

**THE INFLUENCE OF ONLINE FOOD DELIVERY SERVICES USAGE
ON HEALTHY FOOD CHOICES AMONG COMMUNITY IN USMKK**

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**THE INFLUENCE OF ONLINE FOOD DELIVERY SERVICES USAGE
ON HEALTHY FOOD CHOICES AMONG COMMUNITY IN USMKK**

by

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**Dissertation submitted in partial fulfillment of the requirements for the
degree of Bachelor of Health Science (Honours) (Nutrition)**

JANUARY 2026

CERTIFICATE

This is to certify that the dissertation entitled “THE INFLUENCE OF ONLINE FOOD DELIVERY SERVICES USAGE ON HEALTHY FOOD CHOICES AMONG COMMUNITY IN USMKK” is the bona fide record of research work done by Ms. “NORLISHAFIQA BINTI YUSOFF” during the period from April 2025 to January 2026 under my supervision. I have read this dissertation, and in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for the degree of Bachelor of Health Science (Honours) (Nutrition).

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DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research, and promotional purposes.

.....

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Date:

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LIST OF SYMBOLS

α	Cronbach's Alpha
ρ	Spearman's Rho
p	Probability Value
n	Sample Size
SD	Standard Deviation
%	Percentage

LIST OF ABBREVIATIONS

AMOS	Analysis of Moment Structures
ANOVA	Analysis of Variance
CFA	Confirmatory Factor Analysis
COVID-19	Coronavirus Disease 2019
HREC	Human Research Ethics Committee
IQR	Interquartile Range
OFDS / OFD	Online Food Delivery Services
PPSG	School of Dental Sciences, USM
PPSK	School of Health Sciences, USM
PPSP	School of Medical Sciences, USM
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
USM	Universiti Sains Malaysia
USMKK	Universiti Sains Malaysia, Kampus kesihatan

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PENGARUH PENGGUNAAN PERKHIDMATAN PENGHANTARAN MAKANAN DALAM TALIAN TERHADAP PILIHAN MAKANAN SIHAT DALAM KOMUNITI DI USMKK

ABSTRAK

Penggunaan perkhidmatan penghantaran makanan dalam talian (OFDS) telah menjadi popular dalam kalangan komuniti universiti kerana ketersediaan dan kemudahannya. Pertumbuhan perkhidmatan ini mungkin mempengaruhi pilihan makanan yang sihat. Kajian ini bertujuan untuk menilai pengaruh penggunaan perkhidmatan penghantaran makanan dalam talian terhadap pilihan makanan sihat dalam kalangan komuniti di USMKK. Reka bentuk kajian keratan rentas deskriptif telah digunakan dari Ogos 2025 hingga Februari 2026. Kajian ini dijalankan kepada 372 responden, yang terdiri daripada komuniti USMKK, termasuk pensyarah, kakitangan, dan pelajar. Mereka dengan rela hati menjawab soal selidik dalam talian selepas memenuhi semua kriteria kemasukan dan pengecualian. Soal selidik ini mempunyai tiga bahagian: ciri demografi, penggunaan penghantaran makanan dalam talian, dan pilihan makanan yang sihat. Keputusan menunjukkan bahawa kemudahan adalah sebab utama orang ramai menggunakan OFDS, tetapi ramai responden mengatakan mereka menghadapi masalah mencari pilihan makanan yang sihat semasa memesan dalam talian. Analisis statistik mendedahkan hubungan yang signifikan antara penggunaan OFDS dan pilihan makanan yang sihat. Korelasi tersebut adalah korelasi positif yang lemah. Ini menunjukkan bahawa peningkatan penggunaan perkhidmatan penghantaran makanan dalam talian adalah berkaitan dengan pilihan makanan, yang membawa kepada tingkah laku pemakanan yang kurang sihat. Penemuan ini menggariskan kepentingan pendidikan pemakanan yang disasarkan dan peningkatan ketersediaan pilihan makanan yang lebih sihat di platform penghantaran makanan dalam talian untuk menggalakkan amalan pemakanan lebih sihat dalam komuniti universiti.

THE INFLUENCE OF ONLINE FOOD DELIVERY SERVICES USAGE ON HEALTHY FOOD CHOICES AMONG COMMUNITY IN USMKK

ABSTRACT

Online food delivery service (OFDS) usage has become popular among the university community due to its availability and convenience. The growth of these services may influence healthy food choices. This study aims to assess the influence of online food delivery service usage on healthy food choices among the community in USMKK. A descriptive cross-sectional study design was used from August 2025 to February 2026. The study was administered to 372 respondents, who comprised the USMKK community, including lecturers, staff, and students. They willingly answered the online questionnaire after meeting all inclusion and exclusion criteria. The questionnaire has three sections: demographic characteristics, online food delivery usage, and healthy food choices. The results showed that convenience was the primary reason people used OFDS; however, many respondents reported difficulty finding healthy food choices when ordering online. The statistical analysis revealed a significant association between OFDS usage and healthy food choices. The correlation was a weak positive correlation. This shows that the increased use of online food delivery services was related to food choices, which led to less healthy eating behaviours. These findings underscore the importance of targeted nutrition education and the increased availability of healthier food options on online food delivery platforms to promote healthier dietary practices within university communities

CHAPTER 1 INTRODUCTION

1.1 Background of Study

The changes in modern consumption habits and the emergence of diverse, time-saving, and housebound food choices during the COVID-19 outbreak have led online food delivery services (OFDS) usage to gain popularity and become important in recent years. Food delivery services and take-out orders have emerged as a crucial support system for restaurants, serving as a primary source of sustenance for consumers and a vital employment option for individuals facing economic hardship. There exist two categories of retailers that offer food delivery services. The first are retailers themselves (Yeo et al., 2016).

This category comprises fast food chains such as Pizza Hut, McDonald's, Domino's Pizza, Kentucky Fried Chicken, and so on. The second category is comprised of multiple restaurant intermediaries that provide delivery services for a large range of restaurants. Examples include Food Panda, Room Service, GrubHub, Eat24hours.com, Just-eat.com, Delivery.com, and more (Yeo et al., 2016). Numerous food delivery companies in Malaysia offer services through food delivery applications. Few examples are FoodPanda, Dahmakan, DeliverEat, and GrabFood (Pitchay et al., 2021). Data showed that the FoodPanda Malaysia application in the Google Play Store had been downloaded more than 10 million times. This indicates that when food delivery applications became available, people became more willing to accept them (Pitchay et al., 2021). We hypothesize that communities are more likely to use online food delivery services rather than walk into a restaurant.

This is because peer influence and environmental factors, like the availability of food options. Peer influence on behaviour has been well established in family, school, and neighbourhood social networks. The contagion effect of social media among adolescent youth serves as a medium to market behaviour change, disseminating messages that influence the

influencers towards healthful food choices (Chung et al., 2018). The current era is also characterised by a multitude of devices that facilitate connectivity, enabling consumers to order food online and have it delivered directly to their doorstep, thereby conserving both time and energy. Individuals can utilise applications on their mobile phones or electronic devices to streamline their daily activities, including food procurement.

Furthermore, healthy food choices are selecting foods that help contribute to physical well-being, boost metabolism, and lower the chances of getting long-term illnesses like diabetes, heart disease, and obesity. This usually involves eating more fruits, vegetables, whole grains, and lean proteins while cutting back on processed foods, sugar, and saturated fats. In a nationally representative panel survey of over 12,000 adults from Australia, Mujcic and Oswald showed that fruit and vegetable consumption predicted increases in happiness, life satisfaction, and well-being over two years. Similarly, using lagged analyses, White and colleagues showed that fruit and vegetable consumption predicted improvements in positive affect on the subsequent day (Wahl et al., 2017).

However, the increasing prevalence of OFDS usage has shaped urban eating, but the emergence of OFDS usage will cause challenges in maintaining healthy food choices in society. The most popular food outlets on the market-leading online food delivery service are unhealthy, and popular menu items are mostly discretionary foods, facilitating the purchase of foods of poor nutritional quality (Wang et al., 2021). A recent observational study conducted across 38 countries indicated that stay-at-home policies related to COVID-19, along with the psychological distress induced by the pandemic, were linked to a decrease in both the preparation and selection of healthier food options among adults.

Within university settings, including Universiti Sains Malaysia Kampus Kesihatan (USMKK), OFD services is becoming normalised in part of daily life due to tight academic

schedules, limited cooking facilities, and the appeal of quick, affordable meal options. For lecturers and staff in USMKK, due to time constraints in preparing meals for their families and the urgency to finish their tasks, they opt for the convenient solution of utilising online food delivery services for lunch. Nevertheless, the convenience of obtaining food through these platforms may result in alterations to dietary patterns, such as a rise in fast food consumption, inconsistent meal schedules, and a decline in the consumption of home-cooked or nutritious meals. This study aims to explore the influence of online food delivery services usage on healthy food choices among the community in USMKK.

1.2 Problem statement

The emergence of online food delivery services has profoundly transformed how individuals, especially the community in USMKK, obtain and consume food. At USM Kampus Kesihatan (USMKK), the convenience and accessibility of these services appear to be influencing shifts in eating patterns, food choices, and overall dietary practices. This is largely due to the abundance of food outlets and restaurants in proximity to USMKK, facilitating easy access to food through online delivery. Additionally, the delivery fees for the community are often more economical than dining out. While these platforms provide rapid and convenient meal options, they frequently encourage the consumption of high-calorie, low-nutrient foods, which may adversely affect the community's health. Despite the widespread use of food delivery applications, there is a scarcity of local research investigating their usage frequency, the types of food ordered, and the relationship between this behaviour and healthy food choices, as well as potential health risks such as obesity or dietary imbalances. This deficiency in data impedes the formulation of effective health promotion strategies specifically designed for the student demographic. Therefore, this study is important to investigate the influence of online

food delivery services usage on healthy food choices of the community in USMKK to better understand their implications and inform targeted public health interventions.

1.3 Research Questions

1. What are the frequency and patterns of online food delivery service usage among the community in USMKK?
2. What are the patterns of communities' healthy food choices through online food delivery services usage in the USMKK?
3. Is there any association between the influence of online food delivery services usage and communities' healthy food choices in USM Kubang Kerian?

1.4 Research Hypothesis

1.4.1 Null hypothesis

1. There is no significant association between the influence of online food delivery services usage and communities' healthy food choices in USM Kubang Kerian.

1.4.2 Alternative hypothesis

1. There is a significant association between the influence of online food delivery services usage and communities' healthy food choices in USM Kubang Kerian.

1.5 Study Objectives

1.5.1 General objectives

To investigate the influence of online food delivery services usage on the communities' healthy food choices at USM Kampus Kesihatan (USMKK).

1.5.2 Specific objectives

1. To determine the frequency and patterns of online food delivery service usage among the community in USMKK.
2. To determine the patterns of communities' healthy food choices through online food delivery services usage in the USMKK.
3. To examine the association between the influence of online food delivery services usage and communities' healthy food choices in USM Kubang Kerian.

1.6 Significance of the Study

The findings of this study will contribute greatly to the community, as healthy body weight and food choices play an important role in overall health. This research holds considerable importance as it investigates the increasing prevalence of online food delivery services usage and their effects on communities' healthy food choices at USMKK. Given the rising dependence on digital platforms for food procurement, especially among young adults, it is vital to comprehend how these services affect healthy food choices. The results may offer significant insights into the community's food selections, consumption frequency, and nutritional awareness when utilising delivery applications. Such information is crucial for health professionals, educators, and policymakers in crafting targeted strategies to encourage healthier eating practices within university settings. Furthermore, as USMKK prioritises health, the findings of this study can bolster campus-wide efforts to promote balanced diets and mitigate diet-related health concerns like obesity and nutritional imbalance. Ultimately, this research enriches the wider public health dialogue regarding the influence of contemporary food delivery trends on the health and lifestyle of youth. For researchers, this study will help to uncover critical areas in the topic of online food delivery services usage and their impact on healthy food choices that have yet to be discovered.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This chapter examines the current body of literature concerning online food delivery services usage and their influence on dietary habits. It addresses contemporary trends, usage behaviours, dietary practices, and particularly the significance of online food delivery services within university environments.

2.2 Overview of Online Food Delivery Services (OFDS) Usage

Online food delivery services, or known as OFDS, have spread widely throughout the world. It has influenced many people throughout the country with the convenience it provides. OFDS is a service that makes it easy for everyone to order food without going out to a restaurant. The fact that Statista projects the worldwide meal delivery market to reach over \$320 billion by 2029 shows how essential these services have grown to be in today's society (Prasad et al., 2025). OFDS have begun to spread throughout Malaysian cities such as Klang Valley, Penang, Malacca, Kuching, Ipoh, Johor Bahru, and others since 2017. Food Panda, GrabFood, Honestbee, Dahmakan, DeliverEat, RunningMan Delivery, Food Ninja, LalaFood, and others are among the food ordering service platforms available on the market. Food Panda and Grab Food have the most fierce competition (Lee & Bakar, 2023). It is because the Grab application has a lot of discounts and promotions to attract customers.

As we all know, online food delivery services usage have increased their market because of the COVID-19 pandemic. During the pandemic, consumers increasingly used online services like electronic payments and became more reliant on online platforms. And it also increases the suppliers of food due to the growth. As for the consumers, the online delivery providers (ODPs) offer various options, ratings, reviews, and payment choices. Also, this business model generates a consistent stream of commissions for the online platform (Khan et al., 2024). The

advent of computers, the Internet, smartphones, tablets, and mobile applications, along with other contemporary information technologies, has significantly transformed the daily lives of individuals. The impact of online services has expanded the choices available to working individuals, allowing them to purchase meals instead of dining out, which is particularly beneficial for those with limited time for cooking. Online food ordering platforms facilitate direct and efficient interactions between numerous customers and restaurants, transmitting orders electronically and even providing delivery services for takeout meals.

However, OFDS usage also brings some harm to customers. This is because there are issues related to healthy food choices among the community. The primary issue is that a significant portion of the food available on these platforms is calorie-dense, containing high levels of fats, sugars, and salts, while lacking essential nutrients. When fast food or restaurant meals are easily accessible, consumers tend to favour options emphasising taste and pleasure rather than nutritional value. According to studies, those who regularly order food from food delivery services may be more likely to have unhealthy eating habits, which can result in many health problems like diabetes, obesity, and heart disease (Prasad et al., 2025).

2.3 Healthy Food Choices in the University Context

Dietary habits developed and established in childhood may change during university, resulting in a decrease in parental influence (Al-Dalaeen et al., 2024). For students, they choose healthy or unhealthy food choices due to various factors. In the first semester of study, students typically gain weight. This is because the shift from high school to university can result in a student's inability to adapt to the new academic environment and its accompanying stressors, potentially resulting in detrimental food choices and stress-induced fluctuations in appetite. Making healthy food choices in university was very challenging due to a busy schedule, limited budget and abundance of fast food options. From the previous study,

the Researcher indicates that stress can lead individuals to opt for unhealthy foods, like those high in calories, fats, and sugars, instead of healthier options. The unhealthy food choices of lecturers and staff in the university also increase because they are also influenced by their friends to buy fast food or any viral food from online food delivery services when they are in the office.

Poor food choices can be affected by insufficient knowledge regarding nutrition and a limited comprehension of the importance of health. Kolodinsky (2019) argues that limited knowledge of food nutrition influences the students' food choices and food purchase decisions. Furthermore, the convenience of ordering food late at night has increased the number of people who snack on unhealthy foods at midnight, which is frequently linked to digestive problems. A few other reasons that affect poor food choices include time constraints, budgetary restrictions, and the availability of food choices on campus (Deliens et al., 2021). Studies show that people are less likely to cook at home the more often they utilise meal delivery apps (Prasad et al., 2025). Dependence on restaurant meals may significantly reduce the consumption of fruits, vegetables, and whole grains, thereby worsening the issue of healthy food choices. In addition, peer pressure could also be a factor in how they eat because the students follow the eating habits of social groups. Nonetheless, the capacity of students to sustain a balanced diet is significantly affected by the accessibility of nutritious choices in university cafeterias and the surrounding food environment.

To promote healthy eating habits and produce more tempting, nutrient-dense food designs, it is crucial to understand and utilise sensory appeal (Factors Affecting Food Choice Among University Students in Malaysia, 2024). Research indicates that in the process of determining food preferences and consumption, sensory attributes often outweigh other considerations, including price and nutritional value. For example, the consumption of vegetables in young

people was based on sensory satisfaction. So, it is important to increase the healthier food choices with the best taste of sensory.

University students may also choose unhealthy eating because the price of nutritious foods is quite expensive. The price and cost of food are major considerations for university students when making food choices (Factors Affecting Food Choice Among University Students in Malaysia, 2024). So, they decided to continue with unhealthy food choices instead of healthy food. Pricing methods are also very important in university settings because they will impact the perception of the community in the university. For instance, the community, especially students, are more likely to choose healthy food choices like vegetables and fruits when they are cheap.

Convenience is also an important factor in food choices. The community at the university more frequently chose low-cost and simple meals over healthier options. A study was conducted on campus. Students from Malaysia, Taiwan, and New Zealand living in hostels found that due to a lack of culinary equipment, knowledge, and transportation, students prioritised meal options available at nearby food courts and shop choices (Factors Affecting Food Choice Among University Students in Malaysia, 2024). This is because the meals at food courts are quick, simple to obtain and less expensive. Deliens et al. (2021) found that students select fast, convenient meals to match their busy schedules.

2.4 Factors Influencing OFDS Usage Among University Communities

Online food delivery services (OFDS) refer to "the process by which food ordered online is prepared and delivered to the consumer" (Lee & Bakar, 2023). Food is unquestionably necessary, and ordering food through such applications has dramatically increased e-commerce, particularly among youth, who are seen to be more passionate about ordering food and having it delivered to their doorstep quickly (Lee & Bakar, 2023). OFDS represent the

most effective method for attracting their main target demographics: students and lecturers. People will prefer online food delivery services if they have promotions and discounts compared to restaurants. The attractiveness of promotions and discounts may influence consumers' purchase decisions temporarily (Lee & Bakar, 2023).

Research indicates that consumers express satisfaction with discounts, promotional offers, complimentary products, and 'buy one, get one free' deals. Customers have the ability to order food through applications and websites, influenced by factors such as promotional incentives, menu variety, free delivery options, user-friendly app interfaces, and cash payment methods. So, the previous study stated that a lot of OFDS usage factors among consumers. Firstly, the factor of OFDS among the community in the university is Perceived Usefulness and Ease of Use. A research investigation carried out at Universiti Putra Malaysia (UPM) examined the primary factors influencing student satisfaction with Online Food Delivery Services (OFDS), utilizing the Technology Acceptance Model (TAM) as its theoretical framework. They consider ordering food through an online platform and having it delivered to be useful. Students, as young consumers, frequently place food orders and anticipate delivery to their college premises.

After that, the usage of OFDS among the university community factor is payment flexibility. According to the Human Resource Management Academic Research Society, online food delivery applications provide a variety of payment choices that allow customers to pay in the most convenient way for them. Customers will like the convenience and cashless payments provided by the consolidation of popular payment mediums, which will encourage them to utilize the meal delivery app. Everyone appreciates things that are adaptable with a lot of advantages, and online food ordering is one of them. Uninterrupted payment is what customers want most. A large number of people avoid the use of online services because they do not want to get stuck in the maze of payments (Sahidi et al., 2022).

Time-saving is also a significant factor that drives the university community to use Online Food Delivery Services (OFDS). Utilizing the OFD service presents the most convenient alternative for students, aside from preparing their meals. This is because food delivery apps or websites promise to bring food to customers quickly, as they are dedicated to being fast. The most important element influencing consumers' incentive to employ technology-based self-service is time savings. When time is insufficient to complete everyday chores such as work and leisure activities, an individual will seek out alternatives to save time. That is the reason university students love to order via online food delivery services. Furthermore, eating out is often considered a time-consuming and luxurious form of entertainment. Hence, they will avoid it because it wastes a lot of time (Sahidi et al., 2022).

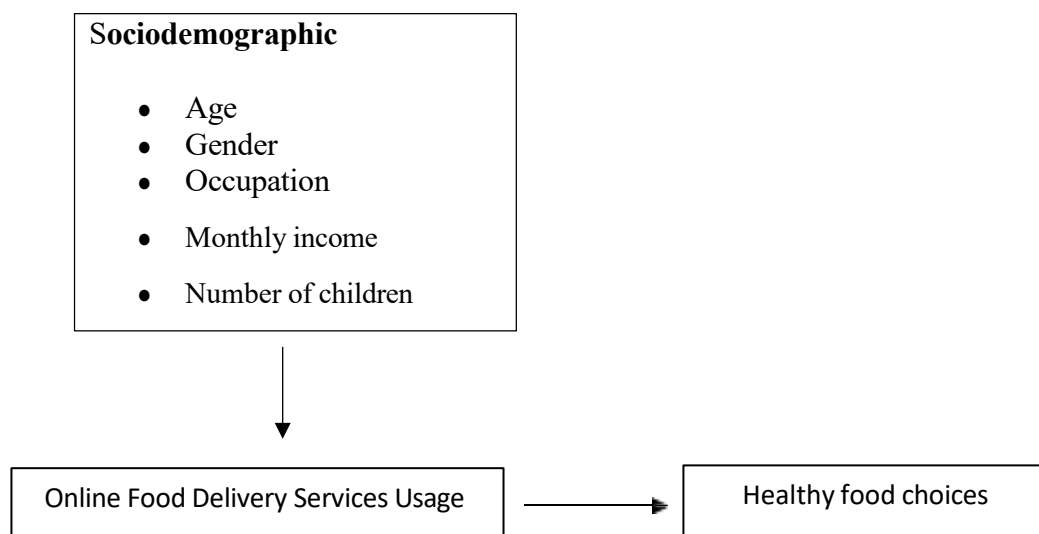
2.5 Impact of OFDS usage on healthy food choices

The emergence of Online Food Delivery Services (OFDS) usage has profoundly influenced the dietary practices of students and faculty members in university environments, frequently altering their daily schedules and food selections. As platforms like GrabFood, Foodpanda, and Deliveroo become more accessible and convenient, university students are more inclined to choose ready-to-eat meals that suit their busy schedules, often sacrificing home-cooked or healthy options. While this convenience is great, it does have a downside. Many students say they end up eating more unhealthy foods like burgers, fried chicken, and sugary drinks, which can lead to problems like gaining weight and feeling tired. Even lecturers, who have a lot on their plates, aren't left out of this trend. They also grab food from these services for quick lunches during busy days, making it even more common to depend on them.

A research study carried out in Malaysia among students at a private university in Selangor during the COVID-19 lockdown indicated that more than 71% of participants reported an increase in their utilisation of online food ordering services. According to NIH, the

increase in OFDS utilization was associated with a rise in snacking habits, as well as the intake of meat products and sugary drinks, resulting in an average weight increase of 3.36 kg for 45.5% of the participants (Chen et al., 2021). Research conducted in the United Arab Emirates revealed that nearly 50% of the participating students experienced difficulties in identifying healthy food choices on food delivery applications. Many of these students also reported an increase in their food consumption and alterations in their eating, including late-night snacking and eating alone (Saleh et al., 2024). These results highlight the necessity for universities to improve their on-campus dining facilities and for Online Food Delivery Services (OFDS) platforms to advocate for healthier food selections to alleviate the negative health consequences linked to the increasing reliance on food delivery services within the academic community.

2.6 Theoretical Framework



CHAPTER 3 METHODOLOGY

3.1 Study design

This study was cross-sectional, descriptive, and quantitative. The exposure and outcome data were gathered at the same time in April 2025.

3.2 Study area

This study was conducted in Kubang Kerian, Kelantan. This study focused on the community from Universiti Sains Malaysia, Health Campus, Kelantan. The Universiti Sains Malaysia (USM) Health Campus is located on Malaysia's East Coast, in the town of Kubang Kerian, Kelantan, which is known for its vibrant atmosphere. However, it also offers numerous health courses and training for future doctors and healthcare practitioners in the country. Kubang Kerian had emerged as a new economic centre in Kelantan. Since 1983, the establishment of the USM Health Campus in Kubang Kerian had attracted additional industries, which helped to enhance the local economy. Kubang Kerian boasts a vibrant market and a diverse range of jandstreet food. There were numerous restaurants, including bakeries, restaurants, KFC, McDonald's, Tealive, Domino's, Pizza Hut, Subway, and OldTown White Coffee within 1 km of USM. It was a very strategic location to select participants because the proximity of food shops near the USM Health Campus was evident. These cafes provide a quick choice and online delivery for busy staff and students to meet the demanding schedules full of courses, assignments, and extracurricular activities. These facilities were influencing bad or good food choices among the community in USMKK. Mostly, students operated on tight budgets, and fast-food establishments often provided cost-effective meal choices. Deals, discounts, and value meals in online food delivery services made these options appealing, especially for those with limited financial resources. The easy availability of these options might have been associated with poor healthy food choices among the community in USMKK, , which could have implications for their overall well-being.

3.3 Study Population

This study's population included students, staff, and lecturers from USMKK. The students were from the three types of schools in this USM Health Campus, which were the School of Health Science (PPSK), the School of Medicine (PPSP), and the School of Dental Science (PPSG). At the Universiti Sains Malaysia (USM) Health Campus, a wide range of courses related to health sciences are offered, catering to various disciplines within the field of healthcare. The students from various courses from the School of Health Science were selected, including Dietetics, Nutrition, Forensic Science, Exercise and Sport Science, Biomedicine, Medical Radiation, Audiology, Nursing, and Speech Pathology.

University students were more willing than older generations to change their food choices and were more environmentally conscious. Universities were the most common sites for behavioural and consumption research, with up to 80% of the literature in this field estimated to be based on community samples (Deliens et al., 2014). Despite their educational background, university students, staff, and lecturers often engaged in unhealthy eating behaviours, contributing to a growing body of literature highlighting the importance of promoting healthy dietary practices within this population (Sogari et al., 2018).

3.4 Subject Criteria

3.4.1 Inclusion Criteria

- a) Individual aged 18 and above.
- b) Students, lecturers, and staff who were currently studying/working in the USM Health Campus.
- c) Malaysian citizenship.
- d) Those who used online food delivery services.

3.4.2 Exclusion Criteria

- a) Participants who could not access the online Google Form survey.
- b) Participants with known health conditions.

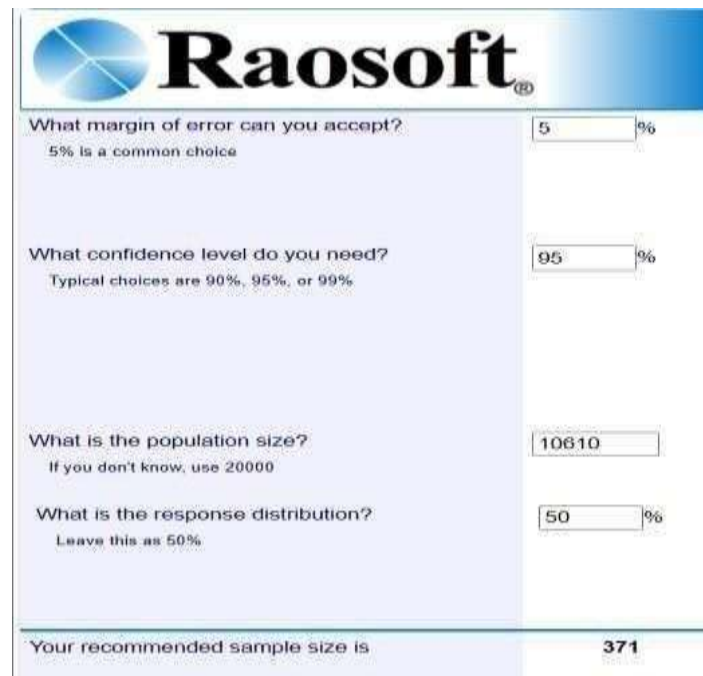
3.5 Sampling Method & Subject Recruitment

A convenient sampling method was adopted in this research. Convenience sampling was a type of non-probability sampling that involved the sample's choosing to be in the study after the researcher had made an announcement. All subjects are chosen voluntarily. This sampling technique was considered most appropriate because, unlike other types of sampling, it was easier, cheaper, and took less time (Moss, 2024).

The selection criteria and exclusion criteria that were adapted enabled the correct selection of subjects for research work. Attempts were made to contact as many people as possible to increase the desired participation rate. Questionnaires were given both online on social media pages and as poster flyers at different times of the day through WhatsApp groups and Telegram channels. For students, some course representatives were asked to contribute copies of the study material to other students in their classes.

3.6 Sample Size Estimation

The sample size was calculated using the Raosoft sample size calculator with a known population. The study's target population consisted of students, lecturers, and staff from the School of Health Science at Universiti Sains Malaysia, Kubang Kerian. According to data provided by the USM Health Campus Directory and the academic development centres of PPSK, PPSG, and PPSP, the total number of communities in the USM Kubang Kerian was 10610. According to Figure 3.1 (confidence interval = 95%, margin of error = 5%), the required sample size for the population of estimated 10610 is 371 responses. This value was calculated as 50% of the population aged 18 years and above.



Raosoft

What margin of error can you accept? %
5% is a common choice

What confidence level do you need? %
Typical choices are 90%, 95%, or 99%

What is the population size?
If you don't know, use 20000

What is the response distribution? %
Leave this as 50%

Your recommended sample size is **371**

Figure 3.1 Raosoft sample size calculator

3.7 Study Instruments

Questionnaire:

A self-administered questionnaire was set up via Google Forms and distributed to the participants. The questionnaire consisted of 3 sections, which were Socio-demographic Characteristics, online food delivery usage, and healthy food choices. A total of 22 questions were included in this questionnaire, and it took around 5-10 minutes to complete this questionnaire. Meanwhile, this questionnaire was designed in English and the Malay language as the participants of this study (students, lecturers, and staff) could read, comprehend, and answer the questionnaire.

Section A: Demographic Characteristics

The demographic data for the questionnaire consisted of 9 questions: gender, age, education, marital status, occupation, number of children, and monthly income for workers. This part was also about the frequency of usage of OFDS and the types of OFD brands.

Section B: Online food delivery services usage

This section comprised 6 items designed to measure participants' behaviour toward online food delivery services usage. The questions assessed intention to continue usage, enjoyment, lifestyle fit, and cost-effectiveness. Participants were requested to express their level of agreement using a 5-point Likert scale, which ranged from 1 (Strongly Disagree) to 5 (Strongly Agree).

The questionnaire used to assess online food delivery services usage in USMKK was adapted by Vu et al. (2023) and has been widely adopted in studies. After being collected, sorted, and filtered, the data was calculated by SPSS 22 and AMOS 23 software to extract descriptive analysis, Cronbach's Alpha, and confirmatory factor analysis (CFA). The calculation results indicated that this data set ensures reliability, convergent, and discriminant validity (Vu et al., 2023). The results were used to determine usage patterns and motivational elements influencing the adoption of OFD.

Section C: Healthy food choices

This section includes 7 questions that were given to measure the impact of OFDS usage on participants' healthy food choices. Participants provided their responses utilising a 5- point Likert scale, which ranged from 1 = Strongly Disagree to 5 = Strongly Agree. These responses helped determine whether OFD usage correlates with healthy or unhealthy food choices. The questions in this section were adapted from Osaili et al. (2023).

3.8 Pilot Testing

A pilot study was mostly conducted to test the suitability of a study instrument before conducting an actual fieldwork phase by using the instruments (Bujang et al., 2024). The Google Form link was opened and reviewed multiple times before survey distribution to find any errors, and was corrected before making the link available to the intended population of respondents. The survey's quality was improved by modifying the questionnaire to include clearer language, fewer spelling mistakes, and the pattern of questions. The survey questionnaire's preview link was then distributed to a small number of individuals personally and to WhatsApp groups to reach 20 respondents. Twenty responses in all, along with the feedback that they provided, were documented from the pilot test. In pilot testing, 20 respondents were sufficient because they fell within the recommended range for estimating Cronbach's α with acceptable precision. The purpose of the pilot study was to ensure the accuracy, consistency, and efficacy of the tools (Khanal & Chhetri, 2024). This ensured the instrument was suitable for the target population and capable of collecting reliable and meaningful data.

3.9 Data Collection

Following the acquisition of ethical approval from the Human Research Ethics Committee (HREC) at USM, the data collection phase commenced. The anticipated duration for the completion of the data collection process was three months. This cross-sectional study was conducted among chosen community (students, lecturers and staffs) from the Health Campus of Universiti Sains Malaysia, located in Kubang Kerian, Kelantan.

For students, each representative from the batch was contacted and informed about the research. Upon their consent to take part, they received the questionnaire via Google Form. They were requested to help disseminate and share the Google Form link within the group chat among their peers. The provided link directed them to a Google Form that includes an informed consent document and a set of questionnaires. Students who satisfied the inclusion criteria, did not fall under the exclusion criteria, and expressed interest and willingness to engage in the research were invited to complete the online informed consent form and the questionnaire. For postgraduates, the Google Form link was distributed to the graduate centre, and they disseminated the link to postgraduate students.

The Google Form link was given to the research supervisor and several nearby lecturers to answer the questionnaire via Google Form. The Google Form link was also be distributed by lecturers to their WhatsApp groups. The Google Form was also sent to each PPSK, PPSP, and PPSG building centre to be distributed to more and wider staff and lecturers.

3.10 Study Flowchart

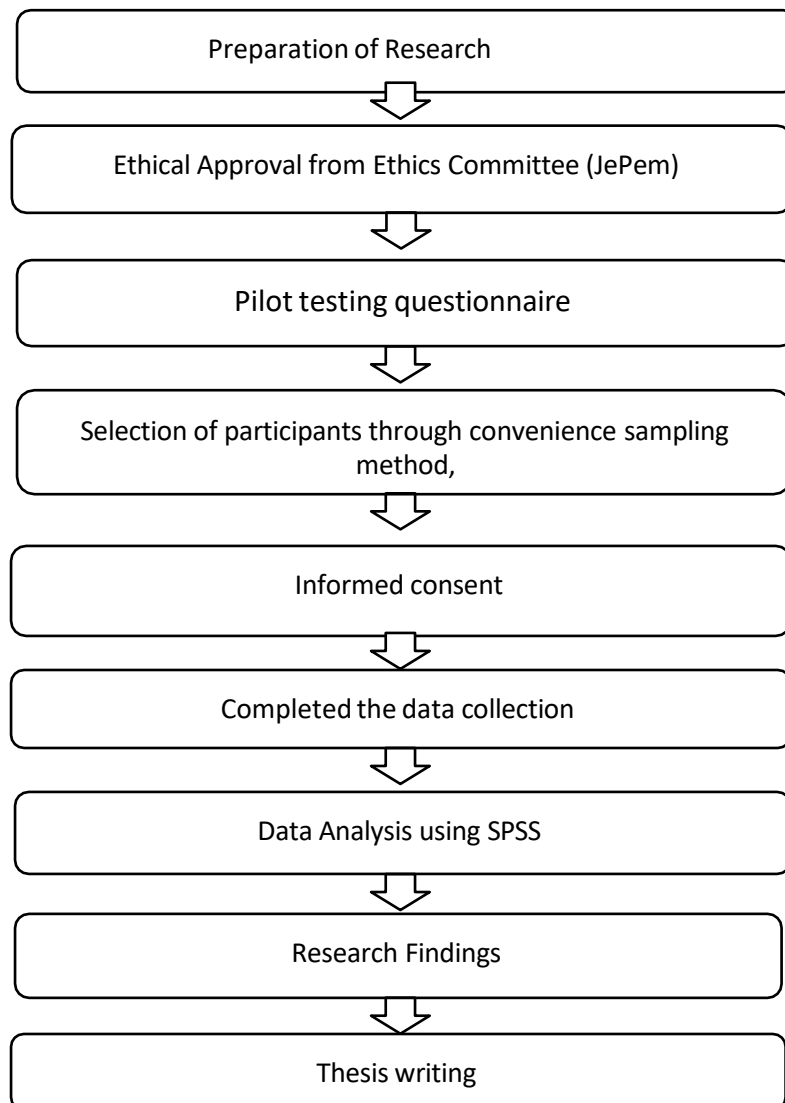


Figure 3.2 study Flowchart

3.11 Data Analysis

The raw data that was gathered from the survey were converted into an Excel file before analysis with the Statistical Package for Social Sciences (SPSS) version 30.0. The analysis was conducted in three stages, which were descriptive analysis, reliability testing, and inferential analysis.

Descriptive statistics, which encompassed frequencies and percentages, were employed to summarise demographic variables such as age, gender, education level, occupation, and the frequency of OFD app usage. For the Likert-scale questions about using online food delivery services (Section B) and making healthy food choices (Section C), we checked the data for normal distribution. The result of online food delivery services (Section B) used the mean and standard deviation. Since one of the variables, which is healthy food choices, didn't follow a normal distribution, we showed the results using the median and interquartile range (IQR).

The reliability and consistency of the questionnaire for OFDS usage and healthy food choices were determined using Cronbach's Alpha coefficient. The value of 0.70 or higher was considered acceptable and indicated good internal consistency. Composite scores for Online Food Delivery Services (OFDS) usage and healthy food choices were computed using mean scores of the respective items. Negatively worded healthy food choice items were reverse-scored before composite score calculation.

Additionally, inferential statistics were applied to examine the association between OFDS usage and healthy food choices. As both variables were ordinal and at least one was not normally distributed, Spearman's rank correlation analysis was used. It was to assess the strength and direction of the relationship between OFDS usage (Section B) and changes in healthy food choices (Section C).

The significance level was set at $p < 0.05$, and statistical tests were two-tailed. All data were screened for normality, reliability (using Cronbach's Alpha), and completeness before conducting the analyses. These methodologies contributed to ensuring that the results were

statistically valid, meaningful, and consistent with the objectives of the study.

3.12 Ethical Clearance

3.12.1 Subject Vulnerability

Participants were granted complete freedom to decide whether or not to take part in this study. The initial page of the questionnaire contained an online consent form that outlined the eligibility criteria, the rights of the subjects, the study's objectives, the procedures involved, as well as the potential risks and benefits associated with participation. For those subjects who opted to voluntarily engage in this research, all collected data was exclusively utilized for research or educational purposes. Subjects who declined to participate did not encounter any harm or penalties.

3.12.2 Declaration of Absence of Conflict of Interest

This research presented no conflict of interest. There was no financial backing or funding linked to this study. The data gathered was kept confidential by the researcher, and there was no detrimental use of the information acquired from this research.

3.12.3 Privacy and Confidentiality

All forms were kept anonymous and processed using SPSS software, which was accessible solely to the research team, comprising the principal researcher and co-researcher. The data were presented in aggregate form to ensure that individual respondents could not be identified. The questionnaire did not require any personal details such as names or Identity Card (IC) numbers, and respondents were assigned unique code numbers. Furthermore, all information gathered from the questionnaire was treated with strict confidentiality and was not made public unless mandated by law.

3.12.4 Community Sensitivities and Benefits

Certain inquiries may have been overly sensitive for participants to answer. To reduce this sensitivity, participants were informed about the research and were given the choice to either participate or decline involvement in the study. The outcomes of this research did not offer any direct advantages to the participants, because the results were not shared with them upon completion of the survey.

3.12.5 Honorarium and Incentives

Participants in this study were not rewarded an honorarium or did not receive any other incentives.

CHAPTER 4 RESULT

4.1 Demographic characteristics

A total of 372 health sciences community members (lecturers, staff, and students) in Universiti Sains Malaysia, Health Campus, participated in this study. The demographic characteristics of the subjects are shown in Table 4.1. The majority of respondents who participated in my study were female, constituting 76.9% while males accounted for 23.1%. The 18-25 years old age group was the dominant one with 78.8% followed by the 26-35 years old age group (12.1%). Regarding education level, 72.6% had a bachelor's degree, followed by 14.2% had diploma, 7.5% with a postgraduate degree, 5.4% with secondary school education, which was SPM, and a smaller proportion (0.3%) in other categories. The participants who were involved in my study, marital status were single, with 87.4% and married, accounting was 12.6%. The majority of participants in my study were students (84.1%), followed by staff, which is accounted for 10.2% and the smallest number of participants were lecturers, with 5.6%. The first online food delivery app usage frequency used by participants was once a month (43.8%), followed by once a week (28.5%), 2-3 times per week (22.0%), 4-6 times per week (4.6%), and daily (1.1%). GrabFood recorded the highest percentage of OFDS applications that were usually used by participants with 51.6%, followed by FoodPanda (35.2%), ShopeeFood (10.3%), Pizza Hut (1.7%), others (0.9%), and DeliverEat (0.3%). Monthly income only applicable for workers like lecturers and staff. For income, the highest percentage of the range of income was RM6,000 – RM9,999 with 34.9%, followed by RM2,000 – RM3,999 (33.3%). RM4,000 – RM5,999 and RM10,000 and above both recorded the same percentages of income, which were 11.1% and below RM 2,000 accounted for 9.5%. The number of children who have no children with a percentage of 88.4%. Participants who had 1-3 kids recorded 8.6%, followed by 4-6 kids (2.4%) and more than 6 kids (0.5%).