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Judul Artikel : The concern and awareness of consumers and food service operators towards food safety and food hygiene in small and medium restaurants in Surabaya, Indonesia

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Penulis : **Sienny Thio (2010)**, Serli Wijaya

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---

**From:** sienny@petra.ac.id

---

**To:** Son Radu <daniel\_lian@hotmail.com>

---

**Subject:** Re: Update purchase the journal vol 17 issue 3

---

Dear Son Radu,

My complete details:

Sienny Thio  
Jemur Andayani 12/36  
Surabaya 60237  
East Java- Indonesia

Thank you and I will let you know once I receive or not receive it.

Regards,  
Sienny

Sent from my BlackBerry®  
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-----Original Message-----

From: daniel lian <daniel\_lian@hotmail.com>

Date: Thu, 24 Mar 2011 19:08:34

To: <sienny@peter.petra.ac.id>

Subject: RE: Update purchase the journal vol 17 issue 3

Dear Sieny,

Please reconfirm the address for sending the journal copies

Best regards

Son Radu

Editor

---

Date: Thu, 24 Mar 2011 11:26:44 +0700

From: sienny@peter.petra.ac.id

To: daniel\_lian@hotmail.com

CC: ifrj@food.upm.edu.my

Subject: RE: Update purchase the journal vol 17 issue 3

Dear Son Radu,

I have been waiting for the hard copy of the journal since I sent the money August last year. You said in your last email that it would be beginning of the year and now is almost end of March. Please...if you cannot make it done, I don't mind to cancel it and send the money back....

Look forward to hearing from you soon....

Regards,  
Sienny

Quoting daniel lian <daniel\_lian@hotmail.com>:

---

Dear Sieny,

My apologies as this part is handle by another board member though I personally try to push it. The printer has all the materials and waiting for them to print the hard copy.

Best regards  
Son Radu

---

Date: Thu, 27 Jan 2011 09:37:44 +0700

From: sienny@peter.petra.ac.id

To: ifrj@food.upm.edu.my  
CC: daniel\_lian@hotmail.com  
Subject: Re: Fwd: Re: Update purchase the journal vol 17 issue 3

Dear Son Radu,

I would like to know the update of my purchase of the journal. Your last email mentioned that it would be ready in the beginning of the year and now is almost end of January. Is there any update about it?

Look forward to hearing from you.

Thank you,  
Sienny Thio

Quoting sienny@peter.petra.ac.id:

----- Forwarded message from sienny@peter.petra.ac.id -----  
Date: Mon, 22 Nov 2010 17:00:29 +0700  
From: sienny@peter.petra.ac.id  
Reply-To: sienny@peter.petra.ac.id  
Subject: Re: Update purchase the journal vol 17 issue 3  
To: International Food Research Journal <ifrj@food.upm.edu.my>  
Cc: daniel\_lian@hotmail.com

Dear Son Radu,

It has been awhile since my last call to you on the 2nd of November. Is there any update about the hardcopy of the journal? could you pls let me know your assistant contact number/email so, I could contact him directly.

I did the request and sent the money to you since I need the hardcopy eventhough I got the softcopy already. I would not ask for the hardcopy if I do not need it. Pls let me know the update....

Please, if you cannot make it, pls kindly inform me and I don't mind to cancel my request and waiting my money back.

Thank you and regards,  
Sienny

Quoting International Food Research Journal <ifrj@food.upm.edu.my>:

Dear Sieny,

My assistant is checking on it and will let you know the status.

Best regards

Son Radu

----- Original Message -----  
From: sienny@petra.ac.id  
To: "International Food Research Journal" <ifrj@food.upm.edu.my>  
Sent: Tuesday, October 5, 2010 10:56:26 AM  
Subject: Update purchase the journal vol 17 issue 3

Dear Son Radu,

It has been quite along time I am waiting the update from you regarding my money tranfer to purchase the journal. Has your

assistant checked it?

Could you pls let me know whether you already receive the money transfer or not? I sent the money to your account from last august for RM 320. Pls inform me...

Look forward to hearing from you  
Thanks,  
Sienny

-----Original Message-----

From: International Food Research Journal  
To: Sienny Thio  
Subject: Re: Update purchase the journal vol 17 issue 3  
Sent: Sep 7, 2010 2:32 AM

Dear Sienny,  
I have requested my assistant to check.  
I am busy now as I will travel to FAO in Rome until 18/9/2010.  
Best regards  
Son Radu

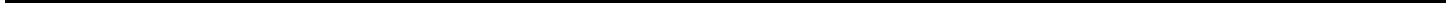
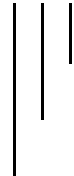
----- Original Message ----- From: sienny@petra.ac.id To: "International Food Research Journal" <ifrj@food.upm.edu.my> Sent: Monday, September 6, 2010 10:50:42 PM Subject: Update purchase the journal vol 17 issue 3 Dear Son Radu, Is there any update regarding my transfer last August RM 320? Have you received it? Few days ago I sent you the scanned receipt of the transfer. Pls kindly inform... Thanks, Sienny  
Sent from my BlackBerry® powered by Sinyal Kuat INDOSAT  
From: International Food Research Journal <ifrj@food.upm.edu.my>  
Date: Thu, 26 Aug 2010 11:17:55 +0800 (SGT) To: <sienny@peter.petra.ac.id> Subject: Re: purchase the journal vol 17 issue 3 Dear Sienny,  
I not received information from our Bendahari. Please scan and send the receipt to me to check. We are in the process of arranging for printing of IFRJ.  
Best regards  
Son Radu

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36

| Surabaya 6

0237 > East Java, Indonesia > > Pls keep me updated with package of th  
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## **The concern and awareness of consumers and food service operators towards food safety and food hygiene in small and medium restaurants in Surabaya, Indonesia**

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Faculty of Economics  
Petra Christian University  
121-131 Siwalankerto Surabaya 60236, Indonesia*

**Abstract:** Consumers and food service providers have an important role in preventing food-borne illness. The purpose of the study was to investigate the concern and awareness of consumers and food service operators toward food safety and food hygiene practices in small and medium restaurants in Surabaya. Observations, survey, and interview methods were used in this study. The findings show that about 64 percent of small restaurants and 72 percent of medium restaurants comply with the requirements requested by the legislator. Consumers have the most concern about the dining area. The owners of small restaurants give the highest priority to the food ingredients and ready-to-eat food, while the owners of the medium restaurants give the highest priority to the kitchen.

**Keywords:** Food safety, food hygiene, small restaurants, medium restaurants

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### **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. As food is a primary need for human beings, it should be put into account in terms of nutritional content, pre-requisite of healthy and hygienic food that is safe to consume. According to Sampurno, the Head of the National Agency of Drug and Food Control, about 80% of food-borne illnesses that happen in Indonesia are caused by a lack of hygiene in processing the food.

Some cases of food-borne illnesses that have happened in Surabaya should increase the awareness of people and food service businesses about the importance of food safety and food hygiene practices. Consumers and food service providers have an important role to play in preventing food-borne illness. According to World Health Organization report in 2002, food borne disease caused by microbiological hazards is a large and growing public health problem in Europe and worldwide (Clayton *et al.*, 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 and 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. They are so eager to dine out and try new exciting restaurants in town. As a result, new restaurants are opening regularly. Indeed, in recent years, small and medium food service operators dominate the restaurant business. Therefore, the identification of food service providers in small and medium restaurants with respect to food safety is important as it can inform consumers how safe and hygienic the food they consume at those restaurants is.

The rapid growth of food service establishments in Surabaya attracts researchers to further analyze food safety and food hygiene practices as well as to examine consumers' and food service operators' concern and awareness of food safety and food hygiene in both small and medium food businesses in

Surabaya. Moreover, this study also aims to examine the compliance of small and medium restaurants with food safety legislation using guidance from the Decree of the Minister of Health Republic of Indonesia No. 1098/MENKES/SK/VII/2003 about 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.

#### *Food safety risk defined*

According to Australia New Zealand Food Authority (2001), “food is not safe if it would be likely to cause physical harm to a person who might later consume it”. 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”. 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 which can exist when food products 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”.

#### *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. 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 *et al.*, 2004). According to the research conducted by Leach *et al.* (2001), there are some factors highlighted by customers as the 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 help people avoid food-borne illness and financial burdens, such as lost production owing to sickness-related absences from work that 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), 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 words, 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 expect that eating the meal should not make them sick. Despite better knowledge, a clear understanding of how and why consumers perceive food safety risk cannot be neglected since the uncertainty of achieving food safety goals may lead to some possible consequent losses for consumers (Yeung and Morris, 2001). According to Roselius (1971) 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 and cause them to pay more attention to the food safety and hygiene practices in their business. Additionally, for food service companies 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 globally 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 measures that can be taken at each level on their premises in order to eliminate or reduce such risks to an acceptable level (Norton, 2002). There are some actions which can be taken by food service operators to reduce food safety risks. In general, Hernandez (2001) suggests that food must be held, displayed and served at temperatures 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 proper food serving and handling techniques so that the risk food safety 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 of 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 operations.

Furthermore, food handlers have a crucial role in any food service businesses. The importance of food safety education for improving food-handling behaviors has been increasingly recognized during the past 10-20 years (Redmond and 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 establishments. As a result, such mistakes place consumers at considerable risk of contracting food borne illness, leading to increased individual and societal costs due to pain and suffering, loss of economic productivity and pressures on primary and public health resources (Kennedy *et al.*, 2005). 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 the public.

## **Methods**

For the purposes of the study, the objects in this paper were categorized into two types of restaurants, called small restaurants and medium restaurants, depending 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. A 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, the observations were undertaken in each of these territories. Further, the type of observation used in this study was an undisguised observation where the owners of the restaurant gave 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 29 requirements in the following 7 areas: (1) 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 comply with the requirements in their food establishments.

Second, surveys were undertaken of 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. The survey was done by using a questionnaire as an instrument. The 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 in the Decree of the Minister of Health Republic of Indonesia No: 1098/MENKES/SK/VII/2003. It consisted of observing 7 (seven) areas in the restaurant with 29 quotations in total using a 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 a convenience sampling technique. The interviews used in this study were 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 interviews took place in the restaurant of food service operators and each interview lasted approximately 10-15 minutes. 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) areas set by the Decree of the Minister of Health Republic of Indonesia No: 1098/MENKES/SK/VII/2003.

## Results

The observations were conducted in 50 small restaurants in Surabaya. Each small restaurant was observed using the checklist which consists of 29 quotations over 7 areas. Nine of the quotations had a higher percentage of non-compliant than those of compliant restaurants in regards to the implementation of food safety and food hygiene practice in their establishments. They are air ventilation; fruit/vegetables washed properly; all the requirements of processing food; temperature control of the food; cleanliness in storing food ingredients and temperature of food served (Table 1).

While, from the observations in 50 medium restaurants, it was found that only 4 out of 29 quotations had a higher percentage of non-compliant than those of compliant under the criteria set by the legislator. They are air ventilation; fruit/vegetables washed properly; personal hygiene; and temperature of food served (Table 2).

Data shown in table 3 indicates that medium restaurants have carried out the practice of food safety and food hygiene better than in small restaurants where in medium restaurants, all areas have a higher compliant percentage than non-compliant. Processing of the food had the greatest percentages of non-compliant requirements in both small and medium restaurants, 63 per cent in small restaurants and 47 per cent in medium restaurants. The highest

compliance of food safety and hygiene practices in small restaurants was the area on the utensil used, while in the medium restaurants they were the dining room and food serving. In average, only 64 percent of small restaurants and 72 percent of medium restaurants comply with the requirements set by the legislator.

A total of 500 respondents 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 (Table 4). The questionnaires were distributed evenly in West, East, Central, South, and North Surabaya.

In order to examine the concern and awareness of consumers towards the practice of food safety and food hygiene in food service establishments, questionnaires were distributed with five possible responses, ranging from very unimportant to very important. Data in Table 5 shows that all requirements in medium restaurants had a higher mean score rating than in small restaurants. The overall mean of small and medium restaurants were 4.16 and 4.36 respectively.

Of the 500 respondents taking part in the research, more than 90 per cent of consumers perceived the practice of food safety and food hygiene in small and medium public eating-places as important and very important (Table 6). Only less than 3 per cent of respondents stated that food safety and food hygiene were not important.

A total of 20 restaurant owners participated in the interviews that took place within the business premises. The interviews used the same interviewer throughout the research in order to achieve consistent interpretation in regard to the implementation of food safety and food hygiene in their business. From the interviews, it was found that about 50% of small and medium restaurant operators did not know that there was a guideline or requirements set by the legislator to maintain food safety and food hygiene. More than half (60 per cent) of the owners stated that it was necessary to have guidelines on food safety and food hygiene in order to provide safe food to consume and attract consumers to come. However, when it was asked whether they need food safety 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 areas 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

**Table 1.** Observation towards food safety and hygiene in small restaurants

| Area of Concern                                       | Quotation                                                                                     | Non-Compliant (%) | Compliant (%) |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------|---------------|
| 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            |
| Food ingredients and ready-to-eat food                | Cleanliness of floor, roof, wall                                                              | 46                | 54            |
|                                                       | The good condition of food ingredients                                                        | 0                 | 100           |
|                                                       | The good condition of ready-to-eat foods                                                      | 0                 | 100           |
|                                                       | Fruits/vegetables washed properly                                                             | 95                | 5             |
| The processing of the food                            | Avoid direct body contact in handling food                                                    | 68                | 32            |
|                                                       | Use utensil, gloves in handling food                                                          | 60                | 40            |
|                                                       | Personal hygiene                                                                              | 69                | 31            |
|                                                       | Hygienic food handling                                                                        | 54                | 46            |
| The storage of food ingredients and ready-to-eat food | Protection of foods                                                                           | 42                | 58            |
|                                                       | Temperature control of food                                                                   | 58                | 42            |
|                                                       | Cleanliness in storing food ingredients                                                       | 58                | 42            |
|                                                       | Store separately between food ingredients & ready-to-eat food                                 | 24                | 76            |
| Food serving                                          | 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 bins, 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            |

**Table 2.** Observation towards food safety and hygiene in medium restaurants

| Area of Concern                                       | Quotation                                                                                    | Non-Compliant (%) | Compliant (%) |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------|---------------|
| 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            |
|                                                       | Fruits/vegetables washed properly                                                            | 87                | 13            |
| The processing of<br>The food                         | Avoid direct body contact in handling food                                                   | 46                | 54            |
|                                                       | Use utensil, gloves in handling food                                                         | 42                | 58            |
|                                                       | Personal hygiene                                                                             | 61                | 39            |
|                                                       | Hygienic food handling                                                                       | 37                | 63            |
| The storage of food ingredients and ready-to-eat food | Protection of foods                                                                          | 25                | 75            |
|                                                       | 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            |

**Table 3.** Summary of food safety and hygiene practices in small and medium restaurants

| Areas of Concern                                           | Small restaurant  |               | Medium restaurant |               |
|------------------------------------------------------------|-------------------|---------------|-------------------|---------------|
|                                                            | Non-Compliant (%) | Compliant (%) | Non-Compliant (%) | Compliant (%) |
| 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            |

**Table 4.** 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           |           |            |

**Table 5.** Mean of consumers' awareness towards food safety and hygiene

| Scale             | Areas of Concern                                        | 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 & 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 & ready-to-eat Food | 4.38 | 0.67 |
|                   | Food serving                                            | 4.36 | 0.63 |
|                   | The utensil used                                        | 4.32 | 0.66 |

**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 owners of the medium restaurants, they gave the highest priority to the kitchen and the lowest priority for food serving.

## Discussion

### *The practice of food safety and hygiene in small and medium restaurants*

Without a better understanding of the risks and hazards in their business, it could be difficult for the restaurants' owners to provide foods which are safe to be consumed and reduce the incidence of food poisoning. From the observations, it was indicated that both small and medium restaurant owners in Surabaya have not yet complied with sanitation hygiene requirements for restaurants set by the legislator. This supports previous research which mentions that SMEs usually have poor knowledge and understanding of legislative requirements and food safety principles and do not always implement requirements as the legislator intended (Yapp and Fairman, 2005).

However, the result shows that the owners of medium restaurants have more concern in implementing food safety and food hygiene practices in their premises than small restaurants owners. It could be true since owners in medium restaurant are more likely to have a better knowledge and understanding of what constitutes compliance compared to owners of small restaurants. Hence, the legislator should deliver assistance for the restaurants owners by providing regular training programs in order to improve their knowledge about food safety and food hygiene in their business.

Of the requirements in the 7 specific areas set out by the legislator, both in small and medium restaurants, the area of processing of the food which included personal hygiene had the greatest percentage which was in non-compliance with the food safety standards (Table 3). While, the requirement on the utensil used, the dining room and food serving have the higher compliance among other requirements. It can be indicated that food service operators give more attention to the areas that can be seen directly by consumers. Food handlers were required to carry out decontamination actions on numerous occasions (Clayton and Griffith, 2004). Previous research conducted by Clayton *et al.* (2003) shows that food handlers believe the pressure of time may prevent them from carrying out food safety actions and give the high number of requirements for decontamination activities (Clayton and Griffith, 2004). Furthermore, Harrison *et al.* (2001) suggests that encouraging food handlers to think about the order of their work activities

and ways in which the need for decontamination can be reduced may help in order to minimize the spread of pathogens and thereby lower the risk of food-borne illness.

### *The concern and awareness of consumers towards food safety and hygiene practices*

Further, from the consumers' perspectives, the survey results illustrate that the most important factor for consumers to be considered when they eat-in at small and medium restaurants was the dining area, where chairs and tables should be clean, and free of insects or rats (Table 5). By contrast, kitchen areas had the least attention since consumers were not concerned with what they cannot see. The overall mean score ( $> 4.0$ ) reveals that consumers' concern and awareness towards the food safety and food hygiene actions are relatively high and even become higher when they eat-in at medium restaurants.

It is interesting to note that consumers still keep coming to restaurants which have poor food safety and food hygiene practices. 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. Moreover, 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 types, ambience, and restaurant location become preferred factors when choosing a restaurant.

This study shows that the concern and awareness of consumers in regard to food safety and food hygiene exceed the concern and awareness of food service providers. Consumers regard that providing food in a safe way is very important. However, they do not mind to consume food even though the food safety standard is low. 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 words, consumers concern and awareness of food safety and food hygiene will drive a better hygienic food service business.

### *The concern and awareness of food service operators towards food safety and hygiene practices*

From the interviews undertaken, one point that could be underlined was that most of the food service operators did not completely apply the standard of food safety because they failed to understand the

requirements and how they needed to be applied to their own business. Also, small and medium restaurants also failed to relate the requirements being made to general food safety and food hygiene principles. They just know how to run the restaurants without knowing how to maintain and keep food safe to consume. In other words, it can be said that the concern and awareness of small and medium food business operators in Surabaya are considered low since the majority of them has a lack of knowledge and does not understand the general food safety and food hygiene principles and cannot relate to why it is needed in their business.

The finding of the interviews were 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 are more concerned about how to serve consumers fast and not make consumers wait too long for food ordered than they are concerned about the hygiene of the food. The other reason is lack of employees. It is common in small and medium restaurants in Surabaya that owners of restaurants are also involved in the restaurant operation. The owners do not want to employ more staff to save costs.

According to Worsfold and Griffith (2003), food handlers have a crucial role in the 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 the Indonesian government through local councils 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. It is a responsibility of the government to legislate and monitor the food industry to ensure that an acceptable health standard is maintained and food safety risks are minimized.

The awareness about the importance of practicing food safety and hygiene should be cultivated from early education by including it into the national curriculum and by conducting a 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 a safer food. 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 when processing the food.

## Conclusions

The result of this research study supports the need for more effective information and creative ways to disseminate the food safety principles for food service providers that can be easily interpreted and implemented, particularly by small and medium restaurant owners who are usually less educated. Inadequate information and knowledge about food safety are known to contribute to non compliance of food service operators in implementing food safety practices in their business. In this matter, the government plays an important role through the local community in providing wide-ranging information about food safety and food hygiene to both consumers and 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.

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