

KNOWLEDGE AND PRACTICES OF MALAYSIAN
HEALTHY PLATE (QUARTER QUARTER HALF
PROGRAM) AMONG ADULT COMMUNITY IN
CYBERCITY, KEPAYAN, SABAH

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HEALTHY PLATE (QUARTER QUARTER HALF
PROGRAM) AMONG ADULT COMMUNITY IN
CYBERCITY, KEPAYAN, SABAH

by

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Dissertation submitted in partial fulfilment of
the requirements for the degree of
Bachelor in Nursing with Honours

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CERTIFICATE

This is to certify that the dissertation entitled “Knowledge And Practices Of Malaysian Healthy Plate (Quarter Quarter Half Program) Among Adult Community In Cybercity, Kepyayan, Sabah” is bona fide record of research work done by Ms Ahza Binti Mohd Nasir during the period from October 2023 to June 2024 under our supervision. I have read this dissertation and that in my opinion it confirm acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfilment for the degree of Bachelor of Health Sciences (Honours) (Nursing).

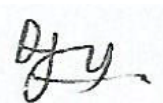
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DECLARATION

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 as a whole 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 purpose.



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LIST OF ABBREVIATIONS

- MHP - Malaysian Healthy Plate
- QQHP - Quarter Quarter Half Program

**PENGETAHUAN DAN AMALAN MENGENAI PINGGAN SIHAT MALAYSIA
(PROGRAM SUKU SUKU SEPARUH) DALAM KALANGAN KOMUNITI
DEWASA DI CYBERCITY KEPAYAN, SABAH**

ABSTRAK

Pinggan Sihat Malaysia, yang dikenali sebagai Program Suku Suku Separuh, adalah garis panduan pemakanan yang bertujuan untuk menggalakkan pemakanan seimbang di kalangan rakyat Malaysia. Kajian ini menyiasat pengetahuan dan amalan program ini di kalangan komuniti dewasa di Cybercity Kepyayan, Sabah. Menggunakan reka bentuk keratan rentas, data dikumpulkan melalui tinjauan dengan sampel orang dewasa. Dalam kajian ini, majoriti peserta adalah wanita, bekerja dengan kerajaan. Kebanyakan peserta adalah pelbagai kaum seperti di Sabah (n=157, 53,7%), individu bujang (n=178, 62.8%), pemegang ijazah dalam pendidikan (n=147, 51.9%) dan mempunyai pendapatan bulanan RM2000-RM3999 (n=84, 29.7%).

Kebanyakan peserta (n=131, 46.7%) mempunyai tahap pengetahuan yang tinggi tentang MHP QQHP. Kebanyakan peserta (n=209, 73.9%) mempunyai tahap amalan yang sederhana tentang MHP QQHP. Tiada kaitan yang signifikan antara data sosiodemografi dan tahap amalan Plat Sihat Malaysia serta tahap QOL ($p > 0.05$). Penemuan ini mendedahkan bahawa walaupun terdapat kesedaran umum mengenai Program Suku Suku Separuh pematuhan praktikal adalah terhad disebabkan oleh pelbagai faktor seperti kurangnya pemahaman terperinci dan aksesibiliti kepada pilihan makanan yang sihat. Kajian ini menekankan keperluan untuk meningkatkan usaha pendidikan dan inisiatif berasaskan komuniti untuk merapatkan jurang antara pengetahuan dan amalan. Penemuan ini mempunyai implikasi yang signifikan terhadap strategi kesihatan awam yang bertujuan untuk meningkatkan tabiat pemakanan dan kesihatan keseluruhan di rantau ini.

**KNOWLEDGE AND PRACTICE ABOUT MALAYSIAN HEALTHY PLATE
(QUARTER QUARTER HALF PROGRAM) AMONG ADULT COMMUNITY IN
CYBERCITY KEPAYAN, SABAH**

ABSTRACT

The Malaysian Healthy Plate, known as the Quarter Quarter Half Program, is a dietary guideline aimed at promoting balanced nutrition among Malaysians. This study investigates the knowledge and practice of this program among the adult community in Cybercity Kepyayan, Sabah. Using a cross-sectional design, data were collected through surveys with a representative sample of adults. In this study, majority of the participants are female, working with the government. Most of the participants are a variety of races as in Sabah (n=157, 53.7%), a single individual (n=178, 62.8%), a degree holder in education (n=147, 51.9%) and have monthly income of RM2000-RM3999 (n=84, 29.7%).

Most of the participants (n=131, 46.7%) have high level of knowledge about MHP QQHP. Most of the participants (n=209, 73.9%) have a moderate level of practices about MHP QQHP. There was no significant association between socio- demographic data and level of practice of Malaysian Healthy Plate as well as level of QOL ($p > 0.05$). The findings reveal that while there is a general awareness of the Quarter Quarter Half Program, practical adherence is limited due to various factors such as lack of detailed understanding and accessibility to healthy food options. The study underscores the need for enhanced educational efforts and community-based initiatives to bridge the gap between knowledge and practice. These findings have significant implications for public health strategies aiming to improve dietary habits and overall health in the region.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In response to changes in the status and patterns of people's food intake, as well as a review of the 1999 and 2010 editions, the Health Ministry released the Malaysian Dietary Guidelines and Food Pyramid for 2020. A balanced diet can be practiced using the Malaysian Healthy Plate. All age groups can generally use these wholesome plates. It helps individuals maintain their weight while reducing their risk of developing obesity, diabetes, and cardiovascular disorders like high blood pressure (Yap,2022.). Nutrition knowledge is insufficient to enable people to change their diets even though it is necessary while they need to practice in their daily lives.

The Malaysian Food Pyramid is an easy-to-follow chart that outlines each food group's recommended daily serving amounts. A simple visual strategy that focuses on the Suku Suku Separuh or Quarter Quarter Half (QQH) concept is the Malaysian Healthy Plate (MHP), which enables you to quickly determine if a meal is healthy and balanced or not. (Yap,2022). The size of each food group decreases from the base to the top of the food pyramid, showing that people should consume more of the foods at the base and fewer of the foods at the pyramid's top (Ministry of Health, 2010).

1.2 Problem Statements

Malaysia has substantial public health concerns, especially when it comes to diet and lifestyle-related illnesses. The "Quarter Quarter Half Program," also known as the Malaysian Healthy Plate project, attempts to encourage a population that eat a balanced and nutrient-rich diet. But even with this program in place, there are still several problems and difficulties that need to be resolved.

The Malaysian Healthy Plate program, along with its guiding principles and recommendations for a balanced diet, may be unfamiliar to or poorly understood by a large number of Malaysians. In 2019, a survey was conducted in Malaysia and the results indicated that 79.6% of adults were unaware of the Malaysian Healthy Plate concept (Mohamad Hasnan A et al., 2023) . According to Saipullizan, Abd. Mutalib, and Sedek (2018) study that concentrated on Malaysia's rural population discovered that 83.2% of rural adults were not familiar with the Malaysian Healthy Plate concept. About 20.4% (95% CI: 18.93, 22.03) or 1 in 5 respondents were aware of the Malaysian Healthy Plate Concept. Sabah [13.0% (95% CI: 9.79, 17.01)] recorded the lowest prevalence of awareness of Malaysian Healthy Plate Concept (Zainuddin, 2020).

It may be challenging to attain widely accepted beneficial health outcomes if there are variations in how the program is carried out among different groups or areas. About 14.0% (95% CI: 11.73, 16.58) of those with awareness reported that they practiced the Malaysian Healthy Plate Concept in a daily basis and only 50.1% (95% CI: 46.95, 53.30) of them reported that practiced this concept sometimes (Zainuddin, 2020). A poor monitoring and evaluation system could make it more

difficult to determine how effective the program is. Male gender, advanced age, poorer socioeconomic level, lack of formal education, and being retired or jobless were among the factors linked to this understanding. To make sure the program stays current and is in line with changing health concerns, it is imperative to conduct regular assessments and modifications.

Investigating the Malaysian Healthy Plate's knowledge and practices for promoting better eating habits and lessening the burden of diet-related health issues is vital. Obtaining an understanding of the Malaysia Healthy Plate's concepts and practices is crucial for everyone's health as well as for the efficiency of public health initiatives, medical professionals, and policy makers. To create focused education and intervention programs that can promote healthier eating habits and lower the prevalence of diet-related health concerns in Malaysia, it is imperative to close the knowledge-practice gap through thorough research.

1.3 Research Questions

1. What is the level of knowledge about the Malaysian Health Plate (Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah.
2. What is the level of practice of the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah
3. Is there any association between knowledge and practice of the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah.
4. Is there any association between sociodemographic factors **(age, gender, ethnic, marital statuoccupation, level of education and household income)** and practice of the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah.

1.4 Research Objectives

1.4.1 General objective

To identify the level of knowledge and practice about the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah.

1.4.2 Specific objectives

1. To determine the level of knowledge about the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah
2. To determine the level of practice of the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah.
3. To determine the association between knowledge and practice of Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah.
4. To determine the association between sociodemographic factors **(age, gender, ethnic, marital status, occupation, level of education and household income)** and practice of the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah.

1.5 Hypothesis

Hypothesis 1 : There is no association between knowledge and practice the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah (**H₀**)

: There is an association between knowledge and practice of the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah (**H_A**)

Hypothesis 2 : There is no association between sociodemographic factors and practice of the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah. (**H₀**)

: There is an association between sociodemographic factor and practice of the Malaysian Health Plate (Quarter Quarter Half Programs) among adult community in Cybercity, Kepayan, Sabah. (**H_A**)

1.6 Conceptual and Operational Definitions

	CONCEPTUAL	OPERATIONAL
Adult	Grown to full size and strength ((<i>Adult</i> , 2023)	All participant aged 18 and above (Mohamad Hasnan A et al., 2023)
Knowledge	Awareness of, comprehension of, or information about a topic that is acquired by experience or study that is either in a person's mind or is possessed by people generally, whether that person is an individual or not (Cambridge Dictionary,2021)	In this study, Knowledge is refers to the understanding, awareness, and familiarity that an individual or a group of people have about facts, information, skills, and concepts acquired through experience, education, reasoning, or perception towards health plate program. (Mohamad Hasnan A et al., 2023)
Practice	Action is preferred to cognition or ideas while learning a new skill that requires frequent or repeated	This study refers practice as a adapt a balanced diet that consists of various types of food in moderate amounts

	practice. (Cambridge Dictionary, 2021)	
Malaysian Healthy Plate (Quarter Quarter Half program)	The Malaysian Healthy Plate (MHP), a straightforward visual method that emphasizes the Suku Suku Separuh or Quarter Quarter Half (QQH) principle, allows you to easily decide if a meal is healthy and balanced or not.	This study refers Malaysian Healthy Plate as the healthy plate concept is more tangible and relevant than the more abstract food pyramid, making it easier to understand and implement. (Che Abdul Rahim et al., 2022)

Table 1.0: Conceptual and operational definitions

1.7 Significance of the Study

The "Malaysian Healthy Plate" is a government-initiated nutrition guideline that aims to promote healthy eating habits and improve the overall well-being of Malaysians. This concept is similar to the "MyPlate" in the United States (Kerska, 2021) or "Pinggang Pinoy" which is a food guide based on the Filipino Plate Method. It uses a well-known food plate model to explain the appropriate food group proportions at each meal to meet the energy and nutrient needs of adult Filipinos (Gumar, n.d.). It also serves as a quick and easy nutrition education tool, taking only 15 minutes to master. And other similar guidelines in different countries. These proposals focused on the "Malaysian Healthy Plate" are important and have several implications for nursing theory, education, practice, and future research.

Research on the Malaysian Healthy Plate can help in the development and implementation of effective health promotion strategies. Nurses play a pivotal role in health education, and by understanding and promoting the principles of the Healthy Plate, they can encourage individuals and communities to make healthier food choices, thereby preventing diet-related health issues. The Malaysian Healthy Plate idea has been contrasted and examined in connection to patient satisfaction with hospital foodservice, which is a crucial component of nursing care (Che Abdul Rahim et al., 2022).

Nursing theory and practice often involve patient education. By conducting research on the Malaysian Healthy Plate, nurses can better educate patients on balanced nutrition and healthy eating. This knowledge can be applied in various healthcare settings to improve the health and well-being of patients. Nurses are often involved in assessing the dietary habits of patients. Research on the Malaysian Healthy Plate can provide evidence-based guidelines for assessing and intervening in dietary choices. This can help nurses tailor their advice to individual patients' needs more effectively.

Malaysia is a multicultural country with diverse dietary preferences. Research on the Malaysian Healthy Plate can help nursing professionals understand how to adapt dietary recommendations to different cultural contexts. This is important for providing culturally sensitive and relevant care. Findings from research on the Malaysian Healthy Plate can be used to advocate for and shape public health policies. Nurses can play a vital role in influencing policies related to nutrition, food labelling, and dietary guidelines, leading to healthier communities.

Research on the Malaysian Healthy Plate can serve as a foundation for future studies in nutrition and public health. Nursing research can contribute to the continuous improvement and adaptation of dietary guidelines, ensuring that they remain evidence-based and relevant to the population's health needs. Nutrition is a multidisciplinary field. Research on the Malaysian Healthy Plate can foster collaboration between nursing professionals and other healthcare providers, nutritionists, dietitians, and public health experts. This interdisciplinary approach can lead to more comprehensive and effective interventions. The Malaysian Healthy Plate has the potential to improve the overall health of the population. Nurses can be at the forefront of efforts to implement and promote these guidelines, which can lead to a positive impact on the health of Malaysians and, by extension, the healthcare system.

To sum up, the Malaysian Healthy Plate study has significant implications for nursing theory, practice, education, and future research. It is consistent with evidence-based treatment, patient education, and health promotion—three of the fundamental tenets of nursing. Nurses can make a substantial contribution to the betterment of public health, patient care, and community well-being by undertaking and supporting research in this field.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

The Malaysian Healthy Plate is a healthy plate created by Malaysia's Ministry of Health to assist our population in achieving a more balanced diet. In Bahasa Malaysia, a healthy plate is described by the phrase "Suku Suku Separuh," which we translate to "Quarter Quarter Half" in English. This means that the plate is divided into three equal portions: a quarter, a quarter, and a half. We can see that a quarter of the plate is made up of protein, a second quarter is made up of carbohydrates, and the other half should be filled with vegetables and fruits. (Malaysian Healthy Plate,n.d.). Thus, this healthy plate also includes a glass of sugar-free drink.

2.1 Malaysian Healthy Plate (Quarter Quarter Half Programs)

2.1.1 Component Malaysian Healthy Plate (Quarter Quarter Half Program)

One of the most important parts of the Malaysia Ministry of Health's initiatives is the "Quarter-Quarter-Half" program. The program's main goal is to encourage balanced diets and healthy eating practices among Malaysians. It highlights the Malaysian Healthy Plate idea, which was introduced in 2017. The idea behind the Malaysian Healthy Plate is to divide a plate into quarters: one quarter should be used for fruits and vegetables, one

quarter for carbohydrates, and one quarter for protein. The program attempts to modify Malaysians' eating habits for the better.

The program has been expanded to include schools to raise awareness among students. It consists of educational programs and awareness activities to broaden people's knowledge and comprehension of the Malaysian Healthy Plate idea. To promote the program at the local level, the Ministry of Health Malaysia works with a variety of stakeholders, including village committees, citizens' associations, and health clinics.

The Malaysian Healthy Plate adheres to the Malaysian Food Pyramid and the fundamental ideas of Balance, Moderation, and Variety (BMV) as well as the rules of a balanced diet. A complete meal consists of the key food groups from the Food Pyramid: rice, cereals, and grains, which are sources of carbs; fish, poultry, meats, eggs, and legumes, which are sources of protein; and fruits and vegetables, which are sources of vitamins and minerals. To ensure that you are getting the necessary servings of every food category in the Food Pyramid, follow the suggested portions for each meal.

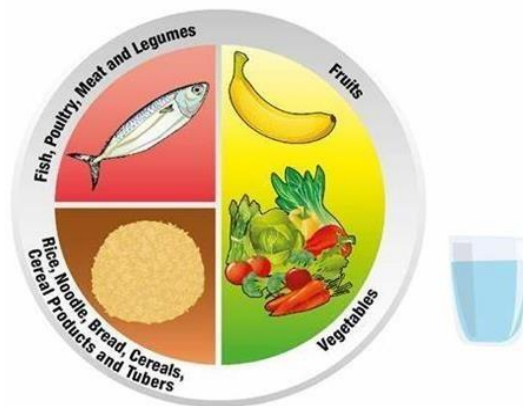


Figure 1.0: Illustrates of Quarter Quarter Half Guideline (Source: Dr Roseline Yap, 2022)

2.1.2 Benefit of Malaysian Healthy Plate (Quarter Quarter Half Program)

The Malaysian Healthy Plate (Quarter-Quarter-Half) initiative encourages balanced diets and healthy eating practices among Malaysians. The program suggests that people split their plate into quarters: one quarter should be used for fruits and vegetables, one quarter for carbohydrates, and one quarter for protein. The Malaysian Healthy Plate initiative offers the following advantages: better nutrition, portion control, increased fruit and vegetable consumption, promotion of balanced meals, and a healthier lifestyle (Sreevali Muthuvadivelu et al., 2023).

People can make sure they are getting a variety of nutrients from different food categories by dividing their plates according to the suggested ratio. The program educates participants on the proper serving sizes for various food groups, which can help them control their weight and avoid overindulging. According to Sreevali Muthuvadivelu et al. (2023), obese but otherwise healthy adults who followed a structured meal plan based on the Malaysian Healthy Plate technique saw significant drops in their body weight, BMI, and total cholesterol.

People are encouraged to eat more fruits and vegetables by emphasizing that half of the plate should be made up of these nutrient-rich foods, which can improve general health. The program ensures that people receive a variety of vital vitamins and minerals, as well as protein and carbs, by promoting a balanced distribution of nutrients. Adopting the Malaysian Healthy Plate concept will help people make better food choices and create healthier eating habits, which will enhance their general health and well-being.

2.2 Knowledge of Malaysian Healthy Plate (Quarter Quarter Half Program) among Adult Community

Adults in Malaysia have a comparatively low level of familiarity with the Malaysian Healthy Plate idea. After three years of implementation, over four-fifths (83.2%) of Malaysian individuals living in rural areas were not aware of the concept, according to research (Sreevali Muthuvadivelu et al., 2023). The goal of nutrition education programs is to increase nutrition knowledge to support healthy dietary intake within a community or a particular target demographic. In 2019, 79.6% of Malaysian adults, according to another study, were unaware of the Malaysian Healthy Plate idea (Che Abdul Rahim et al., 2022). Increasing the nutritional knowledge about the food pyramid with Quarter Quarter Half program as a guideline, it will bring many advantages to the one who learns and practices it.

Male gender, lack of education, and lower socioeconomic level were factors linked to never having heard of the notion (Mohamad Hasnan A et al., 2023). But even among those who were aware of the idea, there was inadequate comprehension and application of it (M., A., Jaafar, M.R., & W.H., 2020). In most industrialized nations, community members are exposed to instruction on dietary recommendations or basic food group intake. It is proposed that a more successful approach is required to raise adult understanding of the Malaysian Healthy Plate idea, particularly in rural regions (Hassan & Mustapha, 2010). Schools, the government, and health promotion organizations all provide a variety of messages that include a nutrition component.

2.3 Practices of Malaysian Healthy Plate (Quarter Quarter Half Program) among Adult Community

An effective knowledge of Malaysian Healthy Plate would bring one to practices and encourage one to practice an ideal dietary intake in their daily living which can bring them an ideal condition. Several studies have examined the quarter- quarter-half program's practices, known as the Malaysian Healthy Plate. According to Sreevali Muthuvadivelu et al., (2023), persons who were obese but in good health were able to significantly lower their body weight, body mass index, and total cholesterol by following a planned meal program based on the Malaysian Healthy Plate approach. Different measurements of knowledge, poor measurement of dietary intake, a lack of statistical power, and the numerous factors that influence dietary behaviors—of which nutritional knowledge is only one—are explanations for the inconsistent results. After three years of implementation, around four fifths of Malaysian people living in rural areas were still ignorant of the Malaysian Healthy Plate idea, according to a different survey (Che Abdul Rahim et al., 2022).

Four-fifths of Malaysian adults, according to a different survey, had never heard of the Malaysian Healthy Plate concept, and of those who had, their comprehension and application of the idea were inadequate (Mohamad Hasnan A et al., 2023). By implementing these Social Cognitive Theory ideas into the Knowledge and Practices of Malaysia's Healthy Plate (Quarter Quarter Half Program), we can help the populace develop healthier eating habits. Such a program's implementation is highly dependent on encouraging networks, effective communication, and ideal environmental circumstances.

2.4 Theoretical and Conceptual Framework of the Study

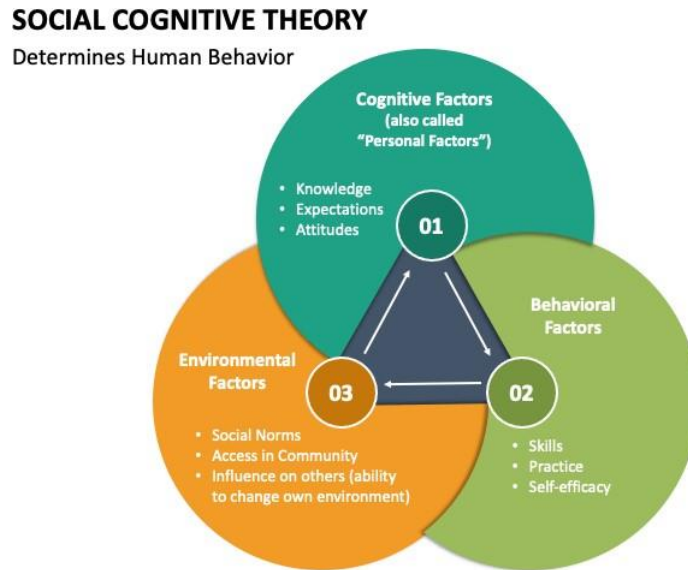


Figure 1.1: The Social Cognitive Theory

Albert Bandura's Social Cognitive Theory focuses on how people learn and evolve their behaviour through the interaction of environmental cues, personal characteristics, and behavioural results. We can take into consideration the following guidelines while modifying this theory to fit the Knowledge and Practices of Malaysia's Healthy Plate (Quarter Quarter Half Programs).

Social Cognitive Theory places a strong emphasis on the value of modelling or observational learning. Within Malaysia's Healthy Plate initiative, this may entail utilizing role models to exhibit healthy health behaviours. To urge others to follow the program's requirements in preparing and consuming balanced meals, prominent personalities or influencers could serve as examples.

Self-efficacy is the conviction that one can carry out a particular behaviour in a successful manner. Building Malaysians' self-efficacy in healthy eating is essential in the context of the Healthy Plate program. This can be accomplished by empowering individuals to think they can cook and enjoy healthy meals through education, practical training, and public awareness initiatives.

According to Social Cognitive Theory, people are driven by the results they hope to get from their actions. Within the framework of the study, it's critical to convey the advantages of adhering to the Malaysian Healthy Plate recommendations, including enhanced vitality, health, and general wellbeing. Emphasizing these advantages can encourage people to follow the suggested guidelines.

Integrating Social Cognitive Theory with the Malaysian Healthy Plate program requires promoting self-regulation. Goal-setting, food intake tracking, and self-evaluation can help achieve this. Self-regulation can be aided by giving people the skills and resources they need to organize their meals and monitor their progress.

The Social Cognitive Theory places a strong emphasize on how social support affects behavior. Encouraging anyone attempting to change their eating habits to get support from their friends, family, and the community. Community projects, cooking clubs, and support groups can foster social support and a change- friendly atmosphere.

Positive behaviors can be reinforced by giving people feedback on how they are doing. People might be encouraged to share their meal preparation and experiences with peers or on social media in the framework of the Malaysia Healthy Plate program. This will allow for the exchange of constructive criticism and the reinforcement of healthy practices.

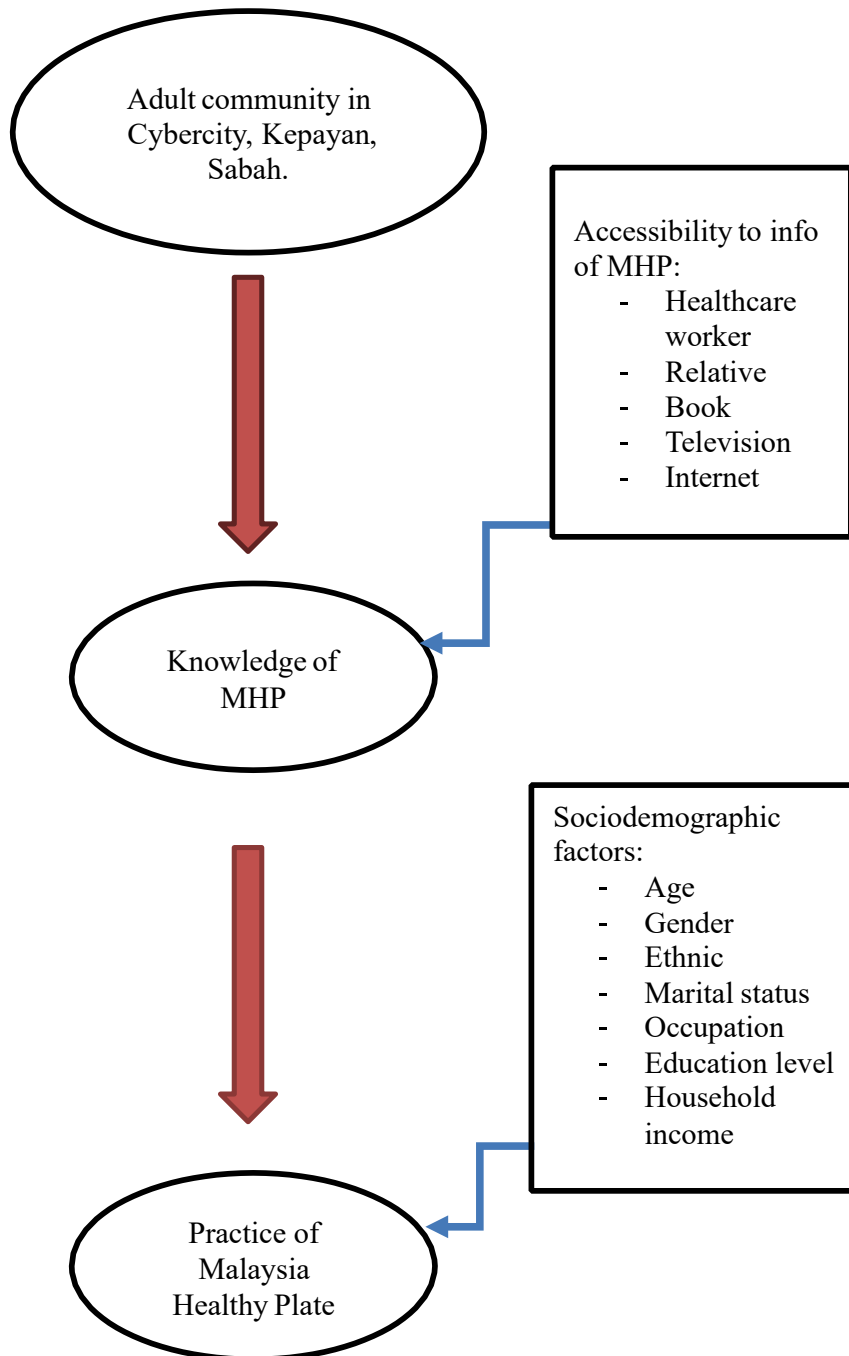


Figure 1.2: Conceptual framework of the study for knowledge and practice of Malaysia Healthy Plate

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This chapter will explain the approach and rationale used to support the chosen research methodology. This section is followed by a description of the study setting, population, participant selection criteria, sampling plan, sample size estimation, and instrumentation, including ethical considerations right through data collection methods. This chapter will also involve a section that explains the proposed statistical analysis used with quantitative data.

3.1 Research Design

Research design is a framework or guide used for the planning, implementation and analysis of a study. In this study, the researcher will use a cross-sectional study design to determine whether there is an association between two or more different factors within the population of interest.

3.2 Research Location

This study will be conducted in the Cybercity, Kepayan area in Sabah. Cybercity is an apartment located in Kepayan, and Kepayan is a sub-district, or a neighborhood, within the city of Kota Kinabalu in Sabah, Malaysia.

3.3 Research Duration

This study was conducted from October 2023 until August 2024.

3.4 Research Population

This study will be conducted among adult community in Cybercity, Kepayan , Sabah. The residents of Putatan consist of Brunei Malays, Kadazandusun, Bajau (Samah) and Chinese as well as several other races which will be a part respondent in the data collection period and it is fulfills or meet the requirement of the inclusion and exclusion criteria.

3.5 Subject Criteria

3.5.1 Inclusion Criteria

The inclusion criteria in this study are :

- Individuals aged 18 years old and above.
- Able to understand and respond in English and Bahasa Malaysia.
- Stay at Cybercity Apartment for at least one year.

3.5.2 Exclusion Criteria

The exclusion criteria in this study are:

- Foreigner or tourist
- Individual with cognitive impairment and mental disease

3.6 Sampling Plan

3.6.1 Sample Size Estimation

The sample size is calculated for objectives 1 and 2. The highest sample size is taken as the study sample size.

Objective 1 and 2 used a single proportion formula and the population proportion was taken based on a previous study conducted by Mohamad Hasnan A et al. (2023).

$$n = \frac{z^2}{\Delta} p (1 - p)$$

Where,

n = Sample size

p = Anticipated population proportion

z = Value of standard normal distribution = 1.96

A = Precision = 0.05

Objective 1:

The prevalence of good knowledge for Malaysian Healthy Plate was 80.8%.

$$\text{Thus, } n = \frac{1.96^2}{0.05} 0.8 (1 - 0.8)$$

$$n = 245$$

After considering 10% of response rate,

$$245 \times 10\% = 24$$

n= 269

Therefore, total sample size for objective 1 will be 269 samples.

Objective 2:

The prevalence for highest score practice on Malaysia Healthy Plate was 70.5%.

Thus,

$$n = \left[\frac{1.96}{0.05} \right]^2 0.7 (1 - 0.7)$$

n= 322

After considering 10% of response rate,

$$322 \times 10\% = 32$$

n= 354

Therefore, total sample size for objective 2 will be 354 samples.

The highest sample size from objective 2 which is (n=354) will be taken as the study sample.

3.6.2 Sampling Method

This study will use a convenience sampling method for the collection of data in Cybercity, Kepayan district.

3.7 Research Instrument

3.7.1 Instrument

One set of questionnaires will be used, to obtain relevant data on the Malaysian Healthy Plate knowledge and practice of the Malaysian Healthy Plate.

This questionnaire was adopted from *MALAYSIAN DIETARY GUIDELINE 2020*, (2021) and Mohamad Hasnan A et al. (2023). The questionnaires were divided into three parts as explained as follows:

Part I: Socio-demographic data

Part I consists of sociodemographic data including age, gender, ethnicity, marital status, occupation, level of education, and monthly household income.

Part II: Knowledge of Malaysian Healthy Plate (Quarter Quarter Half Program)

Part II consists of 13 items for knowledge regarding Malaysia Healthy Plate. The knowledge questions assess the knowledge of Malaysia Healthy Plate among the respondents, how they understand the concepts of Malaysia Healthy Plate.

Part III: Practice of the Malaysian Healthy Plate (Quarter Quarter Half Program)

Part III consists of 10 items for practice regarding Malaysia Healthy Plate (Quarter Quarter Half). The practice questions assess the practice of Malaysia Healthy Plate (Quarter Quarter Half) on the respondent.

3.7.2 Translation of instrument

The original version of the three adopted instruments in this study is in English. Due to the difference in level of education among the adult community in the Cybercity, Kepayan area, the instrument has been translated back and forth in Bahasa Malaysia and English to ease the respondent's ability to answer the instrument.

3.7.3 Validity and Reliability

Validity is the extent to which the specific purpose for which the assessment is designed may be used to support the interpretations of the test results. Meanwhile, Reliability estimates evaluate the stability of measures, internal consistency of measurement instruments, and interrater reliability of instrument scores (Kimberlin & Winterstein, 2008). The pilot study will be an adult population in Ganang Villa, Kepayan, Sabah. The number of pilot study respondents will be 10% from sampling size which is 35 respondents.

3.8 Variables

Variables are characteristic, events or responses that represent the elements of the research question in a detectable and measurable way.

3.8.1 Variable Measurement

A variable is either a result of some force or is itself the force that causes a change in another variable. In experiments, these are called dependent and independent variables respectively.