INFLUENCE OF SOCIODEMOGRAPHIC AND PSYCHOLOGICAL FACTORS ON EATING HABITS AMONG HEALTH SCIENCES UNDERGRADUATES AT UNIVERSITI SAINS MALAYSIA KUBANG KERIAN, KELANTAN

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INFLUENCE OF SOCIODEMOGRAPHIC AND PSYCHOLOGICAL FACTORS ON EATING HABITS AMONG HEALTH SCIENCES UNDERGRADUATES AT UNIVERSITI SAINS MALAYSIA KUBANG KERIAN, KELANTAN

By

TAN YI YI

Dissertation submitted in partial fulfillment of the requirements for the degree of Bachelor in Nutrition With Honours

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CERTIFICATE

This is to certify that the dissertation entitled "INFLUENCE OF SOCIODEMOGRAPHIC AND PSYCHOLOGICAL FACTORS ON EATING HABITS AMONG HEALTH SCIENCES UNDERGRADUATES AT UNIVERSITI SAINS MALAYSIA KUBANG KERIAN, KELANTAN" is the bona fide record of research work done by Ms. "TAN YI YI" during the period from April 2024 to January 2025 under my supervision. I have read this dissertation and that 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 in Nutrition With Honours.

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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 purposes.

(Tan Yi Yi)

Date: 27 February 2025

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BMI	Body Mass Index
EE	Emotional Eating
LOC	Loss of control
RNI	Recommended Nutrient Intake
SD	Standard Deviation
SEP	Socioeconomic Position
SES	Socioeconomic Status
USMKK	Universiti Sains Malaysia Kampus Kesihatan

PENGARUH FAKTOR-FAKTOR SOSIODEMOGRAFI DAN PSIKOLOGI ATAS TABIAT PEMAKANAN DALAM KALANGAN PELAJAR SARJANA MUDA SAINS KESIHATAN DI UNIVERSITI SAINS MALAYSIA KUBANG KERIAN,KELANTAN

ABSTRAK

Tabiat pemakanan memainkan peranan penting dalam menentukan status kesihatan, terutamanya dalam kalangan pelajar universiti. Kajian ini bertujuan untuk menilai corak tabiat pemakanan dan hubungannya dengan faktor sosiodemografi dan psikologi dalam kalangan pelajar prasiswazah sains kesihatan. Reka bentuk kajian kuantitatif telah digunakan, menggunakan soal selidik yang diisi sendiri untuk mengumpul data mengenai ciri-ciri sosiodemografi, faktor psikologi, dan tabiat pemakanan. Tabiat pemakanan diukur menggunakan sistem penilaian kumulatif, dimana skor yang lebih tinggi menunjukkan corak pemakanan yang lebih sihat. Penemuan tersebut mendedahkan perbezaan yang ketara dalam skor tabiat pemakanan berdasarkan ciri-ciri sosiodemografi seperti jantina ($p=0.009$), program pengajian ($p=0.003$), dan etnik ($p=0.012$), kesemuanya adalah signifikan ($p<0.05$). Faktor psikologi, termasuk makan ketika bosan ($p=0.044$) dan makan ketika rasa kesepian ($p=0.045$), juga dikaitkan secara signifikan perbezaan dengan skor tabiat pemakanan ($p<0.05$). Walaupun pemakanan secara keseluruhan adalah sihat, tingkah laku tertentu seperti pengambilan sarapan harian yang rendah (59%), pengambilan buah-buahan yang tidak mencukupi (56.8%), pengambilan air yang kurang (92.1%), pengambilan makanan bergoreng yang tinggi

(77%), dan kurang aktiviti fizikal (71.9%) adalah bidang yang membimbangkan. Kajian ini menekankan kepentingan memahami bagaimana faktor sosio-demografi dan psikologi mempengaruhi tabiat pemakanan dalam kalangan pelajar universiti. Penyelidikan masa depan harus meneroka penentu tambahan dan membangunkan strategi berasaskan bukti untuk mempromosikan tingkah laku pemakanan yang lebih sihat dan lebih lestari dalam populasi ini.

INFLUENCE OF SOCIODEMOGRAPHIC AND PSYCHOLOGICAL FACTORS ON EATING HABITS AMONG HEALTH SCIENCES UNDERGRADUATES AT UNIVERSITI SAINS MALAYSIA KUBANG KERIAN, KELANTAN

ABSTRACT

Eating habits play a crucial role in determining health status, particularly among university students. This study aimed to evaluate the patterns of eating habits and their relationships with sociodemographic and psychological factors among health sciences undergraduates. A quantitative cross-sectional study design was employed, using a self-administered questionnaire to gather data on sociodemographic characteristics, psychological factors, and eating habits. Eating habits were measured using a cumulative scoring system, where higher scores indicated healthier eating patterns. The findings revealed significant differences in eating habit scores based on sociodemographic characteristics such as gender ($p=0.009$), program of study ($p=0.003$), and ethnicity ($p=0.012$), all of which were significant ($p<0.05$). Psychological factors, including eating while bored ($p=0.044$) and eating while feeling lonely ($p=0.045$), were also showed significantly differences in eating habit scores ($p<0.05$). Despite overall healthy eating patterns, specific behaviors such as low daily breakfast consumption (59%), inadequate fruit intake (56.8%), poor water intake (92.1%), high fried food consumption (77%), and physical inactivity (71.9%) were areas of concern. This study underscores the importance of understanding how sociodemographic and psychological factors influence eating habits among university students. Future research should explore additional determinants

and develop evidence-based strategies to promote healthier and more sustainable eating behaviors in this population.

CHAPTER 1 INTRODUCTION

1.0 Background of Study

Sociodemographics, which involve the study of individuals in a societal context, embedded variables like gender, age, household income, and education level among other elements (Wan et al., 2023). Society is characterized by varying degrees of education and income, resulting in a wide range of social economic status (SES). Sociologists describe the division of society into various classes as social stratification, leading to the presence of inequalities within the community (Vilela et al., 2020). These elements have also been shown to influence lifestyle behaviours, including eating habits, which subsequently affect health outcomes (Silva et al., 2021).

Psychological factors play a role in influencing food choices and are characterized by an individual's emotions, moods, attitudes, and habits (Olmos-Gómez, 2020). According to Cherry (2024), a person's response to a situation is often spontaneous if they have a certain attitude, and once a person's reaction is established, an attitude is formed. This explains how psychological factors can impact the food choices made by students. Moreover, psychological aspects can also create attitudes that lead to preferences or aversions towards specific situations, individuals, or events (Poggiogalle et al., 2021). The field of psychology is substantial encompassing elements such as attitudes including perceptions of unfamiliar and healthy foods and emotions like sadness, happiness, and tiredness (Bin Zarah et al., 2020).

Emotion and food are mutually linked, as individuals tend to eat regardless of their emotional state. A study conducted indicates that various moods influence food choices (Malcolm et al., 2019). The research reveals that when people experience boredom, they prefer for a range of foods, while those in a happy mood tend to select sweet treats

(Reichenberger et al., 2020). In contrast, Ha and Lim (2023) stated that during negative emotions such as anger, sadness, or stress, individuals are likely to choose sweet foods, similar to when they feel love or happiness.

Starting university acts an important step in an individual's life. It is crucial to prioritize food choices and healthy lifestyle habits more diligently during this time (Trahearn et al., 2021). This phase represents the beginning of a new educational journey, where students gain the decision to make their own dietary decisions. They have more independence than ever to select their preferred food items either healthy or unhealthy. Indirectly, this independence can lead to various health-related concerns. The rise in overweight and obesity rates is increasingly observed among young adults globally (Talukder et al., 2021). It is crucial to focus on the eating habits of health sciences undergraduates since they are the future healthcare providers and expected to be a role model for public health promotion.

However, research shows that most medical students exhibit unhealthy eating patterns, which were significantly affected by sociodemographic and psychological elements (Alzahrani et al., 2020). These factors can encompass economic status, cultural factors, societal norms, food surroundings, emotions, and individual perceptions of food. It is crucial to comprehend the sociodemographic and psychological influences on the eating habits of health sciences undergraduates to create effective strategies for encouraging healthier dietary choices within this group.

1.1 Problem Statement

Unhealthy eating behaviors continue to be prevalent among university students, even with an increasing recognition of the significance of nutrition for overall well-being and academic success. These individuals frequently display inconsistent meal schedules,

depend significantly on fast food, and fail to consume sufficient amounts of fruits and vegetables, along with a high intake of sugary drinks (Romeo et al., 2024). This trend raises concerns about potential long-term health effects and highlights the necessity for targeted strategies to encourage healthier eating habits within this group.

Nevertheless, a considerable gap still exists in understanding the particular sociodemographic and psychological elements that contribute to these unhealthy eating practices. As a result, there is an immediate need for empirical studies to investigate the fundamental factors, such as peer pressure, emotional states, cultural values, socioeconomic background, and living conditions, to guide the creation of effective methods for promoting healthier eating habits among university students.

Socioeconomic factors can influence health outcomes at the personal level and can also impact broader characteristics at the household, neighbourhood, or community levels, subsequently affecting health. In developed nations, women and those with a higher socioeconomic position (SEP) generally eat more vegetables and less red meat compared to men and individuals with lower SEP (Konttinen et al., 2021).

Young adults attending tertiary educational institutions and living independently have moved beyond the close oversight of their families regarding daily food choices. Research has shown that university students often experience significant weight gain, particularly during their freshman year (Silva et al., 2021). This demographic faces an elevated risk of adopting poor eating habits, leading to health issues like obesity and diabetes (Li et al., 2022).

Emotional eating is characterized as a "propensity to consume food in reaction to negative feelings, with the selected foods being mostly energy-dense and enjoyable ones"

(Konttinen, 2020). This phenomenon can arise from various factors, including managing stress and other adverse emotions like depression and loneliness (Bui et al., 2021).

The common pattern is that people who face stress tend to decrease their consumption of foods low in saturated fat and opt for foods rich in unhealthy fats, in addition to consuming healthier food options (Erkul & Ozenoglu, 2023). From a psychological perspective, eating as a source of comfort may help alleviate stress responses and serve as a preventive strategy against such reactions. However, challenges emerge when an individual dealing with stress chooses to eat foods that are nutritionally deficient (Finch et al., 2019).

This research aims to fill the existing gap by investigate the complex interactions between sociodemographic and psychological factors that affect eating habits among undergraduate students in health sciences at Universiti Sains Malaysia, Kubang Kerian, Kelantan. By pinpointing the primary factors that influence dietary choices and behaviors in this group, the study aims to offer valuable insights into the mechanisms that contribute to unhealthy eating patterns. In the end, the results of this research will help in the creation of appropriate interventions and educational initiatives designed to promote healthier eating habits and enhance overall health outcomes for health sciences students within the university environment.

1.2 Study Rationale

The shift from teenage years to early adulthood represents a vital stage in forming lasting habits, especially related to dietary choices (Liu et al., 2019). College students within this group face numerous sociodemographic and psychological challenges that significantly impact their eating behaviors. The stress related to academic demands, including performance on exams, effective time management, and heavy course loads,

plays a major role in increasing students' stress levels. Moreover, those from low-income backgrounds often experience greater levels of depression, anxiety, and stress due to financial difficulties, while individuals from rural regions face similar psychological challenges (Romeo et al., 2024). These mental health conditions are linked to unhealthy lifestyle decisions, such as smoking, poor eating patterns, insufficient physical activity, and irregular sleeping habits (Henrich et al., 2021).

Keeping a nutritious diet is important for enhancing cognitive performance and success in academics, along with reducing the chances of developing chronic illnesses in the future. Therefore, understanding how sociodemographic and psychological factors affect the eating behaviors of undergraduate students is vital for grasping the complexities of their dietary choices in the distinct environment of higher education.

University students tend to receive less attention in studies on eating habits compared to children and adults (Li et al., 2022). Maintaining a nutritious diet is essential for university students, as proper nourishment can enhance their learning capabilities. Eating healthily can also boost their alertness and memory during classes, ultimately leading to better academic outcomes. Additionally, a balanced diet can reduce the risk of chronic diseases in the future.

This research aims to clarify how sociodemographic and psychological factors influence the eating habits of health sciences undergraduates. By pinpointing the particular sociodemographic and psychological influences that shape students' dietary choices, this study will enhance our understanding of the factors affecting eating habits among undergraduate students. It will reveal the complexity of their dietary decision-making processes in the distinctive environment of higher education. Moreover, the results of this research will benefit the community, encompassing both adults and children,

by pinpointing effective strategies to aid students in making healthier food decisions, thereby boosting their academic performance. Additionally, this study will assist students in attaining optimal mental health, including emotional regulation and the ability to cope with stress and challenges. By raising awareness about the significant negative consequences of poor dietary habits on various aspects of an individual's life, this study aims to foster psychological well-being within the community.

1.3 Research Questions

i. What are the sociodemographic profiles of health sciences undergraduates at USMKK?

ii. What are the prevalence of psychological factors among health sciences undergraduates at USMKK?

iii. What is the pattern of eating habits among health sciences undergraduates at USMKK?

iv. Do health sciences undergraduates at USMKK different in their eating habits based on sociodemographic factors?

v. Do health sciences undergraduates at USMKK different in their eating habits based on psychological factors?

1.4 Research Objectives

1.4.1 General Objectives

This study aims to access the pattern of eating habits and their relationship with sociodemographic and psychological factors among health sciences undergraduates at USMKK.

1.4.2 Specific Objectives

i. To identify the sociodemographic profiles of health sciences undergraduates at USMKK.

ii. To determine the prevalence of psychological factors among health sciences undergraduates at USMKK.

iii. To assess the pattern of eating habits among health sciences undergraduates at USMKK

iv. To compare the differences in eating habits among health sciences undergraduates at USMKK based on sociodemographic factors.

v. To compare the differences in eating habits among health sciences undergraduates at USMKK based on psychological factors.

1.5 Research Hypothesis

i) Ho: There are no significant differences in eating habits among health sciences undergraduates at USMKK based on sociodemographic factors.

Ha: There are significant differences in eating habits among health sciences undergraduates at USMKK based on sociodemographic factors.

ii) Ho: There are no significant differences in eating habits among health sciences undergraduates at USMKK based on psychological factors.

Ha: There are significant differences in eating habits among health sciences undergraduates at USMKK based on psychological factors.

CHAPTER 2 LITERATURE REVIEW

2.1 Prevalence of Mental Health Problems

According to Mascherini et al. (2021), university students face various psychosocial changes while balancing the demands of their academic and social lives in preparation for their future careers. The intense pressure for academic achievement can threaten students' physical and mental well-being if they lack adequate support. The National Health and Morbidity Survey III (NHMS III) found that young Malaysians aged 16–24 exhibit the highest rates of both acute and chronic suicidal thoughts (10.0% and 26.0%, respectively) in comparison to other age demographics (Mora et al., 2022). Among students, common psychological issues include depression, anxiety, and stress (Choi, 2020). A number of studies have indicated that depression, anxiety, and stress symptoms can adversely affect students' academic performance, hinder relationships (Nashwan et al., 2021), lead to marital difficulties, and impact future job opportunities (Souza et al., 2019).

Juniors appear to experience stress more intensely than seniors, likely due to their difficulty in adapting to a new environment (Huang et al., 2020). Women report higher levels of stress, anxiety, and depression. These findings are associated with biopsychosocial factors such as social roles and physiological conditions (Wang et al., 2021). Research has not shown that any particular ethnic group is more susceptible to stress, anxiety, or depression. However, Liu et al. (2019) suggest there may be an ethnic minority predisposed to experiencing this type of psychological distress. Moreover, decisions regarding specific courses have been correlated with these issues (Batra et al., 2021).

For students coming from low-income backgrounds, the additional factor of financial instability worsens feelings of depression, anxiety, and stress (Amanvermez et al., 2022). A prior study involving students in the United States revealed that those experiencing financial difficulties were more likely to show signs of anxiety disorders (Birmingham et al., 2021). The dynamics within a family significantly impact the emotional well-being of children. Research by Karaman et al., (2019) indicated that children from families experiencing conflicts, such as divorce, exhibited increased anxious behaviors and other psychological distress.

Students from rural areas have been found to score higher on scales measuring depression, anxiety, and stress in comparison to their urban counterparts (Yang et al., 2021). This is likely due to financial circumstances, as those from rural backgrounds tend to report less favorable family economic situations. Research by Horwitz et al. (2020) found that students living in rented properties and inadequate housing tend to experience more negative effects on their mental well-being. While shared living arrangements may lower expenses and provide more social support, students in such settings could encounter heightened stress from noise and distractions that affect their academic focus (Laska et al., 2021). It is thought that having a satisfactory living environment serves as a protective factor against negative psychological health, while dissatisfaction with one's living conditions can pose a risk to overall well-being (Ribeiro et al., 2020).

2.2 Sociodemographic and Psychological Factors

A study conducted by Alduraywish et al. showed a distinct negative correlation between levels of stress and healthy eating behaviors (p value < 0.001). Their findings suggest that students experiencing high academic stress tend to exhibit poor eating habits, such as skipping meals, consuming fewer fruits and vegetables, and increasing their intake of fried foods (Alduraywish et al., 2023). In addition, Najem et al. proposed that

stress levels are positively correlated with food addiction. When individuals experience high stress, the brain's neuromodulators can change, leading to an addiction to high-calorie junk foods (Najem et al., 2020). Moreover, additional research showed that students without issues of uncontrollable eating (mean score = 5.64 ± 2.4) tend to maintain healthier eating habits compared to those who struggle to regulate their food intake (mean score = 5.04 ± 2.3) ($p< 0.05$) (Ismail et al., 2022).

Increased daily energy consumption has been associated with mental states and negative feelings, with individuals often turning to energy-dense foods as a way to cope with these negative emotions (González-Monroy et al., 2021; Di Renzo et al., 2020). The severity of depression shows a positive correlation with emotional eating behaviors, where students experiencing moderate to severe depression are more likely to indulge in such behaviors ($p< 0.05$) (Tengilimoglu-Metin & Gümüş, 2023). Negative feelings like anger, fear, and sadness are linked to irregular eating habits and the tendency to eat as a means of distraction, relaxation, or to improve mood (Moeller et al., 2020). Stress is particularly associated with cravings for high-fat and high-carbohydrate foods, especially among women. Women are more likely than men to engage in stress-related eating (Eisenbarth, 2019). Depressive symptoms are connected with increased cravings, heightened food consumption, a preference for high-fat and carbohydrate-rich foods, increased alcohol consumption, and elevated BMI among women (Al-Awwad et al., 2021).

2.3 Sociodemographic Factors Affecting Eating Habits

Age and gender

An examination of eating habits based on gender indicates that female college students are more inclined to prepare their own meals (61.6%) compared to their male

counterparts (41.7%). Males are more likely than females to dine in restaurants or order takeout. For instance, among those who choose to eat out, the percentage of males (16.7%) is nearly double that of females (8.6%). Additionally, a significantly higher percentage of males tend to order food rather than cook. Research conducted outside of academic environments has shown that males tend to consume more fast food, exhibit less concern for nutritional value, possess lower nutrition knowledge, and utilize nutrition labels considerably less than females (Ismail et al., 2022). Various studies have explored how sociodemographic factors influence eating habits in academic contexts. The findings revealed that males generally have less knowledge about nutrition and healthy eating in comparison to females, young adults are less likely to prepare meals compared to middle-aged and older individuals, males have a higher intake of soft drinks, and females are more likely to have breakfast regularly compared to males (Lima et al., 2021).

A study conducted by Lima et al.(2021) founds that the prevalence of students consuming fresh fruit regularly is apparently greater among females (17.2%) compared to males (11.7%); among those living off-campus (18.3%) as opposed to those residing on-campus (8.5%), and among students with high academic standing, such as graduates (33.3%), seniors (15.6%), and juniors (32.5%), relative to those with lower academic standing like freshmen (7.7%) and sophomores (8.3%). Additionally, gender significantly influences the frequency of processed fruit consumption, with females (70.9%) exhibiting a higher incidence than males (53.3%).

Socioeconomic status

It seems that poor dietary habits are increasingly prevalent among low-income urban populations around the world. A study examining the impact of rising food costs on dietary choices in the Philippines and Bangladesh discovered that individuals in low-

income communities tend to prioritize purchasing staple foods like rice and bread due to their lower prices, often neglecting non-staple items such as fruits and vegetables, which are pricier (Alduraywish et al., 2023). Nonetheless, this dietary pattern reduces the overall consumption of fiber, micronutrients, and vitamins (Rodríguez-Hernández et al., 2020).

A different study regarding fast-food consumption in Chandigarh, India, indicated that individuals from low-income families often opt for fast food from street vendors due to financial limitations (Broer et al., 2019). In Malaysia, the ability to purchase fruits and vegetables is similarly influenced by economic status, with those on lower incomes prioritizing essential staples like rice and bread over fruits and vegetables (Euler et al., 2019).

Based on findings from the National Health and Morbidity Survey 2019, there is a rising trend in the rates of obesity, diabetes, hypertension, and hypercholesterolemia among the Malaysian population, especially among those living in urban areas. The Malaysian Adult Nutritional Survey (MANS) 2020 indicates that obesity is most prevalent in the low-income and lower middle-income groups. Additionally, the survey revealed a slightly different pattern of food consumption between urban and rural populations, with urban residents more likely to eat out or purchase food from external sources like street vendors or restaurants, in contrast to their rural counterparts.

A meta-analysis examining dairy intake in Europe indicated that the cheese consumption among individuals in the higher SES group surpassed that of the lower SES group by 7 g/d for men and 9 g/d for women (Najem et al., 2020). Many studies linked the consumption of lean meats, fish, and other seafood to higher SES. In contrast, individuals in lower SES groups generally opted for larger amounts of fatty meats rather than the recommended lean meat options. Lower SES groups also consumed more fried,

breaded, and canned fish, along with increased quantities of stews and fried foods (Ravi, 2023). The diets of lower SES groups were also noted to have higher amounts of added fats, although only a limited number of studies made a distinction between animal and vegetable fats. There was less clarity regarding the relationship between SES and the consumption of sweets. Nonetheless, within the sweets category, higher SES groups tended to eat more candy and pastries, while lower SES groups had a higher intake (Mohamad Hasnan Ahmad et al., 2020).

A research project carried out in Minnesota, USA, among low-income individuals indicated that most female participants recognized fruits and vegetables as healthy. However, they expressed that financial constraints and the time required to prepare nutritious meals hinder their ability to maintain a healthy diet. Individuals from lower socio-economic backgrounds generally consume fewer fruits and vegetables and more sugary drinks compared to those from higher socio-economic backgrounds, largely because the cost of food influences their dietary choices (Bennasar-Veny et al., 2020).

Education level

Research conducted by Egg et al. (2020) revealed that educational level has a significant impact on the consumption of dairy products. Within the 21% who met the recommended intake of "2 - 3 times per day," a greater proportion belonged to those with tertiary education (30.8%). Conversely, only 14.3% of those with secondary education reported adhering to this guideline, despite a considerable sample size of 189 respondents. Furthermore, the connection between education level and vegetable consumption was found to be significant. Overall, adherence to vegetable intake recommendations was higher (65%) compared to non-adherence (53%). However, nearly half of the respondents with tertiary education (46.9%) did not follow the suggested guidelines.

According to Social Cognitive Theory, various elements in the social environment, including observational learning, societal beliefs, social support, and barriers, as well as opportunities, can impact behavior (LaMorte, 2022). Parents play a crucial role in shaping both the social and physical environments of their children, which can influence their dietary habits (Sebastian et al., 2021). Furthermore, the behaviors of parents, such as setting rules and norms within the household, affect what children learn, how they react to outside influences, and their self-expectations. Individuals with higher educational attainment typically possess greater nutrition knowledge; however, the effect of this knowledge on purchasing behaviors is seldom reported. Moreover, parents serve as the gatekeepers of their children's diets since they are responsible for sourcing and preparing meals and snacks. Therefore, parents are essential in fostering an environment that encourages healthy habits by making nutritious foods accessible at home, offering adolescents chances to consume healthy options, and providing motivation and support for healthy eating (Gordillo & Prescott, 2023).

A study involving students aged 11 to 18 years, part of the Healthy Heart Project at Esfahan Medical University of Medical Sciences, found that the students' perspectives on the significance of nutrition during adolescence and parental education were not significantly correlated; however, there was a significant link between the students' awareness and their nutritional behaviors and the education level of their parents ($p<0.05$). In a study by Lopez and colleagues in 2019, although there was no direct mention of the connection between awareness, nutritional practices, and parental education levels, it was noted that students with parents who had lower educational attainment exhibited lower BMI, weight, and height compared to those with parents possessing higher educational levels (Haidar et al., 2019).

Parental support has been associated with eating habits. The ways to define parental support can be categorized into four primary methods: instrumental support (such as providing necessary food or resources), emotional support (like showing care and affection), esteem support (which involves affirming actions), and knowledge support (e.g., sharing important information). Thus, parents can motivate their children to maintain a healthy diet by supplying nutritious foods, informing them about the significance of healthy eating, and affectionately validating their healthy choices. Numerous studies have indicated a strong and positive relationship between consuming a nutritious diet and the level of parental support received (Haidar et al., 2019). For example, Lopez et al. (2020) found a link between reduced consumption of sugary beverages and increased parental encouragement for a healthy diet.

Living environment

Students who stay off campus tend to prepare their own meals instead of dining out or ordering food. In contrast, those living on campus are less inclined to cook for themselves and prefer to eat at restaurants or get takeout. According to a study conducted by Rivera Medina et al. (2020), the proportions of on-campus residents who prepare their own meals, dine in restaurants, and order takeout are 42.4%, 22.0%, and 39.0%, respectively, while for off-campus residents, the figures are 60.8%, 5.9%, and 33.3%, respectively. An analysis segmented by academic level indicates that students are more inclined to cook their own meals if they are sophomores (60%), juniors (65%), or seniors (62.5%), compared to freshmen (41.5%) and graduate students (46.7%) (Yolcuoğlu & Kızıltan, 2021).

Eating habits are also shaped by the social context. When individuals share meals with others, their eating behavior tends to differ from when they are eating alone. One's

eating patterns often reflect those of their close friends (Dixon et al., 2023). This occurs partly because conforming to the behaviors of others is perceived as beneficial and satisfying. Eating habits are swayed by the actions of those around us, along with shared cultural views and environmental signals. If a person believes that their eating norms are significantly influenced by social comparison, they are more likely to conform (AlJaber et al., 2019). Considering the significance of social dining, it is essential to understand how and why sharing meals with others affects our food choices. The research indicates that individuals are more inclined to consume larger quantities of food in a group setting compared to when they are alone. Research studies and food logs by Ferrara et al., (2022) have confirmed the phenomenon of 'social facilitation' in eating. People might eat less than usual because they think a smaller portion will impress those around them. Others impact our eating behaviors by acting as a standard or guideline for acceptable conduct (Omaç Sönmez & Nazik, 2019).

2.4 Meal Consumption Pattern

At present, there is a lack of research that definitively establishes how many meals should be consumed daily. A prevalent approach suggests that daily food consumption should consist of three main meals: breakfast, lunch, and dinner, with the addition of snacks between these main meals. The National Coordinating Committee of Food and Nutrition (2019) has developed Malaysian Dietary Guidelines aimed at encouraging healthy dietary habits and lifestyles, as well as providing the most up-to-date, science-based recommendations regarding nutrition and physical activity that offer valuable insights into this topic. Nonetheless, the guidelines focus more on nutritional intake rather than on the frequency of daily meals.

For instance, a study conducted by Malmo Diet and Cancer reported that consuming over six meals a day was associated with a decreased risk of obesity compared

to having fewer than three meals daily, with those eating more frequently showing a smaller waist circumference after adjusting for diet and lifestyle factors (Paoli et al., 2019). Conversely, it was discovered that adults who consumed one or two meals each day tended to have a somewhat lower BMI than those who ate three meals a day (El Zein et al., 2019). The authors conclude that maintaining a consistent meal schedule that includes breakfast, consuming a substantial amount of energy early in the day, decreasing meal frequency to two or three times daily, and incorporating regular fasting periods contribute positively to human health. As a result, it is suggested that irregular meal patterns, such as skipping meals, are harmful due to their effects, particularly in increasing obesity rates. This is particularly relevant as research conducted by Sönmez and Nazik (2019) show that students at the University of Turkey who skip meals tend to have a significantly higher body mass index (BMI). University students are more likely to skip breakfast, in addition to having low intake of fruits and vegetables (Beaudry et al., 2019). Bede et al. (2020) also noted that there is a high prevalence of breakfast skipping among young individuals, especially university students, which may indicate a trend toward adult obesity.

2.5 Eating Habits Among University Students

Research has indicated that university students often maintain unhealthy dietary patterns. As a result, it is not surprising that scholars have thoroughly investigated their poor eating behaviors. A study by Yusni et al. (2023) revealed that out of 624 students at Universiti Sains Malaysia, 27% were classified as underweight, while approximately 12% fell into the overweight or obese categories. Additionally, a study from Universiti of Malaya found that 35.3% of 2,665 students at a public university in Kuala Lumpur consumed fast food at least once a week (Beal et al., 2019).

Chan et al., (2020) found that over 50% of university students failed to meet the recommended intake of calories, vitamin C, and minerals as outlined by the Malaysian Recommended Nutrient Intake (RNI). The research indicated a necessity to encourage healthy eating practices among young adults to attain proper nutritional health. Fauzi et al., (2021) identified that behaviors such as skipping meals, particularly breakfast, along with snacking and various dieting practices for weight loss were common unhealthy eating habits among Malaysian adolescent girls. Compared to children and adults, university students are often neglected in research regarding eating behaviors. Instead, they are frequently missed as key individuals for promoting a healthy lifestyle. As students advance through their college experience, their responsibilities tend to increase. According to Cheng & Mohd Kamil (2020), academic pressures can significantly impact the eating habits and overall health of university students. Additionally, Ragab et al., (2021) highlighted that the detrimental effects of poor eating behaviors on these 87 young individuals' health underline the importance of promoting health and preventing diseases during the crucial transition from adolescence to adulthood. It is essential for university students to maintain a well-balanced diet, as those who are well-nourished tend to learn more effectively. Proper nutrition can enhance their attentiveness in class and improve memory retention, which in turn, can lead to better academic performance. Moreover, maintaining good dietary habits can help them avoid chronic health issues in the future.

Research conducted among university students in developing nations indicates a rise in the intake of high-calorie and fatty foods alongside a decrease in the consumption of fruits and vegetables. Many university students often indicate that they consume less than the recommended portions of key food groups, including cereals, tubers, fruits, vegetables, dairy, poultry, meat, nuts, and seeds, while their intake of fatty foods and drinks tends to increase (Mogeni & Ouma, 2022). Enhancing dietary habits is a societal

challenge rather than just an individual one. Consequently, it requires a population-based, multi-sectoral, multi-disciplinary, and culturally appropriate approach (NCDs, 2023).

Findings shows that a greater proportion of medical students (67.3%) eat breakfast compared to their non-medical counterparts (53.8%). For medical students, regularly eating breakfast is essential to achieve adequate energy consumption to "mitigate fatigue due to their demanding daily learning schedules" (Regan et al., 2022). This suggests that medical students possess improved knowledge about health-related dietary issues (Shahin, 2020). Thus, this knowledge seems to manifest in their dietary practices. The results of the study by Mohd-Sidik et al., (2021) align with these findings, showing that more than half of the participants who reported having breakfast were within a normal BMI range.

2.6 Conceptual Framework

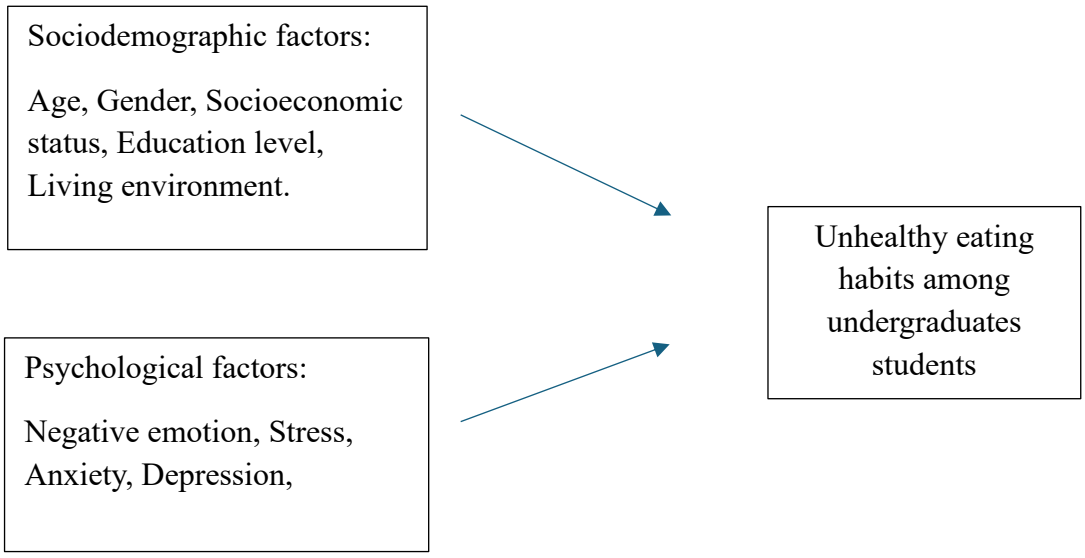

Figure 1.1 Conceptual framework of the study

Figure 1.1 shows the presented conceptual framework. Two independent variables have been proposed: sociodemographic and psychological factors. The dependent variable is eating habits among health sciences undergraduates at USMKK.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Research Design

This research study was a cross-sectional study among health sciences undergraduates at USMKK. A cross-sectional study allowed to measure the exposure (sociodemographic and psychological factors) and outcome (eating habits) at the same time. This study design was inexpensive and easy to conduct the study (Wang & Cheng, 2020).

3.2 Study Area

This research was conducted in Universiti Sains Malaysia, Health Campus. It was located at Kubang Kerian, Kelantan, Malaysia, with the approval from PPSK Dean. (refer to Appendix E)

3.3 Study Population

The participants of this research consist of undergraduate students in health sciences enrolled at Universiti Sains Malaysia Kampus Kesihatan (USMKK). This group includes individuals from a range of health-sciences fields such as audiology, biomedicine, dietetics, environmental & occupational health, exercise & sport science, forensic science, medical radiation, nursing, nutrition, and speech pathology.

The focus on the eating habits of health sciences undergraduates at USMKK was chosen due to its potential implications for their health and professional practice, the transitional challenges of university life, the impact of sociodemographic and psychological factors, and its contribution to public health initiatives. By exploring an existing gap in the literature and concentrating on the local context, this research offered valuable insights

and actionable recommendations for enhancing dietary behaviors among future health professionals.

Health sciences students frequently encountered distinctive stressors related to their demanding academic and clinical training. These stressors can greatly influenced their eating habits and overall well-being, making this demographic a significant target for study.

3.4 Research Subject Criteria

3.4.1 Inclusion Criteria

1.Undergraduates students under school of Health Sciences programme

2. Aged 18 years and above

3. Able to understand English and Malay

3.4.2 Exclusion Criteria

1. Participants who cannot access the online Google Form survey

2. Part time students

3.5 Sampling Size Estimation

The sample size is determined by using one proportion, one single mean and two mean calculations.

Formula is as stated below.

$$n = \left(\frac{Z}{\Delta}\right)^2 p(1-p)$$

n = sample size

Z = value representing desired confidence level

$\boldsymbol{\Delta}$ = precision

P = anticipated population proportion

$$n = \left(Z\ x\ \frac{\sigma}{\Delta}\right)^2$$

n = sample size

Z = value representing desired confidence level

$\boldsymbol{\Delta}$ = precision

σ =population standard deviation

$$n = \frac{2\sigma^2}{\Delta^2}(z_{\propto} + z_{\beta})^2$$

n = sample size

σ =population standard deviation

$\boldsymbol{\Delta}$ = precision

z_{α} = level of statistical significant

z_{β}=power of the study

3.5.1 OBJECTIVE 1

i. To identify the sociodemographic profiles of health sciences undergraduates at USMKK.

Using precision value of 0.05 and the confidence level of 95% for the study, Z-score will be 1.96. According to a previous study from (Mohd Jamil et al., 2020) the average age among public university students in Peninsular Malaysia is 21.6, with standard deviation 0.14.

$$n = \left(1.96\ x\ \frac{0.14}{0.05}\right)^2$$

n=30

Considering the non-response rate at 20%, the final sample size calculation is

n = 30+ (20% x 30)

n = 36

3.5.2 OBJECTIVE 2

ii. To determine the prevalence of psychological factors among health sciences undergraduates at USMKK.

Using precision value of 0.05 and the confidence level of 95% for the study, Z-score will be 1.96. According to previous study from (Chaudhry et al., 2024), the mean of psychological well-being in higher education school was 5.40, with standard deviation 0.11.

$$n = \left(1.96\ x\ \frac{0.11}{0.05}\right)^2$$

n=19

Considering the non-response rate at 20%, the final sample size calculation is

n = 19 + (20% x 19)

n = 23

3.5.3 OBJECTIVE 3

iii. To assess the pattern of eating habits among health sciences undergraduates at USMKK

Using precision value of 0.07 and the confidence level of 95% for the study, Z-score will be 1.96. According to previous study from (Chen Yun et al., 2018), the proportion of university students who had a snacking habit regularly was 82.2% which is equivalent to 0.822.

$$n = \left(\frac{1.96}{0.07}\right)^2 0.822(1 - 0.822)$$

n=115

Considering the non-response rate at 20%, the final sample size calculation is

n = 115 + (20% x 115)

n = 138

3.5.4 OBJECTIVE 4

iv. To compare the differences in eating habits among health sciences undergraduates at USMKK based on sociodemographic factors.

Using precision value of 0.05 and the confidence level of 95% for the study, Z-score will be 1.96. According to previous study from (Radzi et al., 2022), the mean of emotional eating behavior between female and male university students was 0.08.

$$n = \frac{2(0.08)^2}{0.05^2}(1.96 + 0.84)^2$$

n=40