

Investigate Hotpot Restaurant Consumers' Habits Change During the Outbreak Using Factor Analysis Approach

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Abstract

According to early 2020, the impact of the COVID epidemic and people's rapid awareness. The government has established projects and measures to prevent the spread of COVID-19 had a significant effect on the restaurant business that is unable to open fully, resulting in a significant drop in sales, particularly for suki or shabu buffet restaurants that normally have to "cook" and "eat" in the restaurant, directly affecting customer food consumption behavior and causing the shabu business to stall, requiring the operator to adjust. Therefore, the government projects and adaptations for dealing with such situations are essential to the consumer behavior of customers. The purpose of this research was to investigate consumer behavior regarding shabu restaurants at Mae Fah Luang University. There were several influences on consumer behavior during the COVID-19 issue. The collected data was examined by using descriptive statistics and exploratory factor analysis (EFA). Yamane's sample size total was 388 people, which was used to identify a student group from Mae Fah Luang University for this study to complete the questionnaire. The result showed the factor analysis distinguished by the Kaiser Meyer-Olkin (KMO) method was 0.916. The 16 criteria are divided into four components and the four components consist of service staff, quality of ingredients (pork, beef, chicken, seafood, food, and vegetables), location, and measures to avoid COVID-19. The resulting awareness of social distancing and the use of partition COVID-19 between other customers are most important to support the elements in deciding whether to use hotpot service restaurants or not.

Keywords

Hotpot Restaurants, Shabu, Customer Behavior, COVID-19, Exploratory Factor Analysis

1. Introduction

Food is a part of evolution over time. Food had been thought of as something intended to fill people's stomachs and as a source of energy, but nowadays, it is something else that is more interesting. There are many restaurants in densely populated community areas that focus on the process of cooking, taste, cleanliness, and safety (Food Intelligence Center 2017). Shabu (Hotpot) is one of the most unique and popular restaurants because it is a food that has been cooked using the characteristics of boiling, making it suitable for people who appreciate health and being simple to prepare food; it has developed into a business that is still growing today (Siam Commercial Bank 2020). Shabu-shabu restaurants are increasingly more popular in Thailand. It is continuously expanding and growing to meet the growing demands of consumers. Many Shabu-shabu restaurants have appeared in various communities. Both are found in shopping malls, commercial buildings, or even general pedestrian markets that offer various services, such as a traditional shabu-shabu store, contemporary shabu, pay-as-you-go buffets, often known as "All You Can Eat" or fast

food, which are served on the production line. (Tanchaikul 2016). According to statistics from Euromonitor, restaurant businesses in Thailand still continuously generate revenue growth of 4% a year from 2013 to 2018. The advancement from the same duration is 2.4% higher than the moderate private consumption, which directs the market share to grow in 2018 to around roughly 880 billion baht. Therefore, there is a prediction that the food service industry will continue to increase up to 4-5% in 2019 and 2020 (Syamananda 2019).

The Food Institute Report under the Ministry of Industry reported that in 2020, Thailand's food industry stood at 981,430 million baht, a decrease of 7.39% from 2019 (Suwannat 2021). And Krungthai Compass Research Center reported that the food ingredients business accounts for about 21% of overall restaurant revenue. By assessing that the food raw material business will lose income according to the restaurant business by approximately 22,500-45,000 million baht during the second half of 2021, the food raw material business that is most affected is the meat group which accounts for 50% of the total cost of raw materials. It was estimated that there would be an estimated damage value of 11,300-22,500 million baht, followed by vegetables and fruits, which is difficult to maintain. It has been expected that the damage will be around 6,000-12,200 million baht. The next is the rice and cereal group; the damage has been estimated at approximately 2,300-4,500 million baht, including the damage value to both the restaurant business and the food ingredient business expected damage 130,000-259,600 million baht. In the second half of 2021 (Thansettakit 2021), businesses are facing economic difficulties due to the COVID-19 Crisis and the disease's management policies. Many businesses have had to shut their doors, and many entrepreneurs need to improve the way they work to keep afloat. Other business that has been impacted is the food industry, particularly shabu restaurants, where customers cannot sit and eat. The consumer will need to cook on the stove with a pot. Obviously, the impact of this crisis is larger for this type of restaurant than for any others. As soon as the state's lockdown policy announced, the sales dropped to practically zero (Siam Commercial Bank 2020).

Concerning the spread of COVID-19 has contributed to significant shifts in consumer behavior and choices. This is an essential factor for any food business. It is possible that a familiar restaurant environment will not return ultimately. The current trend of the restaurant industry has rapidly shifted to the "New Normal" trend (Gamjorn 2020), forcing consumers to be more careful when spending. According to the lockdown policy, there is a decrease in the number of customers. The average per capita expenditure, which directly affects the income of SME restaurants (Gamjorn 2020), will be most affected. Especially the hotpot shop, because many things affect entrepreneurs continuously. This research aims to observe how the COVID-19 outbreak is affecting Hotpot restaurants around the university campus, how entrepreneurs responded and adapted to the change, and how to recover the business as quickly as possible in unexpected situations by focusing on the stability of the factor model. The factors that are measured are quality, service and activity, which are likely to be important factors in consumer behavior and are still at the point where there are not many studies. An essential parameter in the EFA sample size is the measure of the saturation level of the factors by the measured variables (Guadagnoli and Velicer 2018).

2. Literature Review

2.1 Shabu (Hotpot) Restaurant

Definition and Type

Shabu is a Chinese-influenced Japanese hotpot dish. Eiraku-cho Suehiro Honten, an Osaka restaurant, established the current type of shabu-shabu in Japan in 1952 (Bouwer 2019). In shabu-shabu, thinly sliced beef is briefly submerged in a pot of seasoned broth. This is the perfect length of time to prepare it. Before being consumed, the beef has been coated in a sauce, and vegetables are frequently included in the shabu. Types of shabu have two types, for the first is thinly sliced beef submerged in boiling soup in this meat Shabu-Shabu. Beef, pork, chicken, and seafood are the meats used in shabu. The second is Meatless shabu, a recipe that does not include meat, such as beef, hog, or chicken because some people are vegetarians or vegans who cannot consume meat. Replace most veggies boiled in broth, such as radishes, carrots, and lettuce, with this vegetable shabu. When treated like meat and immediately spun around in the pot, sliced to the size of the meat; at the same time, the carrots and radishes are peeled and thinly sliced (Somera 2020).

Restaurants During COVID-19 Pandemic

Following the outbreak of COVID-19, consumers' purchase behaviors have moved substantially across industries. This includes the food service industry, one of the hardest hits by the pandemic (Yang et al. 2020). Since the outbreak, consumers have concentrated on unhealthy locations and provide contactless dining options rather than the taste or the surroundings (Jung et al. 2021). Also, most people's lifestyles and behaviors involving food procurement and consumption have changed. Home cooking and online grocery shopping have increased, and so has food takeaway and delivery, according to the research (Bogevska et al. 2021). During the outbreak, people bought more fruits and vegetables (Filimonau et al. 2021). During the coronavirus lockdown, more people choose to cook at home rather than eat out (Ronto et al. 2021). That indicates people trust homemade food more than restaurant food for its safety because they are aware of the dangers of restaurant food and services (Kim and Lee 2020). Although the COVID-19 outbreak has been nearly three years, people are still aware of the significant psychological concerns. People continue to use preventive measures to avoid viral infection when eating outside. These factors can have a long-term impact on customer behavior. Since the COVID-19 pandemic, dining out and dining out trends have shifted (Zhong et al. 2021).

The Government Project Support Shabu Restaurants During COVID-19 Pandemic

The COVID-19 pandemic shock saw the Thai economy contract due to a decline in external demand, affecting trade and tourism, supply chain disruptions, and weakening domestic consumption (Thailand Economic Monitor n.d. 2021). Thai government has projects under a work plan to promote and increase household and private sector expenditure, including private sector investment and normalizing consumer activity. There have been many projects under this work plan: (i) "Khon la krueng" (50-50 Co-Payment) Scheme for registered individuals receiving 50 percent payment from the government when they spend in registered retail stores. (ii) the "Rao Tiew Duay Kan" campaign (We Travel Together), where the government has been subsidizing travel services, including accommodation (Development Bank 2021) and (iii) "Rao Cha Na" (We Win), the aim is to help poor people who have been impacted by the coronavirus pandemic (Parpart 2021).

2.2 Customer Behavior on Restaurant Consumption During COVID-19

Coronavirus disease is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Tsang et al. 2020). It became clear that infection spread efficiently from person to person via droplets released by infected people when they cough, sneeze or talk. Fever and difficulty breathing are the most prevalent indications. It is also possible to have fatigue, sore throat, vomiting, diarrhea, and a loss of taste or smell. The signs and symptoms of SARS-CoV-2 infection can be moderate or severe, usually occurring 2 to 14 days after contact with the virus. The best thing to do is protect yourself and others from infection by keeping at least 1 meter between you and others, wearing a well-fitted mask, and washing your hands or using an alcohol-based rub regularly. Get vaccinated when it's your turn (World Health Organization 2020). Coronavirus disease is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Tsang et al. 2020). It became clear that infection spread efficiently from person to person via droplets released by infected people when they cough, sneeze or talk. Fever and difficulty breathing are the most prevalent indications. It is also possible to have fatigue, sore throat, vomiting, diarrhea, and a loss of taste or smell. The signs and symptoms of SARS-CoV-2 infection can be moderate or severe, usually occurring 2 to 14 days after contact with the virus. The best thing to do is to protect yourself and others from infection by keeping at least 1 meter between you and others, wearing a well-fitted mask, washing your hands or using an alcohol-based rub regularly, and getting vaccinated when it's your turn (World Health Organization 2020).

The COVID-19 pandemic is fast affecting consumer attitudes and behaviors in an environment where purchase patterns are already shifting (Warathonpaiboon 2014). Before COVID-19, most people's eating patterns were dictated by personal choices based on money or social standing. People tend to consume expensive items, and most are wasteful, wanting to eat everything they want. Due to Thailand's economy has not yet tanked, most people still have enough money to eat whatever they want and go out to eat because it is more convenient than eating at home. Most individuals choose fast food because it is quick, saves time, and is appropriate for today's competitive environment. Most working individuals are quite popular because they have to rush to work.

Consumers' attitudes and behaviors are rapidly changing due to the COVID-19 outbreak in a situation where consumption patterns are already changing due to demographic changes, such as an increase in single-person households and dual-income couples. The online distribution trend has been strengthened, and its impact has been amplified by COVID-19. These changes also resulted in different consumption behaviors depending on the degree of concern for COVID-19 by generation. It turns consumers' behavioral changes into new opportunities, focusing on

accelerating a new ‘contactless’ lifestyle, which will provide managerial implications for the food industry’s response strategies with the theoretical significance and in practice (Lee and Kim 2021). Consumers adopt unusual and more rational behaviors: buy basic necessities; save more to deal with possible difficult situations; place more importance on nutrition, health, food quality characteristics, price, psychological and socio-demographic characteristics; have purchasing and consumption intentions based on their cultural background and prefer to adopt planned behaviors. Observing events during the COVID-19 pandemic allows us to illustrate the evolution of consumption behavior to suggest some development prospects, particularly regarding sustainability and social marketing (Chikhi 2021).

Risk perception associated with COVID-19 may influence people’s food purchase and consumption behaviors. For example, people may try to minimize the risk of being infected by increasing their use of delivery services, purchasing more packaged food, which is seen as being more hygienic (Bracale and Vaccaro 2020), buying food with a longer shelf-life (and thus purchasing less fresh food), in order to limit their shopping trips, or eating more healthy food in an attempt to boost their immune system (Rodríguez-Pérez C et al. 2020). Additionally, people’s concern about possible food shortages may have influenced purchasing behavior, e.g., stocking up on certain foods (Bracale and Vaccaro 2020).

3. Methodology

Figure 1 shows the summarize of research methodology of this work. The detail of this work is explain in the following section.

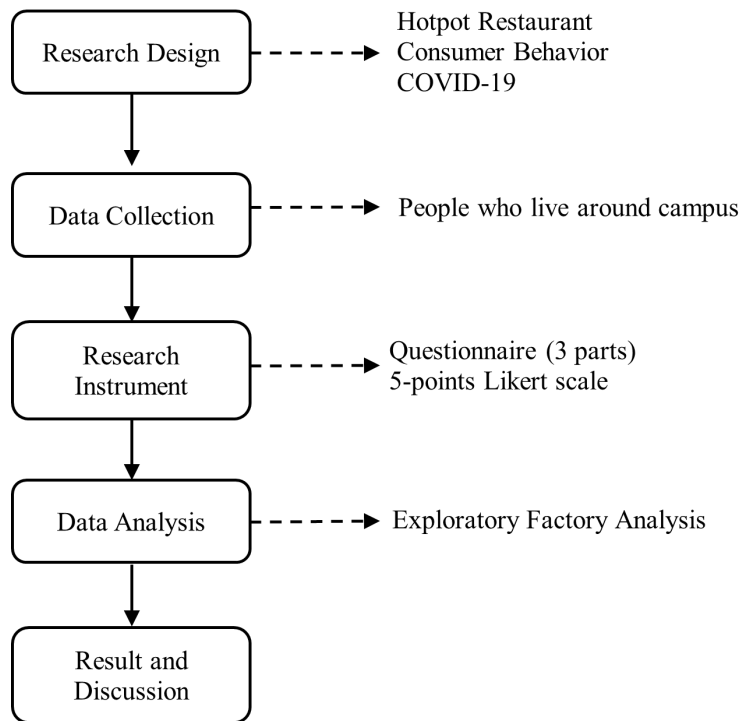


Figure 1. Research Methodology

3.1 Research design

The study aims to discover how COVID-19 influences people’s lives and affects undergraduate students at Mae Fah Luang University’s shabu consumption behavior. The study concentrated on dietary patterns that have changed since the COVID-19 virus outbreak, including the influence of shabu-shabu restaurants’ security requirements on consumer decision-making of Mae Fah Luang University’s undergraduate students.

3.2 Data Collection

The study area scope surrounding the Mae Fah Luang University, Chiang Rai Province located at border region of Thailand. The study content scope shabu consumption behavior of Mae Fah Luang University's undergraduate students. In this research, the target population is bachelor's degree students at Mae Fah Luang University in the academic year 2021, second semester. We will use the population that completes the questionnaire to find our sample size, which the result of survey participants is 388, from an example of a 12,810 population of bachelor's degree students at Mae Fah Luang University when informed about the impact of COVID-19 on consumption behavior.

3.3 Research Instrument and Measurements

The research uses a three-part questionnaire to collect data. Part 1 includes general information like gender, age, and year; Part 2 includes shabu restaurant selection criteria; and Part 3 includes section satisfaction with shabu service. The Likert Scale was used in the questionnaire. The Likert Scale is commonly used to assess level of satisfaction. Rating scale a 5-point Likert Scale, particularly 5; (Most), 4; (More), 3; (Moderate), 2; (Low), and 1; (Very Low), is used in higher and stronger degrees of measurement and is flexible to answer. The Likert scale is always used in market research and surveys to discover people.

3.4 Data Analysis

After the researchers collected data from the questionnaire on the shabu consumption in Mae Fah Luang University from selected shabu restaurants by the researchers. The researchers will use the program SPSS (standing for Statistical Package for the Social Sciences) to analyze the data because the package of programs for manipulating, analyzing, and presenting data; the package is widely used in the social and behavioral sciences (Landau & Everitt, 2004). The researchers used exploratory factor analysis (EFA) to analyze the data, and explore how many factors and factors are correlated or not. EFA shows the values of Kaiser-Meyer-Olkin (KMO) telling about this sample size was enough or not, Bartlett's telling about correlated among of the factors are sufficient, eigenvalues and scree plot which the benchmark KMO is more than 0.5, Bartlett's test of sphericity is less than 0.05 and eigenvalues is more than 1. If a factor has an eigenvalue lower than 1 this factor was removed from the factor list (Hidayat et al. 2018 and Zeynivandnezhad et al. 2019).

4. Results and Discussion

The chapter offers a systematic presentation of data obtained from the shabu consumption behavior at Mae Fah Luang University survey for factors that are more relevant to consumer behavior. We will explore the four most popular shabu restaurants at Mae Fah Luang University (i) Samurai Shabu (ii) Okay Shabu (iii) Long chim Shabu (iiii) At home Shabu and we will determine as the results of EFA methods which factor is the most affect student's consumption behavior.

4.1 Criteria of The Shabu Restaurants

The presentation in this section is the result of a general study of mean and standard deviation regarding the use of shabu restaurant selection criteria. We will use it to survey the preferences of Mae Fah Luang University students. Due to the large number of shabu restaurants in the university area. It is interesting and popular among students. For example, which shabu restaurant is the most popular among students, frequently of service access and including the period of time to use the shabu service.

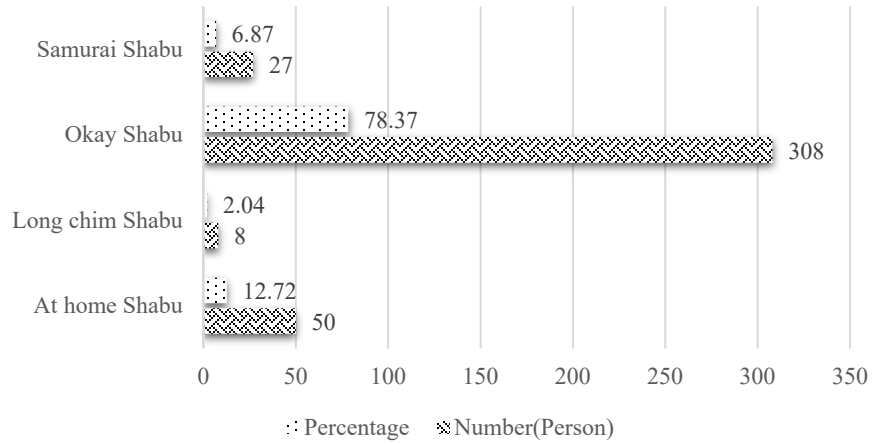


Figure 2. Number and percentage of respondents classified by Shabu Restaurants

Figure 2 presents customer’s distribution based on shabu restaurants. We can see from figure 2, Okay Shabu belongs to the group with the most response rate, 78.37%, followed by At Home Shabu and Samurai Shabu with a response rate of 12.72% respectively 6.87% response rate.

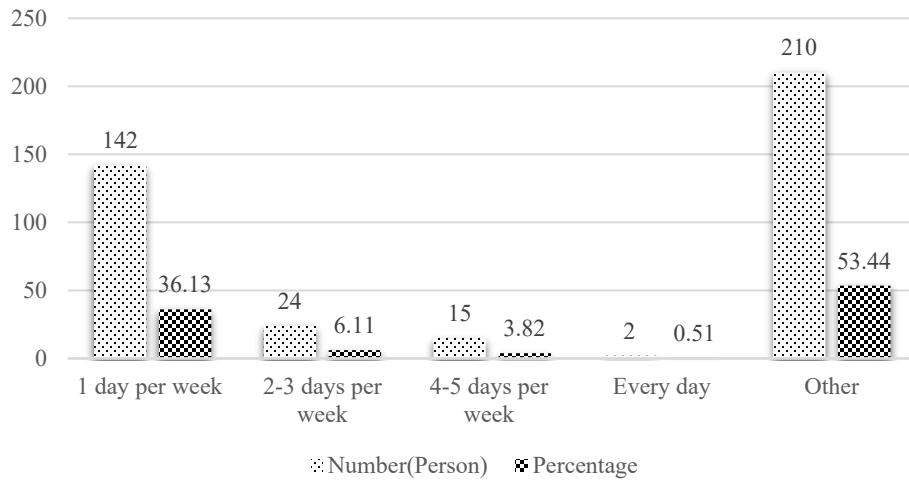


Figure 3. Number and percentage of respondents classified by the period during which you use Shabu's service

The results obtained in figure 3, present the customer's distribution based on the period during which you use shabu's service. We can see from figure 3, That other belongs to the group with the most response rate, 53.44%, followed by 1 day per week and 2-3 days per week with a response rate of 36.13% respectively 6.11% response rate.

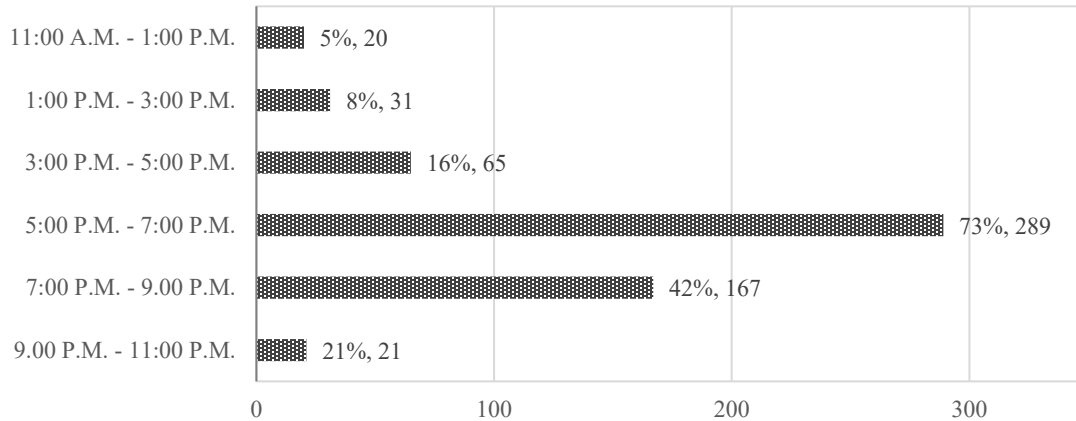


Figure 4. Number and percentage of respondents classified by Frequently of service access

The results obtained in figure 4, present the customer's distribution based on Frequently of service access. We can see from figure 3, that 5.00 P.M. - 7.00 P.M. belongs to the group with the most response rate, 72.8%, followed by 7.00 P.M. - 9.00 P.M. and 3.00 P.M. - 5.00 P.M. with a response rate of 42.1% respectively 16.4% response rate.

4.2 Reliability Testing

This chapter explains the questionnaire reliability test based on Cronbach's Alpha that evaluated the quality of the favorable data for implementing Exploratory Factor Analysis. There are 16 questions of part 3 in total that can evaluate the reliability of these questionnaires, including service staff 3 questions, Quality of ingredients (Pork, Beef, Chicken, Seafood, Food and Vegetables) 7 questions, Location 2 questions and Measures to prevent COVID-19 4 question. Specifically, to collect the data sample of 20 respondents selected for calculation on the shabu consumption behavior in Mae Fah Luang University to estimate Cronbach's Alpha the value should not be less than 0.7 or more than that meaning the questionnaire was acceptable (Taber 2018). In this research, the reliability of value was measured by the SPSS Program.

4.3 Exploratory Factor Analysis

The KMO test is used to determine the strength of the partial correlation (how the variables' components explain one another) between the variables. From the study, the sample size was 388. The result of the examination indicated that the material was suitable for analysis (KMO = 0.916). The result was Chi-square = 3809.424, df = 120 with a significant statistical test that at 0.000 indicates that the correlation matrix isn't an identity matrix at all (Table 1). Therefore, reject the null hypothesis and accept the alternative hypothesis, as statistically significant interrelationships exist between variables. It also indicates that the correlation coefficients between all variables are appropriate for EFA.

Table 1. The Result of the KMO and Bartlett's Test

Cronbach's Alpha	0.924	Number of Items
		16
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.916
Bartlett's Test of Sphericity	Approx. Chi Square	3809.424
	df	120
	Sig.	0.000

Considering the Scree Plot chart (Figure 5) that plots each component's eigenvalues in descending order. This is based on rapidly decreasing Eigenvalues, starting from component 4 to component 16. Eigenvalues greater than 1 contain only 3 components, so the maximum number of elements that can be set is 3 components.

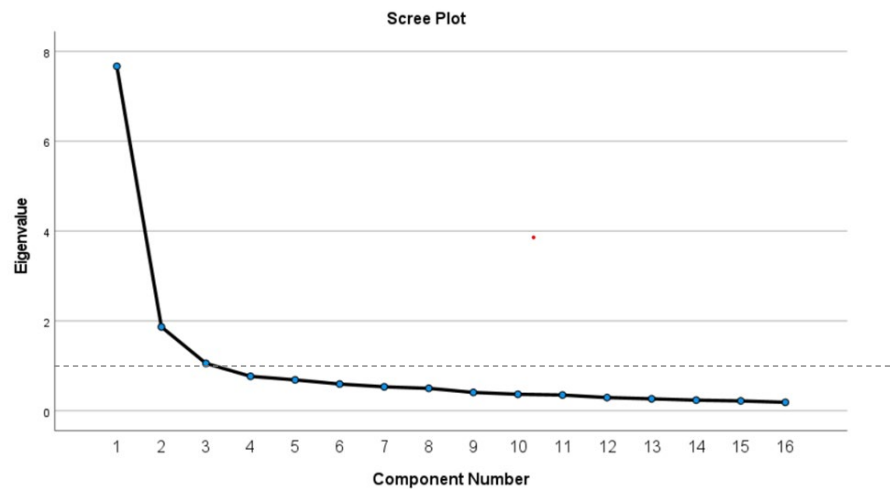


Figure 5. Scree Plot

In Table 2, the most essential components from the impact of COVID-19 on shabu Consumption Behavior in Mae Fah Luang University elements are shown in the Total Variance and the Rotated Component Matrix. The importance of certain aspects for customer behavior during the shabu service decision-making process is demonstrated by the loading factor. Out of the entire variance, the eigenvalues represent the variance defined by that particular factor. We can observe from the commonality column that our first component accounts for 66.193 percent of the total variation. Factors are grouped together using the Rotated Component Matrix and Total Variance. This indicates that all of these characteristics are just as essential as shabu restaurant customer behavior. The most crucial aspects are presented. As a consequence of the findings, the loading factors demonstrated the significance of a specific element for customer behavior during the shabu service decision-making process.

In the consumer behavior process, service staff, quality of ingredients (pork, beef, chicken, seafood, food and vegetables), location, and measures to avoid COVID-19 are more significant. As shown in Table 2, the findings suggest that during the service decision-making process, social distancing and use of partition COVID-19 between others, 0.881, were the most relevant factors. Restricting access to the service, such as a limit on tables and chairs, is 0.855, Quality of ingredients (Taste of soups) is 0.839, Service staff (Attentive and willing to serve) is 0.789, Service staff (There is staff throughout the service to help value) is 0.789, Service staff (There are staff throughout the service to help value) is 0.789, Service staff (There are staff throughout the service to help value) is 0.782, Service staff (There are staff give or answer questions that are relevant to the point) is 0.781. The number 0.789 appears to be the most essential factor that clients value when using their services. As a result, possessing a covid measure is a critical component in determining whether or not to eat at a shabu restaurant.

The results of Mae Fah Luang University student on the impact of COVID-19 on shabu customer behavior. Using a questionnaire for undergraduate students in years 1-6, they were able to learn about the students' satisfaction with the shabu restaurant several categories and offer the following suggestions: Provide at least a 1-meter separation between tables and seats in areas with seating or queuing, such as service points, food ordering, waiting to use the restroom, and payment locations. The seats may be spaced out. There should be at least 1 meter between you and the person you're walking with. To establish consumer confidence, restaurants and businesses that sell food and food ingredients should be aware of the importance of food hygiene and safety that has altered as a result of the COVID-19 situation. Consumer behavior during COVID-19 could lead to a decrease in revenue. Stores should plan promotions or sales campaigns based on the purchasing power of their customers.

Table 2. Dimensions of Customer Behavior

Variables	Factor Loading	Eigen Value	Rotation Sums of Squared Loading	
			% of Variance Explained	Cumulative % of Variance Explained
Quality of ingredients and Location.		7.669	28.622	28.622
Taste of soups	0.839			
Taste of sauce	0.758			
Always fulfill the ingredients	0.723			
Snack	0.712			
Freshness of ingredients	0.709			
Variety of ingredients	0.703			
Drinks are refillable	0.605			
Location	0.595			
Measurement to prevent COVID-19 and parking space		1.867	20.585	49.217
Social distancing and use partition COVID-19 between others	0.881			
Restricting access to the service such as limit of tables and chairs	0.855			
Consumer screening before entering the restaurant such as temperature measurement, wearing a mask	0.764			
Keeping the area clean	0.681			
Suitable and sufficient space for parking	0.520			
Service staff		1.055	16.976	66.193
Attentive and willing to serve	0.789			
There are staff throughout the service to help	0.782			
Give advice or answer questions that are relevant to the point	0.781			

5. Conclusion

The COVID-19 outbreak in the past caused both small and large businesses to adapt all the time, including shabu-type restaurants. To meet the changing lifestyles of consumers, this has resulted in consumer behavior regarding the safety of various types of restaurants, especially shabu-buffet restaurants. Operators may have to adjust to consumer behavior by increasing food delivery to adapt to the COVID-19 situation. But usually serving shabu food must be eaten at the restaurant. Therefore, delivery cannot meet the needs of both entrepreneurs and consumers as it should. Due to difficult delivery and had to change from buffet to set. It may make consumers feel not worth the price compared to eating at a buffet, causing restaurant operators to have more stringent measures against COVID-19 to build customer safety and confidence due to the impact of the COVID-19 situation causing consumers to focus on safety and hygiene measures as the main.

Consistent with the research results, it was found that consumers have placed great importance on the anti-COVID-19 measures of Hotpot restaurants in terms of social distancing and use partition COVID-19 between others, keeping the area clean, restricting access to the service such as limit of tables and chairs, consumer screening before entering the restaurant such as temperature measurement, wearing a mask, reducing the spread of infection. Therefore, consumers who choose to use the restaurant service must see if hotpot restaurants comply with the COVID-19 precautions. In regards to the quality of hotpot food, consumers also give importance and expectation in terms of raw materials and cleanliness, followed by the selection of Hotpot food, such as freshness, variety of raw materials, the taste of the sauce, dessert (ice cream, cake, french-fries) drink, and refillable (sparkling water, fruit juice, and ice). Summary of hotpot consumer behavior among Mae Fah Luang University students from the aforementioned research, which examined 388 customers and from the collection of research results, it was concluded that hotpot consumers in

the area of Mae Fah Luang University give priority to social distancing and use partition COVID-19 between others. The second is restricting access to the service, such as the limit of tables and chairs, because most consumers are concerned about the safety and are concerned about restaurant measures to reduce the risk of the COVID-19 epidemic. The third place is the quality of ingredients (pork, beef, chicken, seafood, food, and vegetable). Consumers are most interested in choosing to eat hotpot in terms of soups taste. As a result, restaurant management, in addition to the quality of food (ingredients), should be focused on preventive measures against COVID-19 such as seating arrangements (Social distancing and use partition COVID-19 between others), consumer screening before entering the restaurant (temperature measurement, wearing the mask) including the service of staff in giving advice. and maintaining the cleanliness of the store.

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