EDUCATIONAL BACKGROUND CHARACTERISTIC OF FOOD HANDLERS AND THEIR KNOWLEDGE, ATTITUDE AND PRACTICE TOWARD FOOD SAFETY AT SELECTED KEROPOK LEKOR SHOP IN KOTA BHARU, KELANTAN

ABSTRACT

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Contamination of keropok lekor can occur during all stages of processing, and in some cases, it can cause illness. Thus, it creates a food safety concern for the consumer. A cross sectional study was conducted in randomly selected medium size keropok lekor shops around Kota Bharu, Kelantan as to determine the educational background characteristic of food handlers and their knowledge, attitude and practice toward food safety. A total of 55 respondent from an approximately 21 shops participated in the study. An established questionnaire was adopted and it comprised of four sections: (1) demographics information, (2) food safety knowledge, (3) attitude toward food safety, (4) food safety practices. A linear regression correlation test was used as to see the strength and direction of correlation between the mean of education level and food safety knowledge, mean of education level and food safety attitude, and also between mean of education level and food safety practices. The result indicates that there is no significant positive relationship between education level and food safety knowledge ($\beta = .003$, $p > 0.05$). R^2 of .000 shows that any changes of food handlers' knowledge are not influenced by education level. Besides that, the result also shows a significant positive relationship between education level and attitude ($\beta = .416$, $p < 0.05$). Its R^2 of .173 indicate that any changes in food safety attitude is explained by education level by 17%. The last variable is the food safety practices, the result shows that there is a significant negative relationship between education level and food safety practices ($\beta = -.279$, $p < 0.05$). R^2 of .078 shows that any

changes of food safety practices are explained by education level by 7.8%. Thus, it can be said that educational background did not play a significant role in food safety

Keyword: education level, knowledge, attitude, practice, food handlers

1.0 INTRODUCTION

Keropok Lekor or also known as fish sausage is a frankfurter- like snack that has long existed in Malaysia. Keropok Lekor is typically a chewy sausage- like snack made up of minced fishes, sago flour or tapioca flour, water, salt, sugar, monosodium glutamate (MSG), and flavouring. It comes in greyish colour, gives off fishy taste and the smell become prominent once fried or boiled. This traditional Malay fish snack are originated from the state of Terengganu. It is a popular street food among peoples from the east coast of Peninsular Malaysia, that are Kelantan, Terengganu and Pahang. But nowadays, its enthusiast has no problem in seeking out keropok lekor shops in other state since the snack has long been vastly commercialized throughout the Malaysian states. Fish sausages are also known to have a short period of shelf- life. Usually at room or ambient temperature, it can approximately last for one or two day in view of its nutrient availability that possibly can promote microbial growth and after that, it will turn organoleptically unacceptable (Tang et al., 2014). Thus, making the keropok lekor susceptible to microbial activity. Beside the susceptibility to microbial activity due to the short -span of shelf life, the mishandling of foods and disregarding of the hygienic practices by food handlers during all stages of processing may enable the pathogen to contaminate the products, and in some cases, pathogen may also survive and multiply to sufficient numbers and then causing illness (Dudeja and Singh, 2017). Apart from that, the mishandling of food product also includes the process during which transportation, freezing, thawing process and storage time of fish and raw material taking placed, since it has a major influence on the quality of the final product (Sampels, 2015). Thus, it creates a food safety concern for the consumer since the product are easily susceptible to contamination either naturally or anthropogenic. In order to reduce the contamination susceptibility, the assessment on food handler knowledge, attitude and practice are important to be carried out since they act as determinant or indicator on the safety of food product produced.

2.0 METHODOLOGY

2.1 Study design

In order to evaluate the food safety knowledge, attitude, and practices of food handlers in keropok lekor shops in Kota Bharu, Kelantan, a cross- sectional study was conducted in November 2020. Medium size shops were randomly selected from around Kota Bharu for data collection purpose and the employees from an approximately 21 shops participated in the study. The respondents for the study were selected based on the inclusion criteria priorly set. The inclusion criteria included employees that involve from every aspect or stage of keropok lekor preparation, starting from obtaining and preparing raw material, cooking, storage and the final packaging of the goods. Another criterion is that the shops selected for data collection has to be from the medium size industry that is located in Kota Bharu, Kelantan only.

2.2 Questionnaire design

An established questionnaire from previous studies was adopted and used as a platform so to appraise the awareness on knowledge, attitude and practices of the food handler in the aspect of food safety. The constructed questionnaire was given or tested on an established small and medium industry for validation before it was accordingly modified to suit the respondents' comprehension. The questionnaire was ready set to be given to respondents for the formal survey study, after the much-needed modification on the questionnaire was done and carried out. The questionnaire was comprised of four sections: (1) demographics information, (2) food safety knowledge, (3) attitude toward food safety, (4) food safety practices. The knowledge section consisted of 12 general question on food safety while attitude section made up of 14 question associated with food handler’s stance when dealing with food. Meanwhile, practices section composed of 19 question all focusing on the daily basis practices of food handler when dealing with the food production during the working hours.

2.3 Data collection

The data for this study was collected after a verbal consent was granted from each respondent from the establishment who voluntarily agrees to participate in the study. The questionnaires were directly given to the food handlers to be filled in after they are briefed and explained on the purpose of the study and the items included in the form. The respondents were reassured that the data collected will be used for research and study purpose only and not to be used for any personal or individual assessment. Besides that, the forms were collected on the same day after they were completed or filled-in as to ensure a complete return rate of the distributed questionnaires.

2.4 Statistical analysis

For statistical analysis, knowledge section questions were categorized as yes or no, meanwhile, attitude section were categorized by using the Likert scale of; (1) strongly disagree, (2) disagree, (3) uncertain, (4) agree, (5) strongly agree and practices section question were also sort out by using Likert scale of; (1) always, (2) often, (3) sometimes, (4) rarely, (5) never. The demographic variable data was analyzed and determined as one of the factors influencing the result of the study carried out. The mean score of knowledge, attitudes, and practices of the self-administered questionnaire was computed and used as a mean to assess the food handlers. A linear regression correlation test was used as to see the strength and direction of correlation between the mean of education level and food safety knowledge, mean of education level and food safety attitude, and also between mean of education level and food safety practices. The analyzed items are listed in the tables.

Data were keyed- in by using Microsoft Excel and statistical analyses were conducted with the IBM Statistical Package for Social Sciences (SPSS) version 20.0. Result are presented with 95% confidence intervals (CI). A p value that is less than 0.05 was considered to be statistically significant.

3.0 RESULT

3.1 Profile of respondent

Table 3.1

Demographic characteristics of the food handlers.

Category		**Frequency**	**Percentage (%)**
Gender	Male	21	38.2
	Female	34	61.8
Age	≤ 20	6	10.9
	21-30	28	50.9
	31-40	6	10.9
	41-50	12	21.8
	≥ 51	3	5.5
Education Level	Primary	5	9.1
	Secondary	31	56.4
	Tertiary	19	34.5
Length of employment (years)	< 1	20	36.4
	1-5	26	47.3
	6-10	3	5.5
	11-20	3	5.5
	21-30	2	3.6
	≥ 31	1	1.8
Food safety training	Yes	37	67.3
	No	18	32.7
Vaccination	Yes	36	65.5
	No	19	34.5

The table above displays the profiles of the survey respondents. More than half of survey respondents are from female population (61.8%) and less than 39% are from the male population. About 73% of respondents are at the age 40 years old and below with the majority are within the age group of 21 to 30 years old (50.9%), while almost 24% are from the age 41 years old and above. Other than that, the respondents are among different educational background with the majority from secondary (56.4%), followed by tertiary (34.5%) and primary (9.1%). In term of length of employment, about 90% of respondent work less than 10 years with the majority of 1 to 5 years (47.3%), while almost 11% work for more than 11 years and above. Lastly, majority of food handler attend food safety training courses and have vaccination with 67.3% and 65.5% respectively.

3.2 Knowledge of food handlers on food safety

Table 3.2

Food handler's food safety knowledge.

	Knowledge questions	**Yes (%)**	**No (%)**
1.	Preparation of food in advance is more likely to cause food poisoning	76.4	23.6
2.	Incorrect application of cleaning and sanitization procedures for equipment (refrigerator, slicing machine, mincer) increase foodborne disease risk to consumers	96.4	3.6
3.	Washing hands before handling food contamination risk	100	0
4.	Wearing gloves while handling food reduce the risk of transmitting infection to consumers and staff	94.5	5.5
5.	The use of cap, masks, protective gloves and adequate clothing can reduce the risk of food contamination	96.4	3.6
6.	The importance to know the temperature of the refrigerator/ freezer to reduce the risk of food spoilage	89.1	10.9
7.	Improper storage of foods may cause health hazard to consumers	100	0

8.	Food can be kept in the refrigerator for a long time	36.4	63.6
9.	Frozen foods should be thawed in refrigerators	23.6	76.4
10	Preservatives are food additive	72.7	27.3
11.	Food poisoning is caused only by pathogenic microbes	70.9	29.1
12	Food borne diseases can lead to diarrhea, kidney and liver failure, brain and nerve diseases, cancer	94.5	5.5

The result from the knowledge portion of questionnaire is presented in Table 3.2. 76% of respondent agreed that an early preparation of food lead to food poisoning, while 96.4% respondents think improper cleaning and sanitation of processing equipment increase the risk of food born illnesses. Meanwhile, all 100% respondent agreed to washing hand prior to handling food reduce contamination risk and an improper food storage inflicted health hazard to consumer. Furthermore, more than 90% of the respondent agreed to questions that indicate on wearing gloves can reduce infection transmission to staff and consumer (94.5%) and usage of cap, masks, protective gloves and adequate clothing can reduce the risk of food contamination (96.4%). Besides that, almost 90% of respondent acknowledge on the importance of proper refrigerator/ freezer temperature as to avoid food spoilage and more than half do not agree that food can be kept in the refrigerator for long times (63.6%). However, many do not know that food should be properly thawed in refrigerator and pathogenic microorganism is not the only caused for food poisoning, for majority of 76.4 % and 70.9% respondent do not agree. Apart from that, around 95% knows that food borne diseases can lead to diarrhea, kidney and liver failure, brain and nerve diseases, as well as cancer.

3.3 Attitudes of food handlers on food safety

Table 3.3

Food handler's food safety attitude

	Attitude questions	Strongly Disagree (%)	Disagree (%)	Uncertain (%)	Agree (%)	Strongly Agree (%)
1.	One main responsibility of my job is to handle food safety.	0	5.5	25.5	21.8	47.3
2.	I will handle food differently if I know it is wrong.	0	0	12.7	52.7	34.5
3.	I think personal cleanliness is highly important when we are at work.	0	0	1.8	34.5	63.6
4.	Food handlers suffering from foodborne diseases should not be allowed to go to work and steer clear from the premises where they work.	0	1.8	23.6	25.5	49.1
5.	Food handlers who have wounded fingers and hands can handle food only if they correctly cover their wounds.	3.6	7.3	27.3	36.4	25.5

6.	Food handlers should make certain that their nails are short and clean.	0	0	0	23.6	76.4
7.	Proper hands washing techniques are important food preparation.	0	1.8	18.2	16.4	63.6
8.	Washing hands right after unhygienic practices is important	0	0	1.8	23.6	74.5
9.	Food handlers should wear gloves when touching ready-to-eat foods (RTE).	0	3.6	5.5	32.7	58.2
10.	Before putting on the gloves, food handlers should wash their hands	0	7.3	21.8	32.7	38.2
11.	Food handlers should wash their hands after disposing their gloves.	0	7.3	20	38.2	34.5
12.	Food handlers should change gloves every time after they handle raw food and before they handle ready-to-eat foods.	0	0	3.6	30.9	65.5
13.	Food handlers should wear suitable attire before they start working.	0	1.8	5.5	50.9	41.8

14.	Food handlers should use a clean hand towel to wipe hands after washing them.	0	0	1.8	40	58.2

The results for the attitude section are displayed in Table 3.3. The overall attitudes of food handlers toward food safety were at satisfaction level. Most of the respondents participating in the survey are either agree or strongly agree to most of the questions concerning food safety attitude, with an accumulated percentage of more than 50% for each question. More than half food handlers think highly of personal cleanliness when at work, thus ensuring high percentage of strongly agree on short and clean nail maintenance of food handler (76.4%), proper hand washing techniques (63.6%), and also hand washing right after unhygienic practices (74.5%).

3.4 Practices of food handlers on food safety

Table 3.4

Food handler's food safety practices

	Practice questions	**Always (%)**	**Often (%)**	**Sometimes (%)**	**Rarely (%)**	**Never (%)**
1.	Do you follow the right hand-washing procedures?	41.8	18.2	25.5	14.5	0
2.	Do you wash your hands after returning from the washroom?	61.8	21.8	12.7	1.8	1.8
3.	Do you wash your hands after rubbing your nose or scratching your body?	36.4	23.6	27.3	10.9	1.8

4.	Do you wash your hands after handling food waste or dealing with rubbish/ garbage?	74.5	18.2	1.8	1.8	3.6
5.	Do you touch food when you cut your fingers and the cut is not covered properly?	3.6	3.6	14.5	18.2	60
6.	Do you make sure that your hands are dry and clean every time you are handling the foods?	56.4	18.2	18.2	1.8	5.5
7.	Do you wear any items of jewelry when you handle foods?	9.1	9.1	18.2	14.5	49.1
8.	Are you absent from work if you have any foodborne illnesses?	32.7	14.5	16.4	9.1	27.3
9.	Do you smoke as you prepare for food?	5.5	0	3.6	7.3	83.6
10.	Do you eat, drink or chew gum as you prepare food?	7.3	7.3	41.8	16.4	27.3
11.	Do you wear a clean and suitable uniform before start working?	43.6	25.5	12.7	12.7	5.5
12.	Do you wear a proper shoe before you begin working?	47.3	10.9	18.2	16.4	7.3
13.	Do you wear an apron before working?	49.1	25.5	14.5	7.3	3.6
14.	Do you wear a cap before working?	38.2	16.4	23.6	10.9	10.9

15.	Do you wear a mask before working?	32.7	20	20	21.8	5.5
16.	Do you wear gloves when you want to touch ready-to-eat (RTE) foods?	54.5	14.5	21.8	1.8	7.3
17.	Do you wash hands before you put on your gloves?	52.7	18.2	14.5	12.7	1.8
18.	Do you wash hands after you remove your gloves?	47.3	21.8	16.4	14.5	0
19.	Do you change gloves between your handling of raw and ready-to-eat foods (RTE)?	61.8	23.6	3.6	5.5	5.5

There are three aspects being assessed in practices portion of questionnaire, which are hand washing, contamination preventions, and glove usage. The hand washing aspect reach a satisfaction level with percentages of more than half, although there are slight decreases in percentage of correct hands washing procedure (41.8%) and hand washing after nose rubbing and scratching (36.4%). Meanwhile, majority questions for contamination prevention show a low percentage with an average score of not more than 50 % for each question. Apart from that, usage of glove aspects shows the highest score among the three aspect with 54.5 % respondents wearing glove when touching ready- to-eat food. Food handlers also always wash their hands before wearing glove with percentage of (52.7%), however, the percentage decrease for when they remove the gloves (47.3%). 61.8% of respondents also know to always change their gloves in between handling of raw and ready-to-eat foods.

3.5 The Reliability Test (Cronbach's Alpha)

Table 3.5

Cronbach's Alpha scale

Cronbach's Alpha coefficient	Indicator (Rule of thumbs)
- > .9	Excellent
- > .8	Good
- > .7	Acceptable
- > .6	Questionable
- > .5	Poor
- < .5	Unacceptable

Table 3.6

Reliability Test (Cronbach's Alpha) on Knowledge, Attitude and Practices.

Scale	**No. of scale item**	**Reliability Coefficient (Alpha)**	**Strength of Association**	**Cronbach's Alpha If Item Deleted**
Knowledge	10	.285	Unacceptable	-
Attitude	14	.908	Excellent	-
Practices	19	.841	Good	-

Table 3.6 above shows the differences in result of the reliability analysis of knowledge, attitude and practices of the constructed questionnaires. Based on the result, the values of reliability of two variables are higher because the variables score are greater than 0.7 of Cronbach's Alpha coefficients. For attitude, the value of Cronbach's Alpha is excellent with .908 and practices score good value with .841. The knowledge variable however scores an unacceptable value with .285.

3.6 Normality

Table 3.7

Normality Analysis

	Median	Mean	Skewness	Kurtosis
Mean for Education Level	2.0000	2.2545	-.207	-.518
Mean for Knowledge	1.3000	1.2491	.424	.048
Mean for Attitude	4.5000	4.3416	-.595	-.857
Mean for Practices	2.3158	2.4689	.578	-.791

Table 3.7 shows the normality result of skewness and kurtosis for knowledge, attitude and practices of respondent toward food safety. It also shows the result of skewness and kurtosis for education level as independent variable. Overall, the data of the study was normally distributed because of the skewness and kurtosis value were within the range of +/- 3.

3.7 Regression Analysis

Table 3.8

Result of Linear Regression Analysis for food safety knowledge

Model	Unstandardized Coefficient		Standardized Coefficient	F
	β	Std. Error	Beta	
(Constant)	1.248	.069		.000
Mean_ Education Level	.001	.029	.003	
	R square	19%		
	F value	.000		
	Sig.	.983		

Dependent variable = Food safety knowledge. *p value < .05, ** p value < .05

Table 3.9

Result of Linear Regression Analysis for food safety attitude

Model	Unstandardized Coefficient		Standardized Coefficient	F
	β	Std. Error	Beta	
(Constant)	3.561	.243		11.086
Mean_ Education Level	.346	.104	.416	
	R square	17%		
	F value	11.086		
	Sig.	.002		

Dependent variable = Food safety attitude. *p value < .05, ** p value < .05

Table 3.10

Result of Linear Regression Analysis for food safety practices

Model	Unstandardized Coefficient		Standardized Coefficient	F
	β	Std. Error	Beta	
(Constant)	3.094	.306		4.485
Mean_ Education Level	- .277	.131	- .279	
	R square	78%		
	F value	4.485		
	Sig.	.039		

Dependent variable = Food safety practices. *p value < .05, ** p value < .05

4.0 DISCUSSION

The result from the knowledge portion of questionnaires indicate that the respondents do attend the training session but they either had not received a sufficient amount of information or lack in understanding the knowledge that has been taught or disseminated. This study demonstrates that although food handlers are maybe aware of the need for the usage of glove, mask, and cap and proper cleaning and sanitation, they do not comprehend crucial aspect linked to temperature values as it is needed to properly thaw raw material or food in order to control the spoilage rate and ensure that the raw material are thoroughly defrost before being cook. The result also indicate that most food handlers do not know as to what had cause the case of food poisoning. Previous studies on the topic, have revealed that most food handler had poor knowledge on pathogens. The current study showed that only 29.1% of respondent know that food poisoning is not only inflicted by the pathogenic microbes. An event of food poisoning is usually caused by the spoilage microbes that contaminate the food hence changing its organoleptic properties. Pathogenic microbes usually are involved in the case of outbreak of foodborne illness where it inflicts more severe consequences. Since pathogens vary in every different foodborne disease, it can be too professionally exacting to expect for food handlers to know on the detail of all pathogens and spoilage microbes. However, all the detail differentiating pathogens and spoilage microorganism might be useful to them in case of an occurrence of food borne illnesses outbreak or food poisoning. This propose that food handlers play a big role in food safety by understanding the differences between the two and its impact. Therefore, a food safety training courses in the future should include biological knowledge on the topic.

Generally, the food handlers' attitude toward food safety are at the satisfactory level since they score about more than half percent for each question, consisting of agree and strongly agree. However, although more than half correctly answer the question, there is still the remaining minority with a worrisome attitude working at the food establishment since it does not take a group or bunch of people to impose food safety risk toward the food being prepared. An earlier study on the topic had found the distinction between self-

reported attitude of food handlers and their observable food handling (Angelillo, Viggiani, Rizzo, & Bianco, 2000). The result shows that there is still questionable attitude of food handler on the before and after wearing glove washing hands routine. Those two-question score among the lowest of all other questions. This suggest that they knew of the correct ways to do things but somehow being ignorant on the compliancy of what need to be done.

From the three aspects assessed in the practices section, it can be said that the practices on food safety by the food handlers are lacking. For instance, in handwashing aspect, although they reach more than half percentage of few of the question there are still questions that did not reach satisfaction level that is below 50%, such as correct hands washing procedure that score about 41.8%. This convey that the handlers think all is well as long as they wash their and not pertaining to the correct procedure. Furthermore, another hand washing aspect that score the lowest of percentage is the hand washing after nose rubbing and scratching (36.4%). Only 36.4% of respondents knew that they should always washed hands after touching their body. Apart from that, the lowest percentage of all aspect assessed falls on the contamination prevention since the majority of the score are all below 50%. This convey that although they have food safety training, it is still up to them to follow what they perceived as right and what is not. Usually, person with more training got higher score than the other since training improve one's knowledge. However, attending training session cannot directly convert knowledge gained into an appropriate behavior suit for kitchen or food production staff.

Therefore, the overall result indicates that there is no significant positive relationship between education level and food safety knowledge ($\beta = .003$, $p > 0.05$). R^2 of .000 shows that any changes of food handlers' knowledge are not influenced by education level. Besides that, the result also shows a significant positive relationship between education level and attitude ($\beta = .416$, $p < 0.05$). Its R^2 of .173 indicate that any changes in food safety attitude is explained by education level by 17%. The last variable is the food safety practices, the result shows that there is a significant negative relationship between education level and food safety practices ($\beta = -.279$, $p < 0.05$). R^2 of .078 shows that any changes of food safety practices are explained by education level by 7.8%. Thus,

it can be said that the knowledge acquired on food safety is not influenced by education level of a food handler since any person involve in food production and handling are usually acquired to attend food safety training courses, and there they learned and gain information on necessary knowledge regarding safety of food. Education level however have an influence on the attitude of food handler toward food safety, although the percentage of the impact is small. Apparently, the background on education affect one's acceptance on the scientifical views on food safety and lastly, education level also small-scale affecting the food safety practices of food handler albeit its weak relationship, since the more educated a person is, the more they are bounded to practice something that are beneficial especially if it involves their safety and health. Thus, the finding indicates that the knowledge on food safety was entirely explained by other variables that were not investigated in this study, meanwhile, the remaining 83% and 92.2 % of food safety attitude and food safety practices variance were explained by other variables that were also not investigated throughout the course of this research.

5.0 CONCLUSION

This study disclose that food handlers educational background did not play a significant role in food safety. The result suggested that any major influenced on the food safety knowledge, attitude, and practice are from another unknown variables or factors, such as other socio- demographics which is not analyzed in this study due to the limitation of the data collection. However, although, the result shows an insignificant percentages of education level affecting the knowledge, attitude, and practices of food handler, it is important for food handlers to have a good education background, since it will be affecting their attitude toward food safety. Attitude is important, for a food handler with good attitude will acknowledge the importance food safety knowledge thus making them prone to practice the acquired knowledge so to abide the proper requirement in food production.

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APPENDIX

UNIVERSITI TEKNOLOGI MARA

Bachelor of Environmental Health
and Safety (Hons.)
Faculty of Health Sciences
42300 Kuala
Selangor, Selangor
Darul Ehsan

TARAF PENDIDIKAN DAN TAHAP PENGETAHUAN, SIKAP DAN AMALAN PENGENDALI MAKANAN TERHADAP KESELAMATAN MAKANAN DI PREMIS PERUSAHAAN KEROPOK YANG TERPILIH DI KOTA BHARU, KELANTAN.

Responden yang dihormati,

Kajian penyelidikan ini adalah mengenai taraf pendidikan dan tahap pengetahuan, sikap dan amalan pengendali makanan terhadap keselamatan makanan di premis perusahaan keropok yang terpilih di Kota Bharu, Kelantan. Sebagai wakil perusahaan, pandangan anda adalah sangat penting untuk kajian saya dan saya amat menghargai maklum balas anda untuk soal selidik ini. Ini adalah untuk tujuan akademik dan maklumat anda akan dirahsiakan serta hanya boleh dianalisa oleh individu yang dibenarkan sahaja. Terima kasih kerana sudi meluangkan masa, kerjasama dan sumbangan anda kepada kajian ini.

Disediakan oleh,

NUR LIYANA BT AZHARI
(2018264956)

Disahkan oleh,

PM DR. MOHD SHUKRI
(Supervisor)

BAHAGIAN A: MAKLUMAT DEMOGRAFIK

Arahan: Sila baca dengan teliti dan tandakan jawapan anda.

1. Jantina
    - Lelaki
    - Perempuan

2. Bangsa
    - Melayu
    - Cina
    - India
    - Lain-lain _____

3. Umur
    - 20 tahun dan ke bawah
    - 21-30 tahun
    - 31-40 tahun
    - 41-50 tahun
    - 51 tahun dan ke atas

4. Taraf pendidikan
    - Pendidikan Rendah
    - Pendidikan Menengah
    - Pengajian Tinggi

5. Tahun berkhidmat
    - Kurang dari 1 tahun
    - 1-5 tahun
    - 6-10 tahun
    - 11-20 tahun
    - 21-30 tahun
    - 31 tahun ke atas

6. Kursus latihan keselamatan makanan
    - Ya
    - Tidak

7. Vaksinasi (Suntikan tifoid)
    - Ya
    - Tidak

BAHAGIAN B: PENGETAHUAN

Arahan: Sila nyatakan jawapan dan bulatkan jawapan anda.

1. Penyediaan makanan yang lebih awal cenderung menyumbang kepada keracunan makanan
    - Ya
    - Tidak
2. Penggunaan prosedur pembersihan dan sanitasi yang tidak betul untuk peralatan (peti sejuk, mesin pengiris, pengisar) meningkatkan risiko penyakit bawaan makanan kepada pengguna
    - Ya
    - Tidak
3. Mencuci tangan sebelum mengendalikan makanan mengurangkan risiko pencemaran.
    - Ya
    - Tidak
4. Memakai sarung tangan semasa mengendalikan makanan mengurangkan risiko penyebaran jangkitan kepada pengguna dan kakitangan
    - Ya
    - Tidak
5. Penggunaan penutup kepala, topeng, sarung tangan dan pakaian yang bertutup dapat mengurangkan risiko pencemaran makanan
    - Ya
    - Tidak
6. Pentingnya mengetahui suhu peti sejuk / penyejuk beku untuk mengurangkan risiko kerosakan makanan
    - Ya
    - Tidak

7. Penyimpanan makanan yang tidak betul boleh menyebabkan bahaya kepada pengguna
    - Ya
    - Tidak
8. Makanan boleh disimpan di dalam peti sejuk dalam jangka masa yang lama
    - Ya
    - Tidak
9. Makanan beku harus dicairkan di dalam peti sejuk
    - Ya
    - Tidak
10. Pengawet adalah bahan tambahan makanan
    - Ya
    - Tidak
11. Keracunan makanan hanya disebabkan oleh mikrob patogenik
    - Ya
    - Tidak
12. Penyakit bawaan makanan boleh menyebabkan cirit-birit, kegagalan buah pinggang dan hati, penyakit otak dan saraf, dan barah
    - Ya
    - Tidak

BAHAGIAN C: SIKAP/ KELAKUAN

Arahan: Sila nyatakan jawapan dan bulatkan jawapan anda.

(Sangat Tidak Setuju)	(Tidak Setuju)	(Tidak pasti)	(Setuju)	(Sangat Setuju)
1	2	3	4	5

1. Salah satu tanggungjawab utama tugas saya adalah untuk menangani keselamatan makanan.	1	2	3	4	5
2. Saya akan mengendalikan makanan secara berbeza jika saya tahu ia tidak betul.	1	2	3	4	5
3. Saya rasa kebersihan diri sangat penting ketika berada di tempat kerja.	1	2	3	4	5
4. Pengendali makanan yang mengalami/menderita penyakit bawaan makanan tidak boleh dibenarkan bekerja dan hadir ke tempat kerja	1	2	3	4	5
5. Pengendali makanan yang mengalami luka pada jari dan tangan boleh mengendalikan makanan hanya jika menutupi luka mereka dengan betul	1	2	3	4	5
6. Pengendali makanan perlu memastikan kuku mereka sentiasa pendek dan bersih.	1	2	3	4	5
7. Teknik mencuci tangan dengan betul adalah penting dalam menyediakan makanan	1	2	3	4	5

8. Adalah penting untuk mencuci tangan selepas melakukan amalan tidak bersih (contoh: selepas menggunakan tandas)	1	2	3	4	5
9. Pengendali makanan harus memakai sarung tangan ketika menyentuh makanan yang siap untuk dimakan (RTE)	1	2	3	4	5
10. Pengendali makanan harus mencuci tangan sebelum memakai sarung tangan.	1	2	3	4	5
11. Pengendali makanan harus mencuci tangan setelah memakai sarung tangan atau membuang sarung tangan.	1	2	3	4	5
12. Pengendali makanan harus menukar sarung tangan setelah mereka mengendalikan makanan mentah dan sebelum mereka mengendalikan makanan siap untuk dimakan (RTE).	1	2	3	4	5
13. Pengendali makanan harus memakai pakaian yang sesuai sebelum mula bekerja.	1	2	3	4	5
14. Pengendali makanan harus menggunakan tuala tangan yang bersih untuk mengelap tangan setelah mencuci tangan.	1	2	3	4	5

BAHAGIAN D: AMALAN

Arahan: Sila nyatakan jawapan dan bulatkan jawapan anda.

(Selalu)	(Kerap kali)	(Kadang-kadang)	(Jarang)	(Tidak pernah)
1	2	3	4	5

1. Adakah anda mengikuti prosedur mencuci tangan yang betul?	1	2	3	4	5
2. Adakah anda mencuci tangan setelah pulang dari bilik air?	1	2	3	4	5
3. Adakah anda mencuci tangan setelah menyentuh hidung atau menggaru badan anda?	1	2	3	4	5
4. Adakah anda mencuci tangan setelah mengendalikan sisa makanan atau sampah?	1	2	3	4	5
5. Adakah anda menyentuh makanan jika jari terluka dan luka tidak dibalut dengan baik?	1	2	3	4	5
6. Adakah anda memastikan bahawa tangan anda kering dan bersih setiap kali anda mengendalikan makanan?	1	2	3	4	5
7. Adakah anda memakai barang kemas semasa mengendalikan makanan?	1	2	3	4	5
8. Adakah anda tidak bekerja jika anda menghidap penyakit bawaan makanan?	1	2	3	4	5
9. Adakah anda merokok semasa anda menyediakan makanan?	1	2	3	4	5

10. Adakah anda makan, minum atau mengunyah gula- gula semasa anda menyediakan makanan?	1	2	3	4	5
11. Adakah anda memakai pakaian seragam yang bersih dan sesuai sebelum bekerja?	1	2	3	4	5
12. Adakah anda memakai kasut yang sesuai sebelum mula bekerja?	1	2	3	4	5
13. Adakah anda memakai apron sebelum bekerja?	1	2	3	4	5
14. Adakah anda memakai plastik penutup kepala sebelum bekerja?	1	2	3	4	5
15. Adakah anda memakai penutup muka dan hidung sebelum bekerja?	1	2	3	4	5
16. Adakah anda memakai sarung tangan ketika anda ingin menyentuh makanan yang siap untuk dimakan (RTE)?	1	2	3	4	5
17. Adakah anda mencuci tangan sebelum memakai sarung tangan?	1	2	3	4	5
18. Adakah anda mencuci tangan setelah menanggalkan sarung tangan anda?	1	2	3	4	5
19. Adakah anda menukar sarung tangan antara pengendalian makanan mentah dan makanan yang siap untuk dimakan (RTE)?	1	2	3	4	5