GOVERNMENT MANAGEMENT ON FOOD SERVICE INDUSTRY AND THE INTENTION TO PRACTICE STANDARD OPERATING MEASURES DURING COVID-19

WANG XIAOHUI

MASTER OF SAFETY, HEALTH AND ENVIRONMENT ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING
UNIVERSITY OF MALAYA
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THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE MASTER OF SAFETY, HEALTH AND ENVIRONMENT ENGINEERING

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Matric No: 17220531

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Designation: Senior Lecturer
Dept. of Chemical Engineering
Faculty of Engineering
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ABSTRACT

The COVID-19 global pandemic has changed the relationship between consumers and food, increased the frequency of cooking at home, and adopted strict precautions when shopping, delivering meals and eating out. This time, we took the form of an online questionnaire survey, which led and received effective responses from 200 interviewees. Use descriptive statistics to analyze data and use SPSS data processing methods to pass reliability analysis, validity analysis, factor analysis, and correlation analysis, the average score of food safety knowledge of Malaysian respondents is 8.92 (11 .00 = highest score), indicating that consumers have a high level of food safety knowledge and sufficient knowledge reserves, which can effectively prevent COVID-19 infection. The Alpha coefficient is 0.882, the test KMO=0.700 (KMO>0.7), Sig.<0.001, and the total variance explanation chart, we explored the relationship between the two variables (health and safety knowledge and people's attitude/behavior ability to respond to the epidemic) The correlation, the result (sig = 0.796), shows that the relationship between the two is to play a positive role, the higher people's health and safety knowledge. During the COVID-19 period, regarding Malaysia and China's safety policies for the catering service industry, in terms of the effectiveness of epidemic prevention, the containment strategy adopted by China is more effective in terms of epidemic control.

Keywords: Government management, food service industry, food safety, Standard operating procedures.

PENGURUSAN KERAJAAN PADA INDUSTRI PERKHIDMATAN MAKANAN DAN INTENSI UNTUK MENGAMALKAN LANGKAH-LANGKAH PENGENDALIAN STANDARD SELAMA COVID-19

ABSTRAK

Pandemik global COVID-19 telah mengubah hubungan antara pengguna dan makanan, meningkatkan kekerapan memasak di rumah, dan menerapkan langkah berjaga-jaga yang ketat ketika berbelanja, menghantar makanan, dan makan di luar. Kali ini, kami mengambil bentuk tinjauan soal selidik dalam talian, yang membawa dan mendapat respons yang berkesan dari 200 orang yang ditemu ramah. Gunakan statistik deskriptif untuk menganalisis data dan gunakan kaedah pemprosesan data SPSS untuk lulus analisis kebolehpercayaan, analisis kesahan, analisis factor, dan analisis korelasi, skor rata-rata pengetahuan keselamatan makanan responden Malaysia adalah 8.92 (11 .00 = skor tertinggi), menunjukkan bahawa pengguna mempunyai tahap pengetahuan keselamatan makanan yang tinggi dan rizab pengetahuan yang mencukupi, yang dapat dengan berkesan mencegah jangkitan COVID-19. Pekali Alpha adalah 0.882, ujian KMO = 0.700 (KMO> 0.7), Sig. <0.001, dan carta penjelasan varians total, kami meneroka hubungan antara dua pemboleh ubah (pengetahuan kesihatan dan keselamatan dan kemampuan sikap / tingkah laku orang untuk bertindak balas) kepada wabak) Korelasi, hasilnya (sig = 0,796), menunjukkan bahawa hubungan antara keduanya adalah memainkan peranan positif, semakin tinggi pengetahuan kesihatan dan keselamatan orang. Dalam tempoh COVID-19, mengenai kebijakan keselamatan Malaysia dan China untuk industri perkhidmatan katering, dari segi keberkesanan pencegahan wabak, strategi penahanan yang diguna pakai oleh China lebih berkesan dari segi pengendalian wabak

Kata Kunci: Pengurusan kerajaan, industri perkhidmatan makanan, keselamatan makanan, Langkah operasi standard

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CHAPTER 1: INTRODUCTION

1.1. Overview

COVID-19 is a viral disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus. The patient showed flu-like symptoms, including dry cough, sore throat, high fever, and difficulty breathing. The first case detected in Malaysia happened on 25th of January, where 3 Chinese tourists travelled from Singapore to Malaysia was tested positive, while on 17th of March 2020, Malaysia reports its first case of death (Bernama, 2020). There were 22 cases in total reported throughout January, in which all of them were imported cases that originated from Singapore. The Malaysian government acted quickly to stop the virus from spreading further. A travel advisory was announced by the authority in end of January, advising Malaysians that are in China to avoid congested areas. Borders were still open at the time, with no limitation in effect, but the government began to conduct health screening at all entry points to the country by installing thermal scanners at entrance points in airports and ports (Bernama, 2020). People entering Malaysia that originates from Wuhan were closely observed and segregated. Following that, contact tracing procedures were issued in order to identify anyone who had come into contact with a COVID-19 patient. People that had close contact with COVID-19 patient were placed under observation and were monitored (Bernama, 2020). Foreign visitors were barred from entering Malaysia at the end of February, and only Malaysians were permitted in. At the entry points, all entering passengers were inspected. (Tang, 2020).

By mid-March, the number of cases reached 428. The Malaysian government responded by issuing a two-weeks long Movement Control Order (MCO) on March 18, 2020. Businesses and services that were deemed non-essential were closed. Interstate travel was severely restricted. Sporting activities, religious gatherings, and other public gatherings have also been cancelled.

A total of 778,652 positive cases has been found as of July 4, 2021. Among those cases, 705,486 of them have recovered, while 5497 have died.

According to the changes in the epidemic situation in Malaysia, Malaysia has adopted different degrees of blockade and implemented blockades of different degrees. The COVID-19 outbreak and ensuing lockdown had wreaked havoc on society, public health, and the economy. Businesses' normal operating processes and consumers' buying and eating habits have been altered as a result of social distancing and safety standards. Customers are adapting on how to adjust and develop new behaviours (Sheth, 2020). Due to the lockdown limitations imposed during the COVID-19 outbreak, customers' relationships with food and consumption habits had been altered. Consumers have recorded a rise of cooking at home and baking from scratch, according to (Gerritsen, et al., 2021). Additionally, consumers in North America recorded a rise in cooking confidence, as well as using an increase amount of time mongering with new recipes and wasting less food (HUNTER, 2020). During the epidemic, adults in North America, Australia, Ireland, and the United Kingdom reported doing more cooking at home and dining out less (Flanagan, et al., 2021). Food safety will be impacted by alteration in eating and food preparation behaviours. COVID-19 is not currently thought to be foodborne (World Health Organization, 2020). It is important to emphasise, however, that preliminary data indicate that the source was most likely linked to food of (wild) animal origin (Wang, Anderson, Mackenzie, & Merson, 2020) and might represent a carrier of the virus (Duda-Chodak, Lukasiewicz, Zięć, Florkiewicz, & Filipiak-Florkiewicz, 2020). The novel coronal virus has changed people's attitudes toward food, whether it's through shopping, greater home cooking, or taking precautions while food shopping, meal delivery, or dining out.

Although food does not transmit viruses, coronavirus can contaminate food goods or packaging if a COVID-19 patient sneezed or coughed directly on to the food or packaging.

COVID-19 was discovered to persist for a long period of time from hours to days depending on the physical qualities of surfaces, for example, researchers was still able to observe viable virus after a maximum of 72 hours on plastic or stainless-steel surfaces. Whereas, the virus could survive on a cardboard surface up to 24 hours, and copper surface up to 4 hours (N., Bushmaker, Karesh, & Munster, 2014). SARS-CoV-2 was discovered to persist on human epidermis up to 9 hours on human skin by (Hirose, et al., 2020). According to (Pung, et al., 2020), a cluster outbreak in Singapore was caused through physical contact and the sharing of meals during a conference. COVID-19 can be spread in theory by touching surfaces that contains the virus and then touching the nose, eyes, or mouth, although this does not represent the most common mode of transmission (CDC, 2020). The ability of COVID-19 to persist on lifeless surfaces and human epidermis emphasises the need of maintaining good hand hygiene and disinfecting surfaces on a regular basis. Shops and dining establishments have responded by implementing social distancing measures, cleaning and disinfecting contact surfaces on a regular basis, and supplying consumers with hand sanitizers and wipes (Hawthorne, 2020). COVID-19 shows to be stable at 4 degrees Celsius; however, it is heat sensitive and became inactive after 5 minutes when the incubation temperature was raised to 70 degrees Celsius (Chin, et al., 2020). As a result, COVID-19 is susceptible to typical cooking temperatures (for example, 70°C), emphasising the necessity of food safety and good hygiene practises such as not eating raw and not thoroughly cooked animal products, and washing and disinfecting of surfaces on a regular basis (World Health Organization, 2020).

COVID-19 has had a modest influence on consumer food safety knowledge, attitudes, and practises. What impact has the pandemic had on consumers' risk perceptions and food safety practises? During the pandemic, 2 studies narrowing down on consumer perceptions of food and food safety knowledge were published. While the pandemic is

happening in the Arab region, (Faour-Klingbeil, T., A., Jemn, & Todd, 2021) carried out a research studying the public perception of food and non-food associated illness risks. (Lebanon, Jordan and Tunisia). Among all the respondents, 70% (n = 1074) were worried about the danger of COVID-19 spreading through food. Up to 27% of respondents were extremely anxious about touching contaminated surfaces when shopping for food, and 34% were extremely concerned about being infected by others. COVID-19 was proven to have a considerable positive impact on residents' food safety knowledge and behaviour in China. Consumers tend to eat out less during pandemics and food service closures, according to studies. Food services were authorised to operate under tight food safety, cleanliness, and COVID-19 regulations during the recovery phase (Lim, 2020). Customers were permitted to attend hospitality establishments, but no research had been done to look into their food safety practices when dining out. Exploring consumer views and potential changes in food safety habits at home, while shopping, and when eating out could help researchers better understand how the public reacts to external crisis like the novel corona virus pandemic. The aim of this research is to investigate the COVID-19 safety awareness of food service industry customers in Malaysia, to examine the correlation between COVID-19 safety knowledge and attitude/practices of food service industry customers in Malaysia and finally to compare the COVID-19 safety policy development for food industry between Malaysia and China.

1.2. Problem Statement

With the Covid-19 pandemic, people are always at risk of being infected. Among them, food is the basis for our survival, and diet is the means of survival that we repeat every day. We cannot go to the cinema or school, but we can't skip eating and buying food.

How much do Malaysians know about food safety, especially during the COVID-19 period, how to reduce the risk of infection caused by food purchases, and whether there is a correlation between the amount of food safety knowledge reserves and people's attitudes/practices when going out safely.

During the COVID-19 period, what are the Malaysian government's epidemic prevention measures for the food service industry? What is China's epidemic prevention measures in this regard, and which measures have a better epidemic prevention effect? Is there any government management experience that I can learn from?

As of the date of writing, no published research can give accurate answers to the above questions. This research mainly focuses on the above questions, hoping to get accurate answers.

1.3. Objectives

(1) To investigate the COVID-19 safety awareness of food service industry customers in Malaysia

(2) To examine the correlation between COVID-19 safety knowledge and attitude/practices of food service industry customers in Malaysia

(3) To compare the COVID-19 safety policy development for food industry between Malaysia and China

1.4. Scope of Study

In this study, the target is to investigate the food safety awareness and practices of Malaysians during Covid-19. It is based on questionnaire regarding the knowledge and actual practices pf the respondent regarding to food safety and how to avoid infecting Covid-19. Literature review regarding the management approaches of Malaysia and China is done to compare the policy development.

The questionnaire consists of 3 categories which focuses on individual information, their food safety knowledge, and finally their attitude or practices during the pandemic.

1.5. Thesis Outline

This research project follows 5 outlines as shown below

Chapter 1 Introduction

The first chapter focuses on what is the main research objective and scope. It acts as guideline and give a rough idea regarding to the main research purpose.

Chapter 2 Literature Review

The second chapter focused on the research in interests, going through articles, journals and past studies which is related to the current study objectives. Additionally, this chapter could provide a direction on how and why there's a need in the research.

Chapter 3 Methodology

Methodology is a method of gathering information and data in order to arrive at the final outcome of a thesis. This study is based on a questionnaire and suggestions from earlier research.

Chapter 4 Results and Discussions

After finished collecting data, this chapter verifies the accuracy of all the data that were collected and analyse whether or not it answers the objectives.

Chapter 5 Conclusion and limitations

In this chapter, the summary of the thesis' final result and answer to the objectives could be found. The limitations that were faced throughout the research were also listed in here.

CHAPTER 2: LITERATURE REVIEW

2.1. Malaysian Government Approach in Managing Covid-19 Pandemic

Malaysians' daily life changed dramatically overnight as a result of the Malaysia Movement Control Order (MCO) restrictions imposed on March 18, 2020 to combat the Covid-19 pandemic outbreak. The MCO will be extended unless the daily infection cases decreased, therefore limitations on acquiring supplies have been tightened even more.

In Klang Valley, Malaysia's most seriously affected urban area, the MCO is tightly implemented (Choo, 2020). The government is also conscious of the virus's impact on the hospitality business, both in terms of public health and economics. Restaurants and cafes around the country were hit hard by word of the lockdown, with strict regulations prohibiting guests from dining in. According to the National Security Council (2020), such establishments may still be permitted to operate, but solely for the purpose of fulfilling takeaway orders or deliveries. Restaurants have been struck particularly severely by the global pandemic. People prefer to stay at home rather than eat out, therefore empty dining premises are the new norm. Many restaurants have begun to provide delivery services in order to provide financial support to their kitchen and service personnel throughout the crisis. Restaurants are also only permitted to provide takeout services and are not permitted to serve customers on-site.

As the cases of Covid-19 dropped after the first MCO, the government had issued a Conditional Movement Control Order (CMCO) starting form 4 May 2020 and allowing different sectors to reopen as the situation recovers. On 10 June 2020, Malaysia had entered its Recovery Movement Control Order (RMCO) and more sectors are allowed to reopen. Unfortunately, as the daily cases skyrocketed after the 2020 Sabah State Election, the government had to issued different phases of MCO depending on the covid-19 condition in each states, switching between MCO, CMCO, RMCO, Enhanced Movement Control Order (EMCO), and semi-EMCO (National Security Council, 2020).

In summary, the standard operating procedures (SOP) announced by the National Security Council for food serving industry throughout different phases of MCO could be summarized as below:

- Restricted operating hours
- Record employees' body temperature upon arrival
- Educate employees on personal hygiene at the premise
- Arrange tables with two meters distances between one another to ensure social distancing (or forbidding dine in during stricter phases of MCO)
- To record clearly the number of customers the premise receives each day by taking their full names, identification card number, phone number and their body temperature (This is later replaced by ensuring each individuals check-in using the "MySejahtera" application as they enter the premise)
- To make the usage of alcohol-based hand sanitisers compulsory or to provide an area for hand wash.
- To limit the number of customers at a time depending on size of the premise
- To ensure 1-meter social distance between customers and use floor tape marking as guide for customers when queueing.
- All individuals must wear face masks when entering the premise.

(National Security Council, 2020)

2.2. China's approach in Managing Covid-19

On December 29, 2019, a hospital in Wuhan, China reported a cluster of pneumonia cases of unknown cause. On January 10, 2020, China successfully isolated the novel-coronavirus (Covid-19) and shared its genetic information with the world. On January 30, the WHO declared the novel coronavirus pneumonia outbreak a public health emergency of international concern. As of 24:00 on February 7, the epidemic has spread to 31 provinces (cities, autonomous regions) and Hong Kong, Macao and Taiwan regions across the country, as well as 24 countries including the United States, Canada, the United Kingdom, France, and Japan. The virus has strong human-to-human transmission, and it spreads rapidly (Chinese Center for Disease Control and Prevention, 2020).

In view of the spreading power and pathogenic characteristics of Covid-19, after comprehensive research and judgment, recommendations for the implementation of containment strategies in Wuhan and parts of Hubei have been put forward. On 23 January 2020, the Wuhan Covid-19 Disease Prevention and Control Headquarters issued Announcement No. 1, announcing the temporary lockdown of the city, and immediately implemented a series of non-medical intervention measures for the containment strategy nationwide. The lockdown order was issued in the middle of the night. In the early morning of January 23, the Wuhan Epidemic Prevention and Control Headquarters issued a notice that the city's public buses, subways, ferries, and long-distance passenger transportation will be suspended from 10:00 that day; citizens should not leave Wuhan without special reasons. Airports and train stations were temporarily closed. The WHO said that such lockdown of a large city with a population of 11 million is "unprecedented" in the history of public health (Chinese Center for Disease Control and Prevention, 2020).

On January 27, the State Council issued a plan for the joint prevention and control mechanism of the Covid-19 epidemic to encourage people to stay at home, reduce visits to relatives and friends during the Spring Festival, and avoid visit public places or other

crowded places as much as possible. Many provinces and cities urgently cancelled group dinners during the Spring Festival before the holiday, calling on the whole society to reduce or not organize group dinners. Counties and townships canceled traditional Chinese New Year folk cultural activities, such as temple fairs, flower fairs, fireworks performance, etc., cultural and tourist facilities, and most theaters were closed for business (Wang, Horby, & Hayden, 2020).

During the most severe period of China's Covid-19 pandemic, although the food industry was not ordered to close down, due to policy requirements, gatherings were not allowed, no customers entered the restaurant at all, and China's food serving industry was completely paralyzed.

In addition, other types of enterprises across the country have delayed resuming work. In general, Hubei Province requires that the resumption of work be delayed no earlier than February 14. Other 23 provinces in China have also issued notices requesting that the resumption of work be delayed no earlier than February 9. Tianjin and Sichuan have not yet clarified the time for the resumption of work. Beijing and other regions have issued recommendations to encourage companies to implement flexible working hours, shift to and from get off work during peak hours, and implement online office where conditions permit. The Ministry of Education issued a notice on January 27, deciding to postpone the start of the 2020 spring semester. Students returning home during the Spring Festival will not return to school in advance without the school’s approval. Thirty provinces, including Hubei, have issued notices of postponement of the opening of local colleges, primary and secondary schools, and kindergartens. At that period of time, the specific time for the resumption is yet to be determined (Wang, Horby, & Hayden, 2020).

Under the strong measures of the Chinese authorities, the number of newly diagnosed patients has dropped sharply. According to China's official data, since the lockdown started on January 23, the number of new confirmed cases in Hubei Province reached a

peak in mid-February and then gradually declined. Starting in mid-March, the number of new cases fell to single digits.

The Hubei authorities announced on March 24 that from 0:00 on April 8, Wuhan City lifted the control measures, and Wuhan officially opened the city after 76 days. The re-opening of the most severely affected areas also marked the overall improvement of the pandemic in China. There have been no new cases in most areas. The work from home measure has also been lifted. The food serving industry has resumed normal operations, but the daily disinfection work of restaurants has been requested to strengthen (Wang, Horby, & Hayden, 2020).

2.3. Potential Transmission of Covid-19 through Food Products

Covid-19 has been observed to survive on lifeless surface such as stainless steel for 2 days and plastic for around 3 days, at a temperature of 21–23°C and a relative humidity of 40%; however, the virus was not discovered after 4 and 24 hours, respectively, on copper and cardboard (N., Bushmaker, Karesh, & Munster, 2014). Because of Covid-19's capability to survive on surfaces for an extended period of time, the finding revealed that the virus can be transferred via contact surfaces.

Direct contact on food packaging or containers that contains Covid-19 virus, according to the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) (2020), could transmit COVID-19 to the mouth, nose, or eyes. However, because COVID-19 has a low survival rate on these surfaces, this is not considered the primary route of disease transmission. A prior study found that food products could be a possible vector for respiratory viruses like SARS-CoV-1 and influenza to spread (Klein, 2004). Similarly, the chances of UK consumers contracting COVID-19 from food intake or handling of materials that come into contact with food or packaging were rated as zero to extremely low. Covid-19 contains a genome that is very similar to SARS-CoV, a virus that has not been verified could spread through food transmission. The intake of foods originating from infected animals, or the consumption of cross-contaminated foods has been postulated as a possible source of Covid-19 foodborne transmission (Oakenfull & and Wilson, 2020).

2.4. Food Delivery Service

WHO had recommended that during an outbreak, people are advised to have as little interaction as possible; consequently, online meal deliveries are preferable. These allow clients and salespeople to be physically separated. At this point, proper food handling procedures information must also be disseminated. Because food packaging and paper currency are trade between customers and sellers, adequate safeguards are required to reduce the risk of viral transmission. Some of the third-party carrier companies have also begun offering contactless home delivery. Food packaging could be removed after reading the important labels and information. Appropriate use of disinfectants and gloves can reduce the chance of the novel corona virus transmission (FAO; WHO, 2020).

CHAPTER 3: METHODOLOGY

The overall methodology contains all the procedure in order to achieve the objectives of the study.

3.1. Introduction

The methodology chapter describes steps to be used to study a research problem and the reason for the use of specific steps or techniques used to identify, select, process, and analyze information applied to understanding the problem, in which enabling the reader to critically evaluate the research's overall validity and reliability. This chapter aimed to answering two main topics, which are what was the steps of data collection, and what was the process of data analyzation. The way of writing is to be direct and precise and always written in the past tense (Kallet, 2004). In this project, the data was collected using questionnaire that links to achieve the objectives.

3.2. Research Flow Chart

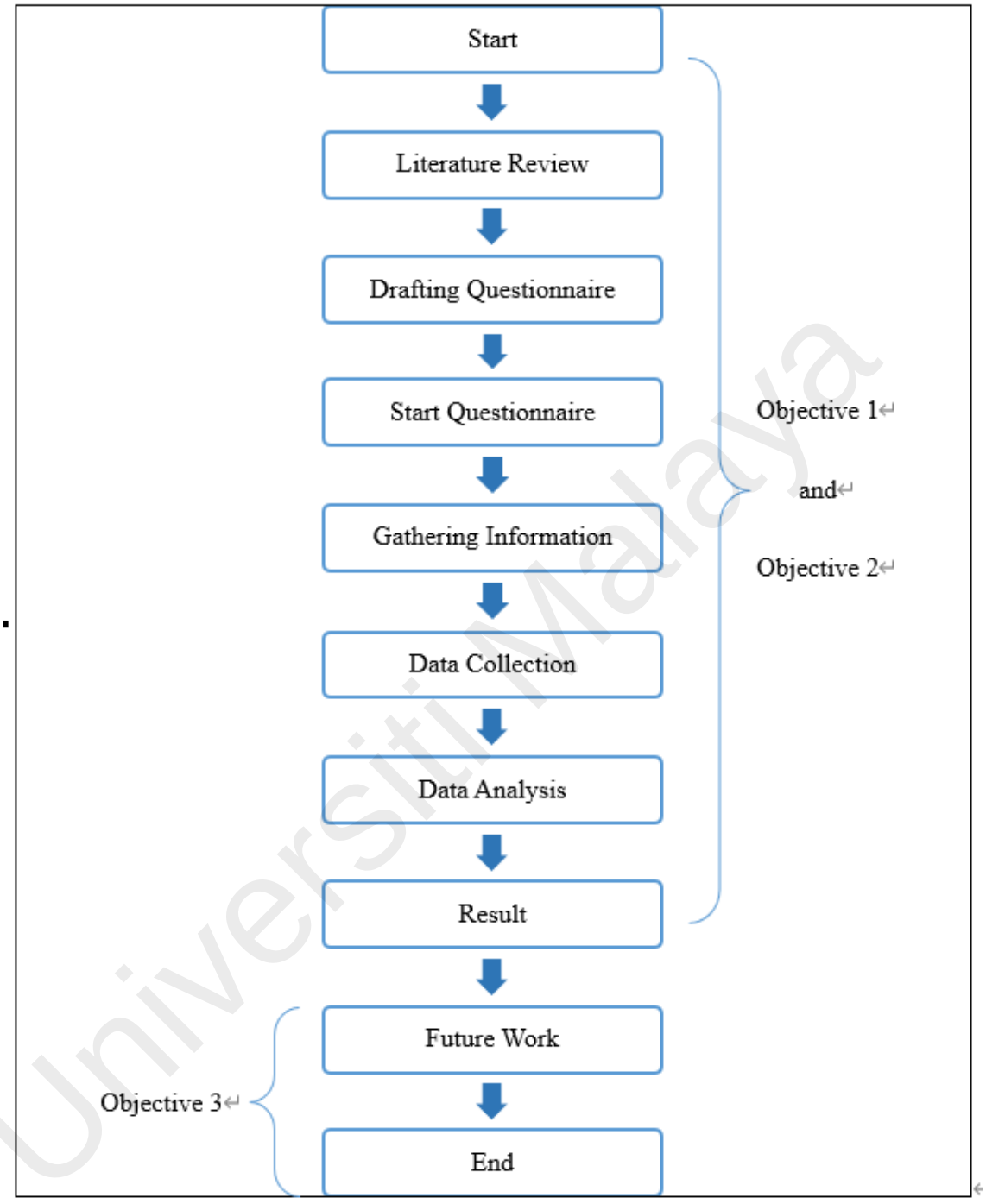

Figure 1: Research Flow Chart

3.3. Questionnaire Design

A survey that is posted online was designed to identify how the COVID-19 pandemic has had an impact on Southeast Asian consumers' food safety knowledge, attitudes, and behaviours, as well as factors influencing their eating out behaviour. The questionnaire was modified from Soon et. Al (2021), and Faour-Klingbeil et al. (2021). The questionnaire was separated into 3 sections (i) personal information (3 questions); (ii) Public's knowledge of food hygiene and safety during the epidemic prevention period (11 questions); and (iii) Practices of food service industry customers in Malaysia (10 questions). Food safety knowledge is the comprehension of facts about food safety gained via experience or education, whereas food safety attitude is a sentiment or view about food safety, and food safety practice is the action or application of safe food handling. (Cambridge Dictionary, 2019).

Eleven items were used to measure food safety knowledge. Each correct answer received 1 score, while an incorrect or uncertain answer received 0 score. A high score showed a high degree of knowledge in food safety. The total score varied from 0 to 11, where the higher the score indicating the higher the level of expertise in food safety. Food safety attitudes were tested using ten items and were scored using Likert scale of 1–5 where 1 = strongly disagree and 5 = strongly agree. The food safety attitude and practices questions include (i) shopping; (ii) cleaning and sanitising and (iii) eating out/ordering takeaways categories. The online survey was hosted on Google Forms (https://workspace.google.com/forms) platform.

3.4. Subject recruitment

Subjects were mostly recruited using convenience sampling of general consumers and the snowball sampling technique, in which initial respondents recommended new subjects for the study. Convenience and snowball sampling approaches were used to enhance the number of responses in studies testing consumers' food safety knowledge and trust (Bearth, Cousin, & Siegrist, 2014). All of the responses were made anonymous. Participants were given an explanation of the study and were informed that their participation was completely voluntary before beginning the survey. Participants could leave the study at any time by closing or quitting the survey browser. Participants were informed that their information would be kept private, and no personal information was collected. By pressing the 'Proceed' button in the survey, participants indicated their willingness to participate.

3.5. Statistical Analysis

For the data collected by the questionnaire, the first research objective uses Excel to perform statistical calculations, and then uses Word to draw an intuitive table. The second research objective mainly involves correlation analysis, using SPSS.

3.5.1. Enter questions and data

Descriptive analysis, which helps describe, show or summarize data points in a constructive way.

3.5.2. Reliability analysis

The reliability of the survey mostly depends on Alpha (Cronbach's α coefficient), where $\alpha<0.7$ means that the reliability of the designed survey is unreliable, $0.7<\alpha<0.8$ shows that the survey has a certain degree of reliability, and finally $0.8<\alpha<0.9$ means that the questionnaire is reliable the reliability is very good.

3.5.3. Validity analysis and factor analysis

Validity analysis is to test whether the questions of the questionnaire are consistent with the purpose of the research. Generally divided into content validity and structural validity. Content validity refers to the suitability and logical conformity of the item and the measured variable (we generally refer to or quote previous questionnaires when designing the questionnaire, so content validity There is no problem, of course, if you design a brand-new questionnaire, you need to focus on analyzing the validity of the content). Structural validity refers to the ability of items to measure the measured variables. Empirical analysis generally focuses on the analysis of structural validity. Exploratory factor analysis (EFA) can be used to prove the structural validity of the scale.

The results of the validity analysis mainly depend on the KMO value and sig. (significance). If KMO>0.7, it means that there is a certain connection between the independent variables in the questionnaire, and the questionnaire is valid; sig.<0.001 means that the questionnaire is consistent with the questionnaire. Factor analysis, the next step can be factor analysis (EFA). Find the inflection point of the gravel map, that is, find the critical point of the steep and gentle slopes in the map (factors with significantly larger eigenvalues). There are several points before flattening, indicating that the questionnaire can be divided into several factors (Of course, we need to combine the eigenvalues, total

variance explanation, etc. to investigate). In the data of this study, it is shown that the questionnaire can be divided into two factors.

3.5.4. Correlation analysis

Correlation is to test the relationship between the independent variable and the dependent variable (the value range of the correlation coefficient is between -1 and 1, the greater the absolute value, the closer the correlation between the variables).

CHAPTER 4: RESULT AND DISCUSSION

4.1. Personal Information

4.1.1. Gender

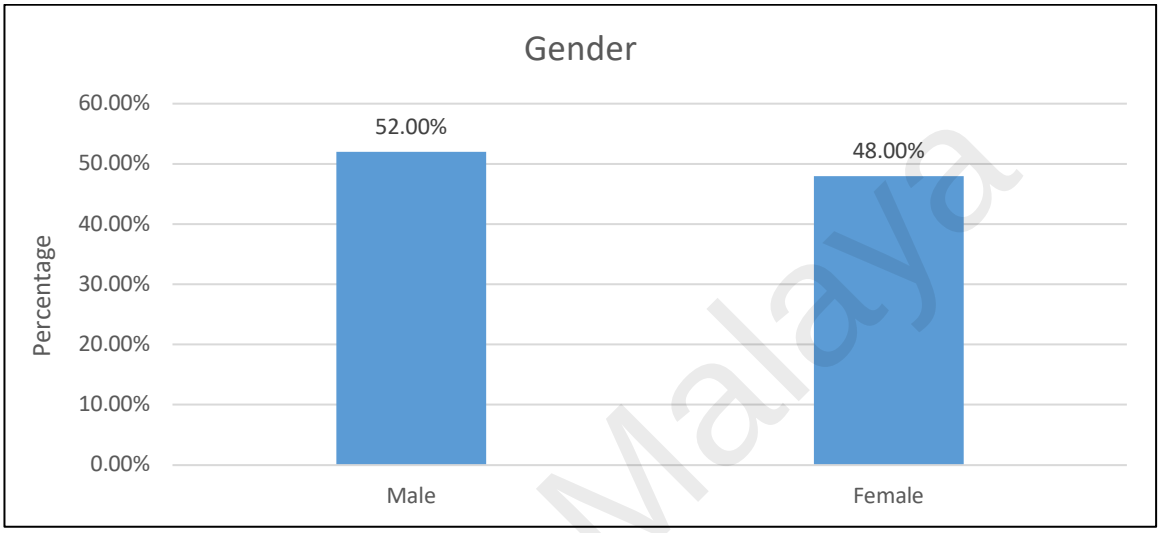

Figure 2: Respondent Gender Ratio

There are a total of 200 respondents in this survey. Among the 200 respondents, 104 are males and 96 are female as shown in figure 2. This means that there are 52% of male respondents and 48% of female respondents. It is not based on target gender but mostly the ratio of male respondents is slightly higher compared to the female respondents. During future studies, the targeted respondent could be increased to obtain a higher accuracy and more reliable data.

4.1.2. Age

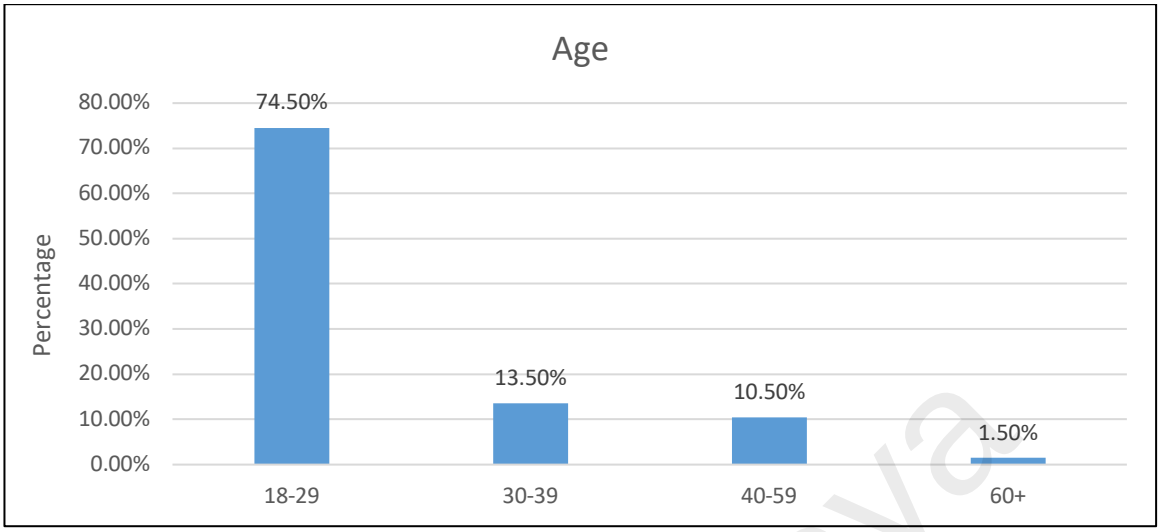

Figure 3: Respondent Age Range

The age is divided according to different range. Figure 3 is summarised the age range. In this study, the age group is divided into 4 categories, starting from 18-29 years-old to over 60 years-old. The result based on percentage for 18-29 years-old is 74.5%, 30-39 years-old is 13.5%, 40-59 years-old is 10.5% and finally over 60 years-old is 1.5%. Based on figure 3, it is suggested that majority of the respondents has the age between 18-29 years old. The younger respondents also coincide with most of the participants had at least undergraduate educational level as shown in the next section.

4.1.3. Educational Level

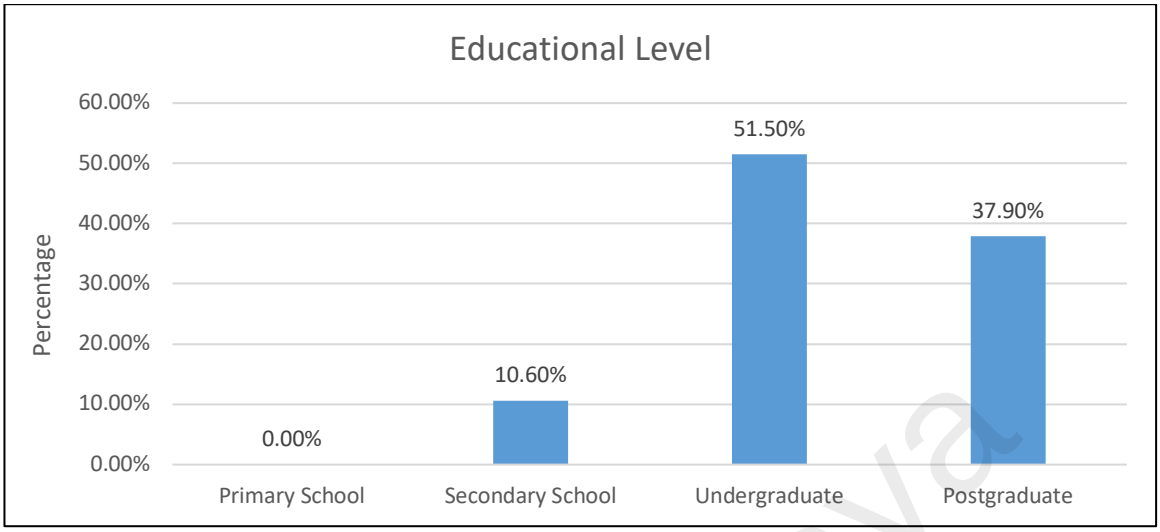

Figure 4: Respondent Education Level

The educational level is segregated into 4 categories, namely primary school, secondary school, undergraduate and postgraduate. From the graph above we can see that most of the respondents have completed their studies in tertiary level education. Only 10.6% of the respondents have only secondary school educational level and none of the respondents have only primary school educational level.

4.2. Food Safety Knowledge

Table 1: Food Safety Knowledge of Respondents

Item	Questions	True	Uncertain	False
(1)	Can Covid-19 be spread through food or packaging?	**(77.5%)**	16.5%)	(6.0%)
(2)	During the epidemic period, you must wear a medical mask when you go shopping, and make sure that the mask covers your mouth, nose and chin.	**(90.5%)**	46.5%)	(3.0%)
(3)	During the epidemic, choosing a ventilated environment can reduce the risk of being infected with Covid-19?	**(82.0%)**	(13.5%)	(4.5%)
(4)	Maintaining a safety distance of 1 meter can effectively reduce infectivity.	**(81.5%)**	(12.0%)	(6.5%)
(5)	Stay away from people who are coughing or sneezing.	**(87.0%)**	(11.5%)	(1.5%)
(6)	When dining out, you should sit in and out, not close together.	**(78.5%)**	(21.5%)	0
(7)	Cooking (> 70◦C) will destroy the Covid-19 virus	**(54.5%)**	(33.0%)	(12.5%)
(8)	Washing hands frequently, rubbing with soap for 20 seconds and rinsing with water can effectively reduce the risk of transmission.	**(90.5%)**	(9.5%)	0
(9)	Fruits and vegetables should be washed carefully before eating or cooking.	**(81.5%)**	(12.5%)	(6.0%)
(10)	If you feel uncomfortable, even if you only have mild symptoms such as cough, headache, mild fever, etc., you should stay at home and self-isolate.	**(80.5%)**	(16.5%)	(3%)
(11)	If you have fever, cough and difficulty breathing, seek medical attention immediately	**(86.5%)**	(10.5%)	(3%)

In the food safety knowledge test, 0 points are awarded for incorrect or uncertain choices, and 1 point for correct choices. There are 11 questions in total, and the full score for each person is 11 points. The average score of the respondents was 8.92 (11.00 = highest score). 92.5% of the interviewed people scored ⩾6, and 10% answered all

questions about food safety knowledge correctly. In the question, 90.5% of people know that during the epidemic period, washing hands frequently, rubbing with soap for 20 seconds and washing with water, going shopping, must wear medical masks, and ensuring that the masks cover their mouth, nose and chin can be effective. To reduce the risk of transmission.

Items 2 and 8 received a large number of correct answers (90.5%), showing the high level of awareness among Malaysians and the importance of wearing masks when shopping and washing hands frequently. Most respondents (87.0%) also agreed to stay away from people who are coughing or sneezing. Respondents (81.5%) agreed that keeping a distance of 1m from others helps reduce the risk of spreading COVID-19. Respondents (86.5%) also believed that they would seek medical attention immediately if they developed fever, cough, and difficulty breathing. The above data can reflect that most of the interviewees have a high level of knowledge of security protection and have sufficient knowledge reserves for coping with COVID-19. However, slightly more than half (54.5%) are not sure or know that cooking at > 70 ◦ C can destroy the coronavirus. (Table 2)

4.3. SPSS Results

In order to study the correlation between COVID-19 safety knowledge and attitudes/practices of Malaysian food service customers, I used Likert scale to set the questionnaire, which was divided into five levels: 1- strongly disagree, 2- disagree, 3- uncertain, 4- agree and 5- strongly agree. Likert scale is also more reliable. SPSS is used to analyze the questionnaire to judge its correlation and feasibility.

4.3.1. Test Results

Displays descending eigenvalues associated with components or factors and the number of components or factors. Used in principal component analysis and factor analysis to intuitively assess which components or factors account for most of the variability in data.

The ideal pattern in a lithograph is a steep curve, followed by a curve, followed by a flat or horizontal line. Retain those components or factors in a steep curve that precede the first point at which the flat line trend begins. In practice, it may be difficult to interpret the lithograph. Use knowledge of the data and results derived from other component selection methods to help determine the number of important components or factors.

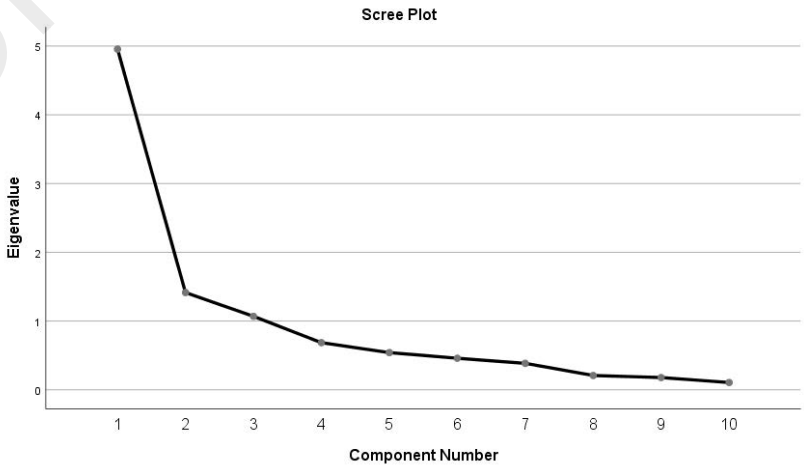

Figure 5: Lithograph

Factor analysis was carried out on 10 different characteristics of respondents. Figure 5 shows that six of these factors account for most of the variability, as the line begins to straighten after factor 6. The remaining factors account for only a small fraction of the variability and may not be significant.

First, we reduced the dimension of the data. From the Lithograph in figure 5, we can see that, it tends to be flat from the sixth point, that is, there are two points in front of it that belong to the steep slope. It can be preliminarily indicated that the design factors of this questionnaire can be divided into two factors.

Table 2: Total Variance Explained

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.955	49.547	49.547	4.955	49.547	49.547
2	1.415	14.145	63.692	1.415	14.145	63.692
3	1.069	10.690	74.382	1.069	10.690	74.382
4	.685	6.854	81.236			
5	.541	5.405	86.641			
6	.459	4.590	91.231			
7	.384	3.845	95.075			
8	.208	2.083	97.158			
9	.178	1.782	98.940			
10	.106	1.060	100.000			

Extraction Method: Principal Component Analysis.

The Total Variance Explained mainly looks at the cumulative percentage terms. As shown in the table 2, the total explanatory power (cumulative percentage) of the two factors in the whole questionnaire reached 74.382% (total explanatory ability >50%) indicates that the screened factors have good representativeness, and the explanatory ability of questionnaire factors is relatively good.

Table 3: KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.766
Bartlett's Test of Sphericity	Approx. Chi-Square	1218.086
	df	45
	Sig.	.000

In addition, the results of validity analysis were mainly determined by KMO value, as shown in table 3, KMO = 0.766 (>0.7) indicates that there is a certain relationship between the independent variables designed in the questionnaire and the questionnaire is valid. Sig. = 0.000 (<0.001) indicated that the questionnaire was qualified for factor analysis, and factor analysis (EFA) could be carried out in the next step.

The evaluation system of questionnaire is reflected in the form of scale, and the rationality of compilation determines the availability and credibility of the evaluation results. The reliability analysis of questionnaire includes internal reliability analysis and external reliability analysis. Intrinsic reliability focuses on whether a set of evaluation items measure the same concept and whether there is a high intrinsic consistency among these items. The higher the degree of consistency, the more meaningful the evaluation project will be, and the more reliable the evaluation results will be. External reliability refers to whether the evaluation results are consistent when repeated surveys are carried out on the same batch of respondents at different times. If the two evaluation results are highly correlated, it indicates that the concept and content of the project are clear, so the evaluation results are credible. There are many methods of reliability analysis, including Alpha reliability. The reliability coefficients are calculated by different methods, and then analyzed.

Table 4: Reliability Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.882	.873	10

At present, Alpha reliability coefficient method is most commonly used. Generally, we mainly consider whether there is a high internal consistency between the internal reliability items of the scale. Through the analysis, as shown in table 4, the coefficient is 0.882 ($0.8< \alpha <0.9$), which proves that the scale is reliable, stable and reliable.

4.4 Correlation between safety knowledge and attitudes/practices

Table 5: Descriptive Statistics

Descriptive Statistics

	N	Range	Mean	Std. Deviation	Variance	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Knowledge	200	4.00	4.5000	.73860	.546	8.335	.342
Attitude/Practices	200	2.40	4.6640	.50555	.256	3.841	.342
Valid N (listwise)	200						

Practices of food service industry customers during Covid-19 in Malaysia was 4.664 (5.00 = highest score). Among those questions, respondents generally said they were positive about food safety during the pandemic. Over half of the respondents strongly agree that they should choose packaged food in market shopping (68.2 %) and using water and soap to wash hands before and after eating (78.8 %). They also choose to avoid crowded restaurants and eat at home (84.8 %). This is shown in their self-reported practices, with 68.2 % always washing their hands before eating in restaurants. More than 80.3% of respondents always choose restaurants with good ventilations and obey social distancing rules when eating out.

Table 6: ANOVA

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Knowledge	Between Groups	1.272	3	.424	.774	.510
	Within Groups	107.288	196	.547		
	Total	108.560	199			
Attitude/ Practices	Between Groups	3.138	3	1.046	4.296	.006
	Within Groups	47.723	196	.243		
	Total	50.861	199			

As shown in table 6, there was no significant difference in gender, age and education level of food safety knowledge (Sig= 0.510), but significant difference in

behavior and attitude (Sig=0.006). In terms of age, there was no significant difference in the behavior and attitude of patients of different ages in treating diseases, but there was a significant difference in the knowledge of food safety. In terms of education, there was no significant difference in the knowledge of health and safety or attitude to epidemic behavior among patients of different educational levels.

Table 7: Correlation analysis

Correlations

		Attitude	Practices
Knowledge	Pearson Correlation	1	.769**
	Sig. (2-tailed)		.000
	N	200	200
Attitude/Practices	Pearson Correlation	.769**	1
	Sig. (2-tailed)	.000	
	N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

We explore the correlation between two variables, as shown in table 7, the results significantly between the two is significant, (sig = 0.796), and that knowledge of health and safety has the ability to influence people's attitude and behavior in response to the outbreak, Pearson correlation is 0.796 > 0, explains the relationship between the two is to display a positive role, the higher people's health and safety knowledge, they are able to show more hygienic attitudes and behaviors towards the epidemic.

Because it's a relationship between two variables we don't do regression analysis. There is no corresponding collinearity problem and autocorrelation problem, and this part will not be described in this paper.

4.5 COVID-19 Safety Policy Development for Food Industry between Malaysia and China

In December 2019, a new type of coronavirus pneumonia occurred in Wuhan, Hubei, and it spread quickly across the country. Covid-19 broke out in China. At the beginning of the epidemic, it was also the most difficult period for China to face the global pandemic of new crown pneumonia. China adopted a strict containment strategy and implemented a series of core measures around this strategic point, including social mobilization, strengthen isolation of covid patient and close contact tracking management, lockdown epidemic areas and traffic control to reduce the flow of people, social distancing, environmental sanitation measures, and personal protection, etc., with a view to controlling the epidemic in limited areas such as Wuhan as soon as possible to avoid spreading of the disease. During this period, China's food service industry was no exception, and it also complied with the containment strategy promulgated by the state.

The containment strategy, originally proposed by the WHO in 2005, as a guiding strategy for the prevention and control of influenza pandemics, refers to the use of medical and non-medical (regional lockdowns, school suspensions) in the early stages of new infectious diseases and within a limited geographic area. And work stoppages, etc.) intervention strategies and measures to quickly stop the spread of the epidemic (World Health Organization, 2020) (Liqun & Min, 2011)

In the food service industry in Malaysia, measures to control COVID-19 include that everyone must wear masks, restrict business hours, record body temperature when employees arrive, conduct personal hygiene education for employees, and arrange the distance between dining tables to be two meters to ensure social distance (Or dine-in is absolutely forbidden at the stricter stage of MCO).

By filling in the full name, ID number, phone number and body temperature, clearly record the number of customers that the venue receives each day (later replaced by ensuring that everyone uses the "MySejahtera" app to sign in when entering)

Mandatory use of alcohol-based hand sanitizer or provide a hand-washing area, limit the number of customers at a time according to the size of the venue, ensure that customers maintain a social distance of 1 meter, and use floor tape marks as a guide when customers line up. All personnel must wear masks when entering the premises.

4.6 Discussion

This research studied about the food safety knowledge, attitudes and practices of Malaysian consumers during COVID-19. Results show that the respondents showed a good food safety knowledge level 92.5% of the respondents of ⩾6 points, shows that with the Malaysian economy further modernization, people to the deep understanding of the western medicine also make people aware of the pathogenic bacteria and microbe, thus increasing the protection of its own food safety. The finding of this study echoes with previous studies by Odeyemi et al. (2019) in Malaysia. Questionnaire fill in the person's behavior consistent with the actual situation in Malaysia, the massive media coverage at home and abroad has made people realized that the pathogenicity and spread of the virus is so strong. The government need to adopt strict control measures to increase the strict protection to defend the outbreak. In a restaurant, the implementation of strict measures, for example restricted seating capacity, social distancing measures, disinfection of tables, chairs and cutlery before the next group of diners are seated. Other ACTS of the government is also helping to further control the outbreak in Malaysia, such as by the ministry of health of Malaysia's official web portal close, crowded or involved in close contact and provide transparency and the latest information of space, such measures could help to improve the consciousness of consumers, to avoid congestion in indoor environment. The self-coercive behavior also further helps people to adopt reasonable behavior to reduce communication behavior in public places. People also have a good performance when they have COVID-19 symptoms. More than 90 percent of people know that they should take measures to isolate themselves and seek medical care if they have symptoms, which can reduce the spread of the disease to some extent and protect themselves while protecting others.

Respondents also shown positive food safety attitudes and were more likely to practice hand hygiene, sanitizing surfaces and following social distancing measures

regularly. In Malaysia, customers are being asked to shop separately, and in some supermarkets, wipes are being offered to sterilize trolleys and basket handles. More than 80% of respondents often wash before eating fruits, vegetables, and hands, and using hand sanitizers disinfected, but we believe that the small-scale interview, when we wash hands and didn't have enough time to wash your hands to keep the bacteria, and other hand sanitizer sterilization effect is occurred in function when the time is long enough soap to wash your hands. This has led to other claims that hand washing doesn't work. In Indonesia and Malaysia, this is a cultural norm, especially in the Malay tradition of eating with their hands. Such eating habits and hand hygiene are common among consumers. While there is no evidence linking food or food packaging to the spread of COVID-19. Respondents mostly agreed that they carefully remove any food packaging and wipe down food cans. The pandemic had caused terror and concern among consumers (Shah, et al., 2020), which has the potential to prompt consumers to take further precautions to minimize cross-contamination.

We believe that males and females do not have significant difference in the aspect of health and safety knowledge, this is because both the health consciousness is very high, and in terms of behavior and attitude of the males show more positive probably because males show less of intimacy when compared with females, while females' intimacy to a certain extent are more likely to lead to the spread of the epidemic. And old people show a greater understanding of health knowledge, it also conforms to the common sense with the increase of age for a healthy life will increase gradually. But the degree of knowledge accumulation of older people in response to new outbreaks don't appear to have higher because young people show a faster rate of acquiring new knowledge. However, there is no significant difference in education. In our opinion, education does not reflect a person's knowledge of health knowledge and attitude towards epidemic prevention, and this factor cannot be a reason for neglecting epidemic prevention.

Therefore, the government agencies in order to increase the epidemic prevention and control, should be increased for the health and safety knowledge popularization, the banners and posters in more areas for health and safety knowledge popularization, and try to increase more propaganda film, for individual, learn more about this part of knowledge help to increase them to the attention of the outbreak, in order to protect themselves, people should be more active and initiative to learn more knowledge.

The core measures of China's implementation of the containment strategy include the blockade of epidemic areas, strengthening of case isolation and close contact management, reducing the movement of people (traffic control and restrictions on travel, etc.), increasing interpersonal distance (stopping large-scale activities, delaying the opening of schools, not allowing gatherings, etc.) Factories postpone the resumption of work) and promote personal prevention by the public (Zhonghua, Xing Bing, & Za, 2020). In order to cooperate with the effective implementation of the containment strategy, China upgraded its emergency response level. At the national level, a leading group for epidemic work has been established, and a joint prevention and control work mechanism has been established. The National Health Commission has included COVID-19 in the management of Category B infectious diseases and Category A, and included it in the management of international health quarantine infectious diseases. 31 provinces in mainland China have successively initiated first-level responses to public health emergencies (Chinese Center for Disease Control and Prevention, 2020) (Zhonghua, Xing Bing, & Za, 2020).

China has also done well in publicity, education and risk communication. Guide the public to prevent and relieve social anxiety and panic (World Health Organization, 2020). Governments at all levels, medical and health institutions, and non-governmental organizations across the country have actively carried out publicity and education activities, popularized prevention and control knowledge, responded to social concerns,

and mobilized the entire society to actively participate in prevention and control work. Governments at all levels use news conferences, expert interviews, media reports, webcasts, online data broadcasts, source control and other methods to timely inform the public of epidemic information and progress in prevention and control, communicate risks, and alleviate panic. At different stages of the development of the epidemic, health education strategies should be adjusted in time through the analysis of social public psychological changes and key information.

During the COVID-19 period, there was no good or bad evaluation on the comparative analysis of Malaysia and China's safety policies for the food service industry. The food service industry is just an industry, but the epidemic is regional or even global. The specific measures for the food service industry in each country are also formulated and changed by the country based on its own epidemic data. Only in terms of the effectiveness of epidemic prevention, the containment strategy adopted by China is more effective. Through the containment strategy, first control the epidemic in a limited area to prevent further spread and spread to other areas, prevent the collapse of the national medical system, and then use the power of the whole country to support the epidemic area, thereby reducing the number of new cases. Until it achieves zero growth. There is no absolute perfection in the world, and the containment policy is the same. It can well control the spread of the epidemic, but it requires the sacrifice of the people in the epidemic area, because they are enclosed in the most dangerous area, and their risk of infection is very high.

The Wuhan city lockdown order was issued in the early morning of January 23, 2020.01, and it took effect at ten in the morning. The mayor of Wuhan said that as many as 5 million people (the population of Wuhan was about 11 million when the city was closed) left Wuhan overnight. Those who left may be going home because of the Lunar New Year, or they may have learned about the upcoming city closure. In this article, we do not study

the psychological analysis of human nature, therefore, the spirit of "sacrificing oneself for the greater good" will not be discussed.

CHAPTER 5: CONCLUSIONS AND LIMITATIONS

5.1. Conclusion

The average score of Malaysian respondents was 8.92 (11 .00 = highest score), indicating that consumers have a high level of food safety knowledge and sufficient knowledge reserves to effectively prevent COVID-19 infection.

Through spss data analysis, the Alpha coefficient is 0.882, which proves that the data sheet is reliable, stable and reliable. The results of the validity analysis are mainly determined by the KMO value and Sig. Testing the data of KMO=0.766 (KMO>0.7) shows that there is a certain relationship between the independent variables of the questionnaire design, and the questionnaire is valid. Sig.<0.001 means that the questionnaire meets the factor analysis conditions and can be used for factor analysis (EFA). According to the total variance explanation chart, the total explanatory power (cumulative percentage) of the two factors in the entire questionnaire reached 74.382% (total explanatory power>50%), indicating that the selected factors are relatively representative and better for the questionnaire factors.

We explored the correlation between the two variables (knowledge and attitude/practice), and the result is significant (sig = 0.796), that is, health and safety knowledge affects people's attitudes and response capabilities to the epidemic, and the correlation is 0.796> 0, indicating The relationship between the two is positive. The higher people's health and safety knowledge, the more hygienic attitudes and behaviors they can show to the epidemic.

During the COVID-19 period, for Malaysia and China, the two countries did not have a good or bad evaluation of the safety policy of the catering service industry, but in terms of the epidemic prevention effect, the containment strategy adopted by China played a better role in preventing the epidemic.

5.2. Limitations

There are several limitations to limiting this research.

The age groups who answered the questionnaire were not evenly distributed. Since the research was conducted online, this may have overlooked the groups that have not released the Internet. For example, among the respondents in this questionnaire, the older the level, the fewer people who participated in filling out the questionnaire, only 1.5% over the age of 60. In addition, the questionnaire was filled out by my classmates and their family groups, so it may also be the reason why the age is concentrated in the 18-29 years old. In the future, it is necessary to increase the number of target respondents in order to obtain higher accuracy and a more reliable data for this research.

The research is based on cross-sectional data and only represents the personal attitudes and practices of Malaysian residents. Since the research is a self-reported answer, qualitative research in the future will be valuable to comply with consumer food safety practices. There is a possibility that customers would give an optimistic answer in the self-reported answer. Food safety knowledge, attitudes, and practices that may change over time (for example, during and after the pandemic) should be measured separately in the future.

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