



NUTRITION RESEARCH PROJECT
SEMESTER 2 2023/2024

Thesis Final Year Project

Assessing Weight Management Knowledge Among Undergraduate
Students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan

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CERTIFICATION OF APPROVAL

This is to certify that the dissertation entitled “Assessing Weight Management Knowledge Among Undergraduate Students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan” is the bona fide record of research work done by Muhd Fiqri Ariff Bin Saffri (159886) during the period from April 2024 to Jan 2025 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 in Nutrition With Honours.

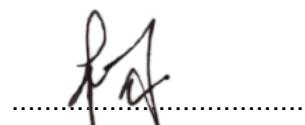
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DECLARATION

I affirm that this dissertation is the result of my own research unless I have explicitly acknowledged any contributions made by others. I also confirm that it has not been submitted in full for any degree at Universiti Sains Malaysia or any other institution, either previously or at the same time. I give Universiti Sains Malaysia permission to use this dissertation for educational, research, and promotional purposes.

Fiqri Ariff

A handwritten signature in black ink, appearing to read 'fiqri' or 'ariff', followed by a horizontal dotted line for a signature line.

Muhammad Fiqri Ariff Bin Saffri

Date: 8 January 2025

Acknowledgements

I want to take this moment to express my sincere gratitude to Dr. Hafzan Yusoff, my supervisor, whose advice and mentoring have been crucial to the success of this study. Her extensive knowledge and experience have yielded insightful information, and her support has consistently served as a source of inspiration. Without her encouragement and commitment, this thesis would not have been completed.

I owe my mother a huge debt of gratitude for her understanding and constant support during this difficult academic journey. My greatest strength has been her love, patience, and confidence in my talents. Her sacrifices have not gone unappreciated, and she has consistently inspired me to keep going.

Additionally, I would like to sincerely thank our course coordinator, Dr. Wan Faizah Wan Yusoff, for her dedication to our academic success. Her precise instructions and unwavering work ethic have given much-needed direction, which has been crucial to the accomplishment of this study.

I am writing to express my sincere gratitude to the health campus's PPSK students for their cooperation and involvement in the academic year 2023–2024. Achieving the goals of this research has been made possible by your willingness to donate your time and energy to the study and to encourage your classmates to participate as well.

I am also incredibly grateful for my friends' and coworkers' constant support during this difficult journey, especially from Emerald members. During the more trying times of my journey, your support and comprehension have been a source of strength and comfort.

Finally, I want to express my gratitude to everyone who has helped me along the way, whether directly or indirectly. This achievement is the result of your support and faith in my potential. I appreciate everyone joining me on this adventure.

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Abstrak (Malay)

Kajian ini meneliti tahap pengetahuan, sikap, dan amalan (KAP) mengenai pengurusan berat badan sihat dalam kalangan pelajar prasiswazah di Universiti Sains Malaysia, Kampus Kubang Kerian, Kelantan. Seramai 169 pelajar terlibat, mewakili latar belakang demografi yang pelbagai. Data dikumpulkan menggunakan soal selidik yang disahkan untuk menilai pengetahuan pemakanan, sikap terhadap pemakanan sihat, dan kepatuhan terhadap amalan pemakanan yang disyorkan.

Hasil kajian menunjukkan bahawa 90.53% peserta mempunyai pengetahuan pemakanan yang baik, manakala 93.49% menunjukkan sikap positif terhadap pemakanan sihat. Walau bagaimanapun, tiada peserta yang mencapai skor amalan "baik," menonjolkan jurang ketara antara kesedaran dan perlakuan sebenar. Analisis statistik menunjukkan hubungan signifikan antara etnik dan tahap KAP ($p = 0.031$), manakala jantina, jurusan akademik, dan tahun pengajian tidak menunjukkan hubungan signifikan. Selain itu, status BMI tidak mempunyai kaitan signifikan dengan tahap KAP ($p = 0.086$), dan korelasi positif yang lemah tetapi tidak signifikan ($r = 0.089$, $p = 0.25$) diperhatikan antara BMI dan KAP. Penemuan ini menekankan kepentingan menangani jurang antara pengetahuan dan amalan melalui intervensi yang disasarkan, terutamanya yang mengambil kira pengaruh budaya terhadap tingkah laku pemakanan.

Abstract (English)

This study focuses on undergraduate students at Universiti Sains Malaysia's Kubang Kerian Campus in Kelantan's knowledge, attitudes, and practices (KAP) about healthy weight control. 169 students in all, representing a range of demographic backgrounds, took part. A validated questionnaire measuring attitudes toward healthy eating, knowledge of nutrition, and compliance with suggested dietary behaviors was used to gather data.

According to the results, 90.53% of participants knew a lot about nutrition, and 93.49% had favorable opinions about eating healthily. None of the subjects received a "good" practice score in spite of these favorable results, indicating a significant discrepancy between awareness and actual action. While gender, academic major, and year of study did not substantially correlate with KAP levels, statistical analysis revealed a significant correlation between ethnicity and KAP levels ($p = 0.031$). Furthermore, there was a slight, non-significant positive correlation ($r = 0.089$, $p = 0.25$) between BMI and KAP, and there was no significant relationship between BMI status and KAP levels ($p = 0.086$). These findings highlight the significance of implementing focused interventions to close the knowledge-practice gap, especially those that take cultural influences on eating habits into account.

Chapter 1

Research title: "Assessing Weight Management Knowledge Among Undergraduate Students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan"

1.1 Introduction:

Obesity and overweight are significant public health challenges worldwide, affecting individuals of all ages, including university students. In recent years, there has been a growing concern about the rising prevalence of obesity among young adults, particularly those enrolled in higher education institutions. As indicated by the latest findings from the National Health and Nutrition Examination Survey (NHANES), overweight and obesity represent a significant public health issue in the United States (US). The data reveals that 60.3% of adults aged 20–39 years are classified as overweight (BMI 25.0–29.9) or obese (BMI ≥ 30), underscoring the magnitude of the problem (Stephens et al., 2017). Universiti Sains Malaysia (USM) in Kubang Kerian, Kelantan, is no exception, as its student population faces similar health risks associated with excess weight. Recent studies at Universiti Sains Malaysia revealed that the majority of participants were female (78.2%) and predominantly Malay (80.5%), with an average age of 22 ± 3.1 years. Most participants had a normal BMI (56.4%), whereas 16.5% were underweight, 18.8% were overweight, and 8.3% were obese (Ibrahim et al., 2023).

University life often brings about significant lifestyle changes, including shifts in dietary habits, decreased physical activity, and heightened stress levels. It is evident that many university students lead unhealthy lifestyles, characterized by inadequate dietary choices, excessive alcohol consumption, smoking habits, and insufficient sleep patterns (Ramli et al., 2024). These changes, combined with factors such as limited time and resources, can predispose students to weight gain and obesity if not managed effectively. Consequently, numerous young individuals may transition from a healthy weight to being overweight, increasing their susceptibility to chronic diseases (Wongprawmas R, 2022). Despite the growing awareness of the importance of maintaining a healthy weight, many students may lack the necessary knowledge and skills to adopt and sustain healthy behaviors. Providing detailed nutritional information may not always be effective because healthy-eating

guidelines are mainly developed from epidemiological data and often overlook the personal and practical barriers faced by consumers (Wongprawmas R, 2022).

The cultural and environmental context of Kelantan further adds complexity to the issue of weight management among USM students. Cultural norms and dietary preferences prevalent in the region may influence students' food choices and eating patterns, potentially impacting their weight status. Current environmental factors have shaped the dietary habits of students on a daily basis, notably impacting their choices of food, the pricing of food items, the conditions of food outlets, and transportation accessibility (Ahmad et al., 2024). Additionally, the availability of recreational facilities and access to nutritious food options on campus play pivotal roles in shaping students' health behaviors. Insufficient transportation options contribute to challenges in students' daily nutrition, as they may incur high delivery costs when accessing restaurants located far away (Ahmad et al., 2024)

Understanding the level of weight management knowledge among university students is essential for designing targeted interventions and educational initiatives to promote healthier lifestyles. By assessing students' awareness of weight loss strategies, nutritional knowledge, and attitudes towards physical activity, stakeholders can develop evidence-based programs tailored to the specific needs and preferences of USM students in Kubang Kerian, Kelantan.

This study aims to investigate the potential barriers to adopting healthy behaviors among students at Universiti Sains Malaysia (USM) using a self-administered qualitative survey structured in the form of a questionnaire. Additionally, it seeks to assess the students' current level of knowledge regarding weight management through a quantitative approach utilizing a validated questionnaire. The questionnaire that will be used in this study was adapted from Yusni et Al (2024). By shedding light on this important issue, policymakers, educators, and healthcare professionals can collaborate to implement effective interventions that empower students to make informed decisions about their health and well-being.

1.2 Problem Statement:

The prevalence of obesity and overweight among university students is a significant public health concern globally. Remarkably, a comprehensive study indicated that around one-third of university students were categorized as overweight or obese, underscoring a significant issue with weight management among this demographic (Rabanales-Sotos et al., 2020). Results from a prior study revealed that the combined prevalence of overweight and obesity among Malaysian university students stands at 21.2% and 16.3%, respectively (Radzi et al., 2019). However, there is a dearth of empirical research examining the level of weight loss knowledge specifically among students at Universiti Sains Malaysia (USM) in Kubang Kerian, Kelantan. Despite numerous initiatives promoting healthy lifestyles by the health authorities such as the 'Eat Right, Be Positive About Your Body and Live Actively' (EPaL) intervention program was designed to prevent overweight and disordered eating among Malaysian adolescents by focusing on three key aspects of a healthy lifestyle: promoting healthy eating habits (Ishak et al., 2020). Despite endeavors to nurture a positive body image and promote an active lifestyle, there remains a notable lack of thorough comprehension regarding weight loss strategies and practices among this demographic.

Studies have shown that university students often experience lifestyle changes and increased stress levels, which can lead to unhealthy eating habits and sedentary behaviors, contributing to weight gain. In Janagar Manoharan's study conducted in 2024, it was found that there is a correlation between elevated perceived stress levels and median BMI, as well as a link between uncontrolled eating and emotional eating with perceived stress levels (Janagar & Divya, 2024). Stress has the ability to alter both food consumption and an individual's behavior related to food (Cheng & Kamil, 2020). Without adequate knowledge about effective weight loss methods and the associated risks of obesity, students may struggle to make informed decisions about their dietary choices, physical activity levels, and overall health.

The increase in overweight or obese students is largely due to the stressful transition from high school to college, especially for first-year students adapting to new academic, social, and personal environments (Denovan & Macaskill, 2016). Moreover, the cultural and environmental factors unique to the Kelantan region may influence students' perceptions and practices related to weight loss. These factors, coupled with the limited availability of resources and support for healthy living on campus, further exacerbate the challenge of promoting wellness among USM students.

Addressing this knowledge gap is crucial for developing targeted interventions and educational programs tailored to the specific needs of university students in Kubang Kerian, Kelantan. Although nutritional knowledge alone may not be sufficient to induce behavioral change, enhancing this knowledge can still be considered a significant accomplishment. This is because improved nutritional understanding has the potential to play a minor but crucial role in helping individuals adopt healthier dietary habits (Worsley, 2002). By gaining insights into their current level of weight loss knowledge, policymakers, educators, and healthcare professionals can implement evidence-based strategies to empower students to make healthier lifestyle choices and mitigate the risks associated with obesity and related health conditions.

1.3 Significant of study

The significance of this study lies in its targeted focus on assessing weight management knowledge among undergraduate students at Universiti Sains Malaysia (USM), Kubang Kerian Campus, Kelantan. Despite the global prevalence of overweight and obesity among university students, there exists a notable dearth of empirical research specifically investigating the level of weight management knowledge within this demographic, particularly at USM. By filling this gap, the study aims to provide insights into the current understanding of weight loss strategies and nutritional knowledge.

Examining the weight management knowledge among students at Universiti Sains Malaysia (USM) is pivotal for various reasons. Firstly, it provides insights into the distinct hurdles and obstacles they encounter when striving to embrace and sustain healthy habits. These challenges encompass the adjustments necessitated by shifts in lifestyle, heightened levels of stress, and the pervasive influence of cultural and environmental factors prevalent in the Kelantan region. By delving into these complexities, the study illuminates the multifaceted nature of the student experience and underscores the importance of tailoring interventions to address their specific needs and circumstances.

Secondly, the research findings serve as a crucial foundation for the development of targeted interventions and educational programs. By understanding the nuances of students' knowledge gaps and misconceptions regarding weight management, educators and policymakers can craft initiatives that resonate with their unique perspectives and preferences. These initiatives are designed not only to disseminate accurate information but also to empower students with practical strategies for adopting healthier lifestyles. Through such tailored interventions, the aim is to mitigate the pervasive risks associated with overweight and obesity within the student population, fostering a culture of wellness and resilience against adverse health outcomes.

Moreover, this study contributes to the broader discourse on public health by highlighting the importance of addressing weight management knowledge among university students, who represent a significant demographic group susceptible to weight-related health issues. By empowering students with accurate information and resources, policymakers, educators, and healthcare professionals can collaborate to implement evidence-based

strategies that promote informed decision-making and foster a culture of wellness within the university community.

In summary, the significance of this study lies in its potential to advance understanding, inform interventions, and ultimately improve the health and well-being of undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan, and beyond.

1.4 Research Question(s):

1. What is the overall knowledge, attitude and practices (KAP) level regarding healthy weight management among undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan?
2. Is there any significant association between demographic variables (age, gender, and academic major), knowledge, attitude and practices (KAP) level, and BMI status regarding healthy weight maintained among undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan?

1.5 Research hypothesis:

1. Hypotheses 1:

- a. **Null Hypothesis (H0):** Undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan have a low overall knowledge, attitude, and practices (KAP) level regarding healthy weight management.
- b. **Alternative Hypothesis (H1):** Undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan have a high overall knowledge, attitude, and practices (KAP) level regarding healthy weight management.

2. Hypotheses 2:

- a. **Null Hypothesis (H0):** There is no significant association between demographic variables (age, gender, and academic major), knowledge, attitude, and practices (KAP) level, and BMI status among undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan.
- b. **Alternative Hypothesis (H1):** There is a significant association between demographic variables (age, gender, and academic major), knowledge, attitude, and practices (KAP) level, and BMI status among undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan.

1.6 Objective:

General:

To determine the level of nutrition knowledge, attitude and practice regarding weight management among undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan.

Specific: Quantitative survey (Validated Questionnaire)

1. To assess the level of nutrition knowledge, attitude and practice among undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan, as part of determining their overall understanding of weight management principles.
2. To determine any significant association between BMI and nutrition knowledge, attitude and practice level among undergraduate students in managing healthy weight.

Chapter 2

2.1 Literature Review:

2.1.1 Obesity and Overweight Among University Students

The prevalence of obesity and overweight among university students is indeed alarming, with numerous factors contributing to this concerning trend. Obesity and overweight, marked by abnormal or excessive fat accumulation that may harm health, have emerged as significant global health issues, with obesity rates doubling every 5 to 10 years (Ishak et al., 2020). Studies consistently reveal a growing prevalence of obesity among young adults, particularly those enrolled in higher education institutions (Laska et al., 2011). This rise in obesity rates raises concerns due to its associated health risks, such as an increased likelihood of developing chronic diseases like diabetes, cardiovascular issues, and certain cancers. For many students, the newfound independence and freedom from parental oversight may lead to poor food choices, such as increased consumption of fast food, processed snacks, and sugary beverages, which are commonly available on college campuses. Upon entering university, students encountered new challenges such as altered schedules, lifestyles, and cultural environments, which, coupled with high levels of stress, may lead them to adopt inappropriate coping behaviors, frequently alter their body composition, and reduce their physical activity (S. N. F. F. Ahmad et al., 2023). Moreover, the demanding academic environment and pressure to excel academically can contribute to heightened stress levels among university students. Stress is recognized for its ability to alter our appetite, causing us to either eat less or eat more due to negative moods (Dakanalis et al., 2023). The findings of this study are contrary to the previous study, which indicated that stressed individuals are more likely to choose fatty foods compared to non-stressed individuals (Cheng & Kamil, 2020). These lifestyle changes, coupled with the transition to university life and exposure to unhealthy environments, further exacerbate the risk of obesity among this population.

2.1.2 Weight Loss Knowledge Among University Students

In Malaysia, multiple nutrition intervention programs have been implemented among children aged 8 years, adolescents, and children dealing with overweight and obesity issues. These programs have demonstrated the effectiveness of nutrition education interventions in enhancing participants' knowledge, attitudes, and practices related to nutrition (Teo et al., 2019). Despite the increasing focus on promoting health and preventing diseases, a considerable number of university students lack the necessary knowledge and skills to adopt and sustain healthy behaviors, particularly in the realm of weight management. Research conducted by Nelson et al. (2007) reveals that although students may possess fundamental knowledge regarding weight loss principles, such as the significance of balanced nutrition and regular physical activity, they often encounter challenges when attempting to implement this knowledge into their daily routines. A study conducted among university students in Malaysia found that they had a high level of knowledge (74.0%) and a positive attitude (80.3%), but their practice was lacking (78.0%) (Yusni et al., 2023). For instance, students frequently underestimate portion sizes, misinterpret food labels, or resort to trendy diets that are not conducive to long-term sustainability. This underscores the urgency for comprehensive educational endeavors aimed at enhancing students' practical comprehension of weight management and advocating for evidence-based strategies to foster healthy lifestyles. In light of these findings, universities and educational institutions play a pivotal role in equipping students with the requisite tools and resources to navigate the complexities of maintaining optimal health and well-being throughout their academic endeavors and beyond.

2.1.3 Association of BMI and Weight Management Knowledge

Recent studies have highlighted the complex relationship between Body Mass Index (BMI) and weight management knowledge. BMI, a widely used measure to classify underweight, normal weight, overweight, and obesity, is often impacted by individuals' awareness and understanding of weight management principles. The knowledge, attitude, and behavior model of health education suggests that while attitude is crucial, it must be paired with an increase in knowledge to achieve successful behavior change (Mikhail et al., 2020). This association suggests that better-informed individuals are more likely to engage in behaviors that maintain a healthy weight, such as balanced diets and regular physical activity.

Community-based obesity interventions focusing on health education and behavior modification effectively reduce body weight, BMI, and waist circumference, thereby preventing and treating obesity within communities (Zeb et al., 2024). However, the research also indicates disparities in weight management knowledge across different demographics, which could contribute to the varying prevalence of obesity. These findings underscore the importance of targeted educational programs to address these gaps and promote healthier BMI outcomes across diverse populations.

2.1.4 Cultural and Environmental Factors Impacting Weight Loss Knowledge

The cultural and environmental context of a region plays a significant role in shaping individuals' perceptions and practices related to weight loss. In Kelantan, Malaysia, cultural norms and dietary preferences may influence students' food choices and eating patterns, potentially impacting their weight status. For example, traditional Malaysian cuisine often includes high-calorie dishes rich in coconut milk and sugar, which may contribute to excess calorie intake and weight gain if consumed frequently (Harmayani et al., 2019). In Malaysia, there exists a tradition known as "rumah terbuka" or "open house," where individuals from the general public, regardless of their familiarity with the host, are invited to partake in gatherings or festivities (Johari, 2019). Traditional foods served during these occasions tend to be high in calories, sugar, and saturated fats, contributing to the overall dietary intake of individuals. Additionally, the availability of recreational facilities and access to nutritious food options on campus can significantly influence students' health behaviors. Environmental changes, such as the absence of infrastructure conducive to physical activity, like parks, trails, sidewalks, and affordable gyms, present obstacles that hinder people from engaging in regular physical exercise. Hence, due to their busy schedules, numerous students may experience compromised health due to consuming a diet lacking in variety and nutritional value, which is suboptimal (Ramlil et al., 2024). Research by Nelson et al. (2009) demonstrated that students with easier access to healthy food options and opportunities for physical activity were more likely to engage in healthy behaviors and maintain a healthy weight. Understanding these cultural and environmental factors is essential for developing targeted interventions that address the specific needs and preferences of university students in Kelantan.

2.1.5 Effectiveness of Interventions Targeting University Students

Interventions targeting university students have shown promising results in improving weight-related outcomes and promoting healthier behaviors. Multi-component interventions, including educational workshops, behavioral counseling, and environmental modifications, have been effective in promoting healthy behaviors and preventing weight gain among young adults (Greaves et al., 2011). In Khan's 2020 study, an incentive-based weight reduction technique was implemented, resulting in a significant reduction in participants' body weight. The study demonstrated that monetary incentives are effective in motivating weight loss (Khan et al., 2020). These improvements included reductions in body weight, enhancements in dietary practices, and increased levels of physical activity. Not all nutrition interventions guarantee successful results. Some may only improve specific aspects of the goal, as changing attitudes and achieving lasting dietary changes often takes time. In Ishak's 2020 study, stated that their intervention study lasted approximately 8.5 hours, no changes were observed in participants' attitudes and practices, which might be attributed to the peer educators needing more time to influence their peers and practice being role models for healthy living (Ishak et al., 2020). These findings underscore the importance of implementing evidence-based strategies to empower university students to make healthier lifestyle choices and mitigate the risks associated with obesity and related health conditions.

In summary, it is imperative to address the weight loss knowledge and behaviors of university students to alleviate the challenges posed by obesity and overweight within this demographic. Through the identification of obstacles hindering effective weight management and the application of evidence-based interventions, stakeholders can equip students with the knowledge needed to make informed choices regarding their health and wellness, thereby fostering healthier outcomes and elevating overall quality of life.

2.2 Conceptual Framework

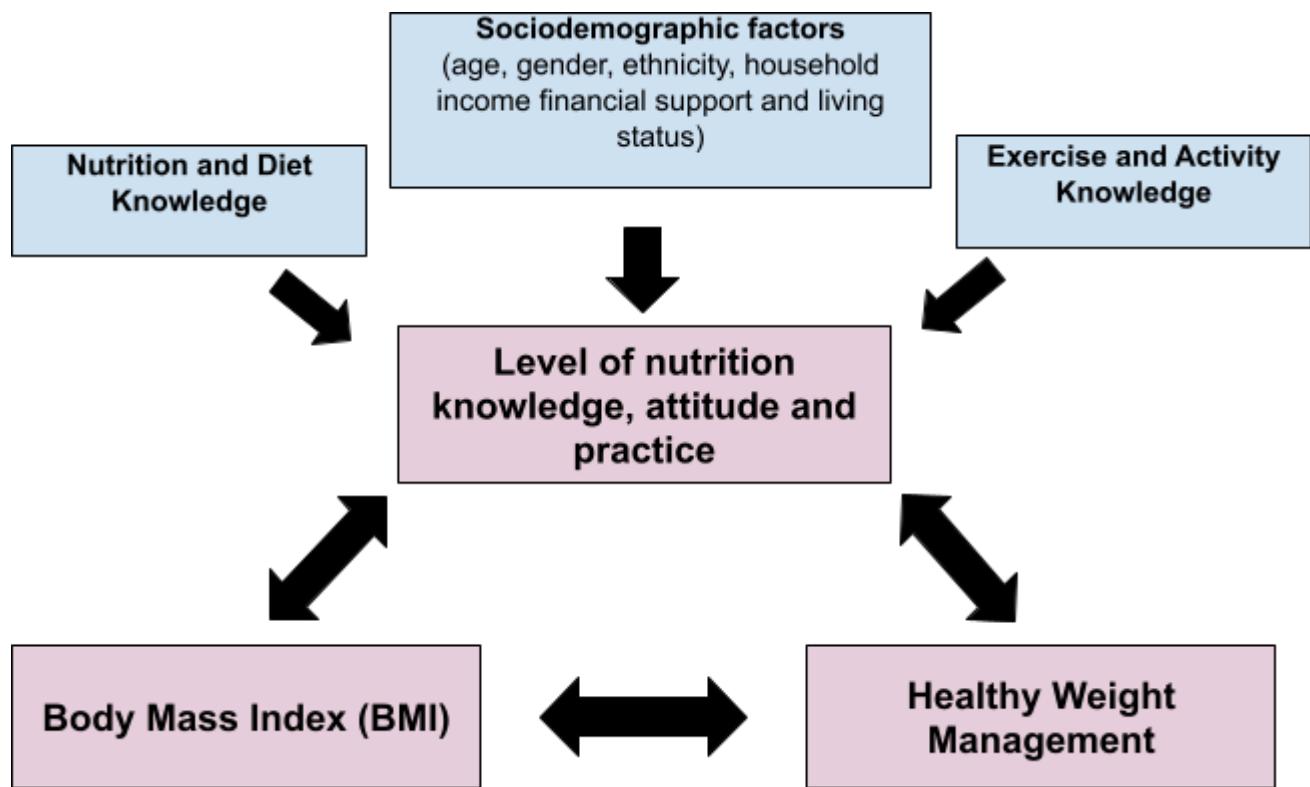


Figure 1: Conceptual framework

The conceptual framework for evaluating weight loss knowledge among undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus, Kelantan, integrates essential theoretical constructs and factors that influence weight loss behaviors. It delineates how these factors interrelate and impact students' nutrition knowledge, attitude and practice in weight management. Under individual factors, considerations include demographic variables like age, gender, and academic major, along with nutrition knowledge, attitude and practice attitudes towards weight management and healthy behaviours. Within the research variables, independent variables consist of demographic variables, knowledge about weight loss strategies, and campus resources and environmental factors, while the dependent variable is weight loss knowledge among undergraduate students. By scrutinizing the relationships among these theoretical constructs and factors, the conceptual framework furnishes a comprehensive comprehension of weight loss knowledge among undergraduate students, thereby guiding the development of targeted interventions and educational programs aimed at fostering healthier lifestyles on campus.

Chapter 3

3.0 Methodology:

3.1 Research design

This study will employ a cross-sectional approach to evaluate the level of weight management among undergraduate students at Universiti Sains Malaysia, Kubang Kerian Campus in Kelantan. Before commencing data collection, formal approval will be sought from the Human Research Ethics Committee USM (HREC) to ensure compliance with ethical guidelines.

3.2 Study area

This study will be conducted at Universiti Sains Malaysia (USM) in Kubang Kerian, Kelantan. It will focus on undergraduate students enrolled in the School of Health Sciences. Data collection will be facilitated through an online platform utilizing Google Forms. Utilizing an online questionnaire allows researchers to swiftly engage with respondents via email or messaging systems. This method also expedites data collection, reducing overall time requirements. Furthermore, participants have the flexibility to access and complete surveys at their convenience. Additionally, online platforms like Google Forms offer built-in analytical tools, streamlining the process of data analysis and interpretation for researchers.

3.3 Study population

The study targets undergraduate students aged between 18 to 25 years enrolled in the School of Health Sciences at Universiti Sains Malaysia (USM), Kubang Kerian, Kelantan during the academic session of 2023/2024, ensuring they meet the specified recruitment criteria. Obtaining a total population of 1185 students from the administration office of the School of Health Sciences (PPSK). The research aims to utilize undergraduate students as participants to raise awareness and prevent overweight and obesity. Additionally, the study will assess the level of their knowledge regarding weight loss.

3.4 Subject Criteria

3.4.1 Inclusion Criteria:

- I. Undergraduate students enrolled at Universiti Sains Malaysia (USM), Kubang Kerian Campus, Kelantan.
- II. Students aged 18 to 25 years
- III. All gender and races
- IV. Students willing to participate voluntarily in the study
- V. Students able to understand English language
- VI. Students from various academic majors in School of Health Science

3.4.2 Exclusion Criteria:

- I. Incomplete response of questionnaire
- II. Students with known medical conditions that significantly affect weight management (e.g., thyroid disorders, eating disorders) unless such conditions are under control and do not interfere with their ability to provide accurate information for the study.

3.5 Sample size estimation

There is a notable deficiency in research focusing on weight management among undergraduate students. To address this gap, the sample size for the current study will be determined using the findings from a 2022 study entitled “Determinants of Overweight and Obesity Among Undergraduate Students in a Public University, Malaysia”. This previous study revealed that 31.7% of undergraduate students over the age of 24 were either overweight or obese. More specifically, the study found that 19.8% of these students were categorized as overweight, while 11.9% were classified as obese (Mohammad et al., 2022).

$$n = [(Z/\Delta)^2]p(1 - p)$$

$n = \text{sample size}$
 $Z = \text{statistic corresponding to confidence level}$
 $p = \text{expected prevalence}$
 $\Delta = \text{precision}$

Figure 2: Sample Size Formula for Proportions.

Sample size, $n = [(1.96/0.08)^2]0.317(1 - 0.317)$
 $n = [(600.25)]0.317(0.683) = 129.96 \approx 130$

To account for possible dropouts, additional participants need to be enrolled in the study. A higher dropout rate is anticipated due to the study population's heavy workloads, which might lead some to withdraw from the study. Consequently, a 20% dropout rate is factored into the sample size:

Drop out rate 20%

Sample size $n = 130 + 20\% (\text{drop out rate}) = 156$

As a result, the final number of participants included in this research will be approximately 156 individuals.