

FOOD SAFETY AND FOOD HYGIENE IN SMALL AND MEDIUM RESTAURANTS IN SURABAYA, INDONESIA: Consumers and Food Service Operators' Perspectives

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ABSTRACT

Consumers and food service operators in small and medium restaurants in Surabaya were surveyed to obtain information on food safety, food hygiene practices, and their concern towards food safety and food hygiene. Observations, questionnaires and interviews were used in this study. This paper presents that about 64 percent of small restaurants and 72 percent of medium restaurants meet the requirement requested. Consumers have the most concern on the dining area. The owners of small restaurants give the highest priority on the food ingredients and ready-to eat food, while the owners of the medium restaurants give the highest priority on the kitchen.

Keywords: Food safety, Food hygiene, Small restaurants, Medium restaurants

INTRODUCTION

People have meals every day, either at home or away from home. When people spend their money on meals outside, they expect to have good quality food with an acceptable food hygiene level, which eliminates food-borne illness. There is no doubt that food is a primary need for human beings. It should be put into account in terms of nutrition content, pre-requisite of healthy and hygienic food that is safe to consume. According to Sampurno, the Head of the Food and Drug Monitoring Agency, it is about 80% of food-borne illnesses happened in Indonesia caused by a lack of hygiene in processing the food (Suara Pembaharuan, August, 31st 2004).

Some cases of food-borne illnesses that happened in Surabaya should increase the awareness of people and food service businesses about the importance of food safety and food hygiene practices. According to World Health Organization (2002), food borne disease caused by microbiological hazards is a large and growing public health problem in Europe and worldwide (Clayton, Griffith and Price, 2003). Consumers are not in the position to accurately assess food risk themselves. However, they rely on the food industry and government to minimize the risk for them. Delivering safe, clean food to consumers is the responsibility of operators at all levels of the food production chain. Increasingly, primary producers are being required to guarantee that their products are free from chemical residues, growth hormones, diseases and other health risks such as lead. Marketers have always played an important part in guaranteeing food safety and quality (Smith and Riethmuller, 2000).

Surabaya is the second largest city in Indonesia, after Jakarta, where dining-out has increasingly become the metropolitan life-style for people spending their leisure time. It means food safety and food hygiene practice should be taken into consideration. In fact, in recent years, small and medium food service operators dominate the restaurant business. The rapid growth of these food service establishments attracts researchers to further analyze food safety and food hygiene practice as well as the concern and awareness from consumers and food service operators against food safety and food hygiene in Surabaya. This research uses guidance from the Decree of the Minister of Health Republic of Indonesia No: 1098/MENKES/SK/VII/2003 on the requirement of the kitchen, dining-room, food ingredients and processed food, the processing of the food, the storage of the food ingredients and ready-to-eat foods, food serving and the utensils used.

LITERATURE REVIEWS

Food Safety Risk Defined

According to Safe Food Australia (2001), “food is not safe if it would be likely to cause physical harm to a person who might later consume it” (p.8). Yeung and Morris (2001) describe that the analysis of risk relating to food safety can begin with the identification of food hazards. Furthermore, a hazard is defined as “an event or occurrence associated with an activity or process, which can result in negative consequences and thereby provide a source of risk to a receiving environment or population” (p.172). Safe Food Australia (2001) and Norton (2002) notify that there are three basic types of hazards that can cause food-borne illness, namely: (1) Microbiological hazards caused by bacteria such as *Salmonella*, *Campylobacter coli*, *Listeria monocytogenes*, etc; (2) Chemical hazards associated with the use of chemical additives, processes and controls in the agricultural and food industries such as pesticides, toxic metals, or toxic cleaning products; (3) Physical hazards can exist when food product may contain particles of glass, metal, plastic, wood, hair, jewellery or dirt. In addition, food-borne disease outbreak is defined as “two or more related cases of illness caused by consumption of food or drink containing infectious agents, or a single case of chemical or toxic poisoning if laboratory evidence indicated food to be contaminated by the chemical or toxin” (p.672).

Consumer’s Perspective

From the customer’s perspective, food safety risk refers to food safety and risk perception with respect to potentially hazardous and harmful consequences to them (Yeung and Morris, 2001). Thus, the goal of food safety is to acquire food products which have the desired consumption attributes, are safe to eat, and are free of contamination and therefore free of worry to the customer (p.179). Through consumer’s food choice decisions and consumption behavior, consumers may be exposed to a number of potential food hazards, associated with different degrees of harm (Miles, Brennan, Kuznesof, Ness, et al, 2004). According to the research conducted by Leach *et al.* (2001, p.244), there are some factors highlighted by customers as most important factors in providing food, namely: flies being kept away from food; personal hygiene issues: cleanliness of equipment, surfaces and premises; and the temperature control of food. Additionally, eating safe food will avoid people from food-borne illness and from financial cost, which causes lost production owing to sickness absence from work and ultimately affect individuals and their families (Miles *et al.*, 1999).

In order to create a better food hygiene environment, according to Morrison *et al.* (1998, p.367), the driving force for change in a commercial world must be the customer who must see hygiene accreditation as a pre-requisite to doing business. It is important that customers are educated, as well as providers. When hygiene is highly demanded, market forces will prevail and hygiene will be supplied. In other word, customer awareness of food hygiene will drive a better hygienic food service business.

Food Service Operator’s perspective

Food service operators should have a better knowledge about food safety and hygiene since consumers spend money on a meal and they expect that eating the meal should not make them sick. Despite better knowledge, a clear understanding of how and why consumer perceive food safety risk cannot be neglected since the uncertainty of achieving food safety goal may lead to some possible consequent losses for consumers (Yeung and Morris, 2001). According to Roselius (1971, p.180) as cited in Yeung and Morris (2001), consumers tend to adopt one of four actions in order to reduce perceived risk in a purchase, they are: (1) Stop permanently or temporarily, the purchase of offending product; (2) Reduce the purchase of the offending product; (3) Shift from one product to another similar type of product with less perceived risk; and (4) Continue to purchase and absorb the unresolved risk.

It is obvious that the reduce purchase by customers will lead to the reduce profit of food service operators. This matter should be acknowledged by the food service operators to pay more attention to the food safety and hygiene practice in their business. Additionally, for food service company with established brands, preparing and serving safe food is vital to enjoying continued success in a global economy. A failure to ensure the consistent quality and integrity of goods and services delivered to the public under registered proprietary marks may result not only in lawsuits, but also in potentially much more devastating global negative publicity and brand erosion (Fournaris, 2002). Therefore, food service operators should always ensure that food is delivered safe, clean and free of contamination to consumers in order to increase restaurant’s profitability and create consumer confidence in the safety of the food (Morrison *et al.*, 1998). Food service operators should guarantee their consumers that their products are free from chemical residues, growth hormones, diseases and other health risks by handling and displaying the food in a hygienic condition (Smith and Riethmuller, 2000).

Reduce Food Risk

In food service businesses, risk will always exist and therefore food service operators need to identify preventive measure that can be taken at each level in their premises in order to eliminate or reduce such risks at an acceptable level (Norton, 2002). There are some actions, which can be taken into account by food service operators to reduce food safety risks. In general, Hernandez (2001) suggests that food must be held, displayed and served at temperature that will keep it safe and sanitary at all times. It is therefore critical for food service operators to train staff who serve food about the proper food serving and handling techniques so that the risk of a food safety outbreak can be minimized. Similarly, Food service operators should make sure that food handlers are supervised, instructed and/or trained in food hygiene to an appropriate level (Miles *et al.*, 1999). Wilson *et al.* (1997) offer another suggestion to reduce food risk by monitoring the use a number of approaches including systematic observation, measurement and recording of the significant factors for controlling the hazards. The monitoring procedures chosen must enable action to be taken to rectify an out of control situation, either before or during other operation (p.156).

Furthermore, food handlers have a crucial role in a food service business. The importance of food safety education for improving food-handling behaviors has been increasingly recognized during the past 10-20 years (Redmond & Griffith, 2006). According to Howes *et al.* (1996) cited in Worsfold and Griffith (2003), food handler's malpractices contributed to 97% of food-borne illness in food service establishment. Therefore, in every food service businesses, food handlers should have the skill and knowledge of food safety and hygiene to ensure that food is safe to be consumed by consumers.

RESEARCH STUDY

The purposes of this study were:

1. To investigate the practice of food safety and food hygiene in small and medium restaurants in Surabaya.
2. To examine the concern and awareness of consumers toward food safety and food hygiene practices in small and medium restaurants in Surabaya.
3. To examine the concern and awareness of food service operators toward food safety and food hygiene practices in small and medium restaurants in Surabaya

RESEARCH METHODS

For the purposes of the study, the objects in this paper were categorized into two types of restaurants, called small restaurant and medium restaurant. The category of small and medium restaurant is drawn on the number of seats and staff. Restaurants that have 10-25 seats with 2-5 staff are categorized as small restaurants, while restaurants with 26-50 seats and 6-10 staff are categorized as medium restaurants.

The data used in the analysis presented in this study were collected by utilizing three kinds of data collection methods, called observations, survey, and face-to-face interviews. First, observations were held in 10 small restaurants and 10 medium restaurants. Cluster Sampling technique was used to ensure that the selection of small and medium restaurants was equal. As Surabaya is divided into 5 territories, called North Surabaya, South Surabaya, Central Surabaya, West Surabaya, and East Surabaya, thus, the observations were undertaken in each of these territories. Further, type of observation used in this study was an undisguised observation where the owners of the restaurant gave the permission to the observers to investigate the practice of food safety and food hygiene in their establishments. Observations were conducted in 50 small restaurants and 50 medium restaurants using a survey checklist that was already prepared and adjusted referring to the Decree of the Minister of Health Republic of Indonesia No: 1098/MENKES/SK/VII/2003 about sanitation hygiene requirements for restaurants in Indonesia. It was categorized into 7 (seven) requirements on the following areas: (1) the requirement of the kitchen; (2) dining-room; (3) food ingredients and processed food; (4) the processing of the food; (5) the storage of the food ingredients and ready-to-eat foods; (6) food serving; and (7) the utensils used. The data collected from the observations was analyzed using descriptive statistics to examine whether the restaurants meet the requirements in their food establishments.

Second, surveys were undertaken to the consumers of small and medium restaurants. Quota sampling was applied to determine that in each territory 50 respondents were selected for each type of restaurant. Survey method was used by using questionnaire as an instrument. Questionnaire used in this study was aimed to identify the concern and awareness of consumers toward food safety and food hygiene. The questions used in the questionnaire were also referred to the Decree of the Minister of Health Republic of Indonesia No: 1098/MENKES/SK/VII/2003. It consisted of 7 (seven) requirements as used in the observation with 28 questions in total using 5 (five) likert scale ranging from very important to very unimportant. The questionnaire was distributed to 500 consumers of small and medium restaurants in Surabaya. The data collected from the questionnaire was analyzed by using descriptive statistics to calculate frequency distribution and Mean.

Third, face-to-face interviews were conducted by interviewing 2 small and 2 medium restaurants in each territory. Non probability sampling was applied using convenience sampling technique. Interview used in this study was aimed to examine the concern and awareness of food service operators toward food safety and food hygiene. There were 20 restaurant owners of small and medium restaurants interviewed. The interview took place in the restaurant of food service operators. The restaurant owners were asked a set of questions on their knowledge about food safety and hygiene, the need of training in their establishment, the obstacles in implementing food safety and hygiene practices and their priority scale of the 7 (seven) requirements set by the Decree of the Minister of Health Republic of Indonesia No: 1098/MENKES/SK/VII/2003.

RESULTS

Based on the observations conducted in 50 small restaurants in Surabaya, it was found that some small food operators did not meet some requirements needed in maintaining food safety and food hygiene, namely: air ventilation, fruit/vegetables washed improperly, all the requirements of processing food, temperature control of the food, cleanliness in storing food ingredients and temperature of food served (see table 1).

Table 1. Observation towards Food Safety and Hygiene in Small Restaurants

Requirements	Quotations	Not fulfilled	Fulfilled
The kitchen	Kitchen roof	34	66
	Air ventilation	78	22
	Kitchen area	34	66
	Washing area	14	86
The dining room	Cleanliness of tables and chairs	14	86
	Food display facilities	38	63
	Free of insects, rats, etc	38	62
	Cleanliness of floor, roof, wall	46	54
Food ingredients and Ready-to-eat food	The good condition of food ingredients	0	100
	The good condition of ready-to-eat foods	0	100
The processing of	Fruits/vegetables washed properly	95	5
	Avoid direct body contact in handling food	68	32
The food	Use utensil, gloves in handling food	60	40
	Personal hygiene	69	31
	Hygienic food handling	54	46
The storage of food ingredients	Protection of foods	42	58
	And ready-to-eat food and ready-to-eat foods	Temperature control of food	58
Cleanliness in storing food ingredients		58	42
Store separately between food ingredients			
Food serving		24	76
	Avoid food contamination	32	68
	Cleanliness of serving utensil	18	82
	Touch ready-to-eat foods with clean utensil	8	92
	Temperature of the food served	55	45
	Serve food with appropriate manner	16	84
	Facilities provided by the restaurants (clean water, sink for washing hands, trash bin, etc)	8	92
The utensil used	Appropriate utensil	12	88
	Utensils are clean before using them	6	94
	Wash utensil in a proper way	16	84
	Store utensil in a proper way	36	64

From observations in 50 medium restaurants, it was found that some medium food operators did not meet some requirements of food safety and food hygiene, namely: air ventilation, fruit/vegetables washed improperly, personal hygiene, and temperature of food served (see table 2).

Table 2. Observation towards Food Safety and Hygiene in Medium Restaurants

Requirements	Quotations	Not fulfilled (%)	Fulfilled(%)
The kitchen	Kitchen roof	37	63
	Air ventilation	54	46
	Kitchen area	19	81
	Washing area	10	90
The dining room	Cleanliness of tables and chairs	4	96
	Food display facilities	25	75
	Free of insects, rats, etc	23	77
	Cleanliness of floor, roof, wall	25	75
Food ingredients and Ready-to-eat food	The good condition of food ingredients	0	100
	The good condition of ready-to-eat foods	4	96
The processing of	Fruits/vegetables washed properly	87	13
	Avoid direct body contact in handling food	46	54
The food	Use utensil, gloves in handling food	42	58
	Personal hygiene	61	39
	Hygienic food handling	37	63
The storage of food ingredients	Protection of foods	25	75
And ready-to-eat food	Temperature control of food	40	60
	Cleanliness in storing food ingredients	50	50
	Store separately between food ingredients and ready-to-eat foods	12	88
Food serving	Avoid food contamination	10	90
	Cleanliness of serving utensil	15	85
	Touch ready-to-eat foods with clean utensil	4	96
	Temperature of the food served	54	46
	Serve food with appropriate manner	25	75
	Facilities provided by the restaurants (clean water, sink for washing hands, trash bin, etc)	8	92
The utensil used	Appropriate utensil	13	87
	Utensils are clean before using them	17	83
	Wash utensil in a proper way	23	77
	Store utensil in a proper way	31	69

A total of 500 consumers took part in fulfilling the questionnaire. Of the respondents, 53.8 percent were female, 66.6 percent were in the age of 17-30, and 50.4 percent had senior high school background (see table 3). The questionnaires were distributed evenly in West, East, Central, South, and North Surabaya.

Table 3. Sample Characteristics of Respondents

Characteristics	Frequency	Percentage
Gender		
Male	231	46.2
Female	269	53.8
Age		
<17	15	3.0
17-30	333	66.6

31-50	124	24.8
>50	28	5.6
Education background		
Junior high school	27	5.4
Senior high school	252	50.4
Diploma/bachelor degree	206	41.2
Master/doctorate degree	15	3.0
Note: n = 500		

For each question on questionnaires, there were five possible responses, ranging from very unimportant to very important in regards to the practice of food safety and food hygiene. From table 4, it can be seen that all requirements in medium restaurants had a higher mean score rating than in small restaurants. The mean of small and medium restaurants was 4.16 and 4.36 respectively.

Table 4. The Mean of Consumers' Awareness towards Food Safety and Hygiene

Scale	Requirements	Mean	SD
Small Restaurant	The kitchen	4.04	0.86
	The dining room	4.33	0.74
	Food ingredients and ready-to-eat food	4.27	0.75
	The processing of the food	4.06	0.85
	The storage of the food ingredients and ready-to-eat Food	4.20	0.77
	Food serving	4.07	0.73
	The utensil used	4.18	0.77
Medium Restaurant	The kitchen	4.14	0.77
	The dining room	4.48	0.62
	Food ingredients and ready-to-eat food	4.44	0.66
	The processing of the food	4.25	0.76
	The storage of the food ingredients and ready-to-eat Food	4.38	0.67
	Food serving	4.36	0.63
	The utensil used	4.32	0.66

The interviews done with 20 restaurant owners took place at the interviewees' restaurants. From the interview, it was found that about 50% of small and medium restaurant operators did not know that there was a guideline or requirements needed to maintain food safety and food hygiene. About 60% of the restaurant owners stated that it was necessary to have guidelines on food safety and food hygiene in order to provide safety food to consume and attract consumers to come. However, when it was asked whether they need training, 13 out of 20 restaurant owners who were interviewed said that they did not need any training for their staff as well as for themselves in regards to the practice of food safety and food hygiene in their establishments.

Based on priority scale for those 7 requirements of food safety and hygiene practice, the owners of small restaurants gave the highest priority to the requirements of the food ingredients and ready-to eat food and the lowest priority to the utensil used. As for the owners of the medium restaurants, they gave the highest priority to the kitchen, and the lowest priority for food serving.

DISCUSSION OF RESULTS

The Practice of Food Safety and Food Hygiene

From the observation, it can be seen that the majority of both small and medium restaurants still have not met the requirement on air ventilation, washing fruit/vegetables properly, personal hygiene, and temperature of the food served. Interestingly, more than half small restaurants do not meet all the requirements of processing food. Medium restaurants has carried out the practice of food safety and food hygiene better than in small restaurants where in medium restaurants, all requirements have a higher fulfilled percentage than unfulfilled percentage. In small restaurants, more than 50 percent restaurants do not carry out the practice of food safety in the point of the processing of the food. The requirement on the utensil used, the dining room and food serving

have the highest fulfillment among other requirements. It can be indicated that food service operators in small and medium restaurants give more attention to the areas that can be seen directly by consumers.

Overall, only 64 percent of small restaurants and 72 percent of medium restaurants meet the requirement set by the government. In this case, the government should supervise food service operators in small and medium restaurants in Surabaya to apply the standard food safety program provided by the government in order to ensure that food is delivered safe, clean, and free of contamination to consumers. The proposed of standard food safety program by the government should be analyzed further to be applied in small and medium restaurants in Surabaya since the majority of food service operators have lack of knowledge about food safety and food hygiene.

Table 5. Summary of Food Safety and Hygiene Practices in Small and Medium Restaurants

Requirements	Small restaurant		Medium restaurant	
	Not fulfilled(%)	Fulfilled (%)	Not fulfilled(%)	Fulfilled (%)
The kitchen	40	60	30	70
The dining room	34	66	19	81
Food ingredients and ready-to-eat foods	32	68	30	70
The processing of the food	63	37	47	53
The storage of the food ingredients and ready-to-eat Foods	45	55	32	68
Food serving	23	77	19	81
The utensil used	18	82	21	79

The Concern and Awareness of Consumers toward Food Safety and Food Hygiene Practices

The most important factor to consumers in small and medium restaurants was the dining area. It can be seen from the highest mean score in table 5. The dining area requirement was already fulfilled by most of restaurants in small and medium establishment in Surabaya. The mean score (> 4.0) reveals that consumers' concern and awareness towards the food safety actions are relatively high. Also, it shows that consumers in medium restaurants are more attentive and concern toward food safety and food hygiene than consumers in small restaurants.

Consumers in small and medium restaurant in Surabaya have a good concern on the food safety and food hygiene practices. It can be seen on table 6 that more than 90% consumers perceived the practice of food safety and food hygiene in small and medium public eating-places as important and very important. However in contrast, consumers still keep coming to restaurants that their food safety and food hygiene practices are poor. It appears that consumers take standard of food safety and food hygiene for granted because according to Smith and Riethmuller (2000), consumers rely on the food service operators and government to remove the food risk from them. Leach *et al* (2001) states that food hygiene only featured in the choice of an eating establishment when there was a recommendation from friends. Food safety and food hygiene matters become less powerful when consumers visit particular premises since food quality, food type, ambience, and location are more preferable when choosing a restaurant. It is important that consumers are more educated in choosing an eating-place. When hygiene is highly demanded, market forces will prevail and hygiene will be supplied. In other word, consumers concern and awareness of food safety and food hygiene will drive a better hygienic food service business.

Table 6. Consumers' response towards the importance of food safety and food hygiene

	Number of responses	Very unimportant(%)	Unimportant (%)	Neither (%)	Important (%)	Very important (%)
Small Restaurant	250	0.8	2.8	6.0	39.6	50.8
Medium Restaurant	250	0.0	0.8	4.4	40.0	54.8

The Concern and Awareness of Food service Operators toward Food Safety and Food Hygiene Practices

From the interview, it can be said that most of food service operators have lack of knowledge about food safety and food hygiene. They just know how to run the restaurants without knowing how to maintain and keep food to be safe to consume. The finding of the interview was contradictory in which most restaurant

owners stated that it was necessary to have guidelines of food safety and food hygiene but they refused to get any food safety and food hygiene training. The reason of their reluctance is that they do not have enough time to implement the food safety and hygiene in their establishment. They give more concern how to serve consumers fast and do not make consumers wait too long for food ordered than concern to the hygiene of the food. The other reason is lack of employees. It is usual in small and medium restaurants in Surabaya that owners of restaurants also involve in the restaurant operation. The owners do not want to employ more staff due to cost saving.

According to Worsfold and Griffith (2003), food handlers have a crucial role in a food service business. Food handlers should have the skill and knowledge of food safety and hygiene to ensure that food is safe to be consumed. Therefore, it is highly expected that Indonesian government through local council should have a food safety program and training to assist food service operators in order to ensure that all the food they sell is safe. For further research, it is recommended to look at the implementation of food safety standards in the US or EU in order to awake consumers and food service operators in Surabaya to be aware of the importance of better hygiene and food safety practice. It is a responsibility of governments to legislate and monitor food industry to ensure that an acceptable health standard is maintained and food safety risks are minimized.

CONCLUSIONS AND RECOMMENDATION

Medium restaurants have more concern in implementing food safety and food hygiene practice in their premises than small restaurants. However, it can be said that the practice of food safety and food hygiene in small and medium restaurant in Surabaya is categorized low, which is only 64 percent and 72 percent respectively that meet the requirement requested. The majority of the consumers of both small and medium restaurants considered that food safety and food hygiene are very important. Consumers have the most concern on the dining area where chairs and tables should be clean, and free of insect or rats. Consumers give the lowest attention on the kitchen areas. Even though about half of the restaurant owners do not know about the guidelines of food safety and hygiene practice, but they said that it is imperative to have the guidelines in order to assure the safety of the food produced.

Food safety and food hygiene issue is obviously important and equally significant to consumers and food service operators. The result of this research study supports the need for more effective information and better education, especially for the restaurant owners in Surabaya about food safety and food hygiene matters. Government also plays an important role in providing wide-ranging information about food safety and food hygiene to both consumers and to food service operators in running their business to ensure that all food sold is safe to consume, and eventually lead to a better food safety operation. The awareness about the importance of the practice of food safety and hygiene should be cultivated from early education by including it into the national curriculum and by conducting food hygiene campaign in the local community. Food safety education should be able to provide knowledge and an increased awareness of food safety issues to consumers as well as food service operators. It should also be noted that staff as well as restaurant owners should be trained in food hygiene, offering a real opportunity to provide safer food for consumers to consume. Besides that, restaurant owners and staff should also be motivated to increase their concern and knowledge to put the safety of the food into consideration, particularly in processing the food.

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