjoy street food in comparison to the restaurants type premises such as Kapitan and Sup Hameed. It is common to know that a restaurant type food premises has workers wearing uniform that adheres to predetermined standards such as apron and hat wearing. So it is not surprising if the perception of international consumers on hawker garments is positive. This is different with international consumers who prefer to eat street food by the roadside and in the public spaces like *Lebuh Tamil, Padang Brown, Padang Kota, and Gurney Drive*. Street vendor that operates stalls and mini-van or cars does not subscribed to any specific clothing. The study by FAO (1990) discovered that personal clothing, especially shoes, were leading factors of pollution from microorganisms which could infect the hawker area.

Meanwhile, for the *'food vendor wearing jewelry'* item shows that majorities of both consumers' categories give a perception *'no'* with percentage **73 %** for local consumers while **91 %** for international Consumers. This result showing that the average hawker does not wear jewelry. This is particularly contrary to the results of studies conducted by Edima et al. (2014) which shows **32%** of Cameroonian street food vendors wear jewelry during business activities. According to him, hawkers wearing jewelry is a potential physical source of risk; where during food preparation, polluted jewelry might infect the foods which will be served. Jewelry such as rings also indirectly helps to the onset of microbial hazards as the items will prevent items from being washed properly (Edima et al., 2014).

For items *'food vendor wearing cover (hat) while preparing food'* indicates a perceptual difference for both consumers. There are **74 %** of local consumers said *'no'* to the question on hawker wearing a hat while preparing food. This is because, hawkers operating stall were less concerned with hygiene but instead were concerned with the taste of their food which is an important criteria to attract visitors to their booth.

The perception of the local consumers is in line with the findings of the study conducted by Edima et al. (2014) which shows **60%** of the hawkers do not wear hat. This practice could lead to food contamination because hairs are potential microbes' carrier which could infect the foods. Women who cover their head with a scarf, kept their hairs tucked which allow them to prepare foods in a hygienic manner. This is in contrast to the perception of international consumers with **52 %** responded '*yes*' to this item. This is because, restaurant selection causes perceptual differences as workers in street food restaurants are required to wear caps and aprons.

In addition, the ***Hawkers are not hygiene (i.e. dirty nails)*** both consumers score '*no*' with **75 %** for local consumers and **61 %** for international consumers. This result shows that hawkers are keeping their nails clean and with a positive self-appearance. This shows that hawkers are very well-mannered. This contrast with the findings of the studies conducted by Edima et al. (2014) which shows that up to 33% of street food vendors have dirty nails thereby inducing the emergence of microorganisms which contaminated foods in the city of Cameroon, Yaounde. However, in George Town, the hawkers are divided into two, which are hawkers who wear clean clothes and hawkers who wear dirty clothes. The usage of clean clothing could significantly reduce the level of street food pollution (Tambekar et al., 2011).

Through this we could deduce that there are perceptual differences between local and international consumers on hygiene issues and hawkers' appearance. These differences happen because local consumers like to choose stalls premises rather than a restaurant. Meanwhile, international consumers would rather eat at restaurant. Hence, this perception is very important in developing consumer loyalty which could either make them a returning customer or a one-timer.

6.3. Hawker's Attitude on Street Food Hygiene

Most studies on street food reported that street food vendors lacked the knowledge and guidance in conducting business. Health risks from street food vendors can be reduced by monitoring the behavior and alertness towards hygiene and self-care needs in the provision of street food. Table 04 shows the hawker attitude towards the street foods safety and hygiene practices in George Town. In general, all hawkers adopt a positive attitude in doing business. The evidence, **7 out of 12** items show that hawkers adopt a positive attitude in the provision of street food for business. While only two items yielded negative results where toilet provision was scarce and they were not able to provide consumers access to toilets (18 hawkers have no toilet facilities) and in terms of fulfilling their duties to carry out regular checks are not widely used as routine or practice among hawkers whereby only seven person gone through regular health checks.

Table 04. Hawkers' Attitude in Practicing Hygiene and Food Handling through Cognitive Images

No	Questions	Scale						Total
		Yes	Frequency %	No	Frequency %	Not related	Frequency %	
1	Are there any sufficient facilities for food storage?	30	30.00	0	0.00	0	0.00	30
2	Is fresh food isolated from ready-to-eat foods?	27	27.00	0	0.00	3	3.00	30

3	Do you provide food on a large scale?	17	17.00	9	9.00	4	4.00	30
4	Is there a toilet facility at your premise?	10	10.00	18	18.00	2	2.00	30
5	Is the food always hot when prepared?	19	19.00	2	2.00	9	9.00	30
6	Do you know about food handling training? (if yes, please answer question 7)	29	29.00	0	0.00	1	1.00	30
7	If so, did you participate in the training? (if yes, please answer question no 8)	29	29.00	0	0.00	1	1.00	30
8	If yes, did you make any changes after participating in the food operator training?	29	29.00	0	0.00	1	1.00	30
9	Do you have health problems? (if yes, please answer no 10)	0	0.00	30	30.00	0	0.00	30
10	If yes, does the disease affect your business?	0	0.00	0	0.00	30	30.00	30
11	Do you conduct regular health checks?	7	7.00	23	23.00	0	0.00	30
12	Did you get a typhoid injection?	30	30.00	0	0.00	0	0.00	30

Source: Field Work (2018)

Based on the findings in Table 04, majority of the hawkers practices good attitude and were always concerned about food hygiene and safety. This is because it is important for a hawker to ensure the food they sold is always clean and safe for consumption. For question *'Is there a toilet facility at your premise?'*, 18 hawkers does not provide toilet because their business are located by the road sides and as they operate their businesses through stalls thus they had no space to provide toilet. However, for street food businesses at *Lebuh Tamil* and *Gurney Drive*, although their food store does not provide a special toilet in the dining area, customers can still use the toilets located in nearby business buildings such as the *Chawrasta* market. For the 10 hawkers who provide toilet facilities, they are hawker who operates on restaurant premises. The restaurant premises provide toilets for the convenience of customers who enjoy street food at their food stalls.

Although there are toilet facilities, findings based on observation of toilets found that the toilets are not properly maintained and toilet cleanliness is not satisfactory. According to *'Regulation 28'* of the Food Handler Training Program Accreditation Guidelines released by the Ministry of Health (2016) has

suggested that hawkers and business owners should provide clean and odor free toilets with flowing water supply and soap in an area not directly open to the food section (Ministry of Health, 2016). According to researcher's observation, the toilet facilities provided at the street food business premises in George Town does not comply with the standards, particularly the odor problems and this causes a sense of unpleasantness for consumers who enjoy street food there.

In addition, for item *'If so, did you participate in the training?'* it shows that 29 hawkers had followed food handlers training. All food vendors were required to participate in the food handlers training which was suggested in *'Regulation 30'* in Report for Maintenance of Food Premises by Ministry of Health, (2016). The attitude of hawkers whom participated in the training of food operators were trained to ensure their foods is always clean and safe for consumption. From the findings, there was one hawker who did not attend food handlers training because he was a new employee for one of this street food vendors and had not been able to attend food handlers training. However, many other employees gave him guidance on the management of food stalls and to follow the correct standards.

For street food vendors who failed to undergo food handler training will be fined not exceeding RM 10,000 or imprisonment not exceeding two years. The hawkers will need to undergo additional training to improve their level of knowledge, attitudes and practices while for food vendors who do not care for the premise cleanliness and food poisoning need to re-attend this course. Furthermore, for regulation 31, hawkers need to conduct medical examinations and it is mandatory for all food operators. Food vendors cannot work in food premises if they suffer from foodborne illness (Ministry of Health, 2016). The findings show that all respondents (30 people) have no health problems.

In short, the hawkers' attitude towards their responsibility to participate in food handlers training courses is positive as majority of the hawkers had participated in the training. However, street food hawkers' attitude in George Town pertaining to toilet cleanliness is unsatisfactory that causes discomfort among consumers. Hence, hawkers need to address the issue of toilet hygiene at business premises by improving its cleanliness.

7. Conclusion

As a whole, this study had outlined the perceptions of local and international consumer perceptions on street food hygiene in George Town, Penang. The findings show that consumer perceptions of hawkers' personal hygiene differ between local and international users. In addition, this study also examines the issue of hawker attitude regarding sanitary handling practices. The findings show that hawkers' attitude is good and adhere to the established street food handling procedures; hawkers' performance on their appearance was less satisfactory. This has indirectly impacted the food tourism industry in Penang. Studies have shown that about 2.5 billion people enjoy street food around the world. Despite the popularity of street food, adequate regulations on food safety measures were not established which resulted in health risk associated with street food. Studies have shown that in most countries' policies, 'there is no legal regulation for food safety and application or sale of street food' (Sezgin & Şanlıer, 2016). Although consumers perceived positively on street food hygiene, street food vendors still lacks knowledge of food safety which is reflected through unhygienic practices during the preparation and selling of food. The result shows that most street food vendors have low levels of education and if they do not possessed official food safety training and

certification, they might possibly distribute and sell foods that were deemed unsafe for consumption. Therefore, further action needs to be taken to promote the implementation and compliance of the relevant standards in the food industry especially those catered to street food vendors. Government bodies and other agencies should work in tandem to fulfil the needs and requirement to handle street food with safe consumption practices to ensure the consumers' stay healthy and contribute sustainable income for street food vendors. Besides, consumer awareness on food safety regulations should be strengthened which could potentially generate knowledgeable food consumers which ultimately encourage food vendors to practice good standards. These will be crucial measures in order to sustain street food popularity and cleanliness in World Heritage City such as George Town.

Acknowledgments

Special thanks to Universiti Sains Malaysia for funding this research through research university grant (RUI): *Examining the Origins and Implications of Enclave Urbanism in the Iskandar Region of Johor, Malaysia* (1001/PHUMANITI/8016024).

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