

UNIVERSITI TEKNOLOGI MARA

**THE RELATIONSHIP BETWEEN LIFESTYLE FACTORS AND
LIPID PROFILES AMONG MALAYSIAN ADULT**

SITI RUDIAH BINTI IBRAHIM

2022464548

Bachelor (Hons.) of Dietetics

Faculty of Health Sciences

JULY 2025

ACKNOWLEDGEMENT

In the name of Allah S.W.T, The Most Gracious and the Most Merciful. First and foremost, I want to express my sincere gratitude to Allah S.W.T. for giving me the courage to finish this thesis and earn my bachelor's degree, despite the tight deadline and the many unfinished assignments. His guidance has been my every moment supporter, keeping me patient and encouraging me to submit my thesis at all costs, though I have already gone through so much.

Secondly, I would like to thank my respected supervisor, Professor Dr. Norazmir bin Md Nor. His insightful guidance and unwavering support throughout my final year project have been invaluable. Thank you for believing in my potential and helping me grow academically. His insightful feedback and patience in navigating the complexities of my research have inspired me to strive for excellence.

Furthermore, I want to give a big cheer and be thankful to my teammates, Farah Hanna, Alia Batrishah and Nur Fashihah for their cooperation and compassion in working together to complete this study from the beginning of the project. Thank you for their unwavering support, encouragement, understanding and have been with me through the ups and downs especially at the end of the submission of this thesis and it was very challenging for us. Whether it was sharing laughs during moments of stress or staying up late to talk and brainstorm ideas, they all played a crucial role in keeping me motivated, and I could not have done this without them.

I would also like to thank my family members, my beloved mother and brother because they provided me with their boundless love and support, making me stronger and allowing me to make a better exit in completing this thesis. I know my mother's prayer can move mountains and lift me through the toughest of times. They always believe in me and being my greatest source of strength. And also, I wish to express my gratitude to my friend, Maizatul Farahana who was very kind by lending me her laptop. If not because of her, maybe I am facing difficulty in completing my thesis. Lastly, to everyone who has been part of this journey, I am forever grateful for your kindness, support and encouragement. I would be so proud of myself that I survived the entire journey, and here I am. Alhamdulillah.

ABSTRACT

Obesity is a growing global health issue, with increasing rates seen globally, especially in Malaysia, where the rising prevalence of overweight and obesity poses significant public health challenges. (Tiwari & Balasundaram, 2023; Chong et al., 2023). According to the World Health Organisation (2021), the worldwide prevalence of obesity nearly tripled between 1975 and 2016 (Ahmed & Konje, 2023). This study aims to determine how lifestyle factors such as dietary habits, psychological well-being and physical activity level can affect lipid parameters among Malaysian adults. The study includes three phases: phase 1 (pre-assessment), phase 2 (intervention-phase), and phase 3 (post-assessment). Participants must complete the assessment, including questionnaires, anthropometric measurements, and blood collection during phases 1 and phase 3. For phase 2, an intervention group involved in an intervention program. As the data were not normally distributed, non-parametric tests (Wilcoxon Signed-Rank and Mann–Whitney U tests) were employed. Intervention groups showed considerable reductions in energy and macronutrient intake, about a 16% drop out in energy intake, with carbohydrates reduced by 39-110 g, protein by 15-108 g and fat by 13-28 g after the program which demonstrated the intervention's positive effect. Meanwhile, the control group showed very little change in their dietary intake. Yet there was no statistically significant association between lifestyle factors and lipid profiles. A key limitation was a 60% dropout rate from the planned 200 to 80 subjects, reducing the power of genetic association tests. Despite these constraints, the study presents preliminary evidence of lifestyle factor interaction and highlights the importance of a comprehensive understanding of the study and having repeated measurement and adequate sample size in a lifestyle factors-lipid profiles study in the future.

Keywords: Obesity, dietary intake, psychological well-being, physical activity, lipid profiles, total cholesterol, low-density lipoprotein (LDL), high-density lipoprotein (HDL), triglyceride.

TABLE OF CONTENT

AUTHOR'S DECLARATION	3
ACKNOWLEDGEMENT	4
TABLE OF CONTENT	5
LIST OF TABLES	8
ABSTRACT	11
CHAPTER 1: INTRODUCTION	12
1.1 Introduction of The Study	12
1.2 Research Background	14
1.3 Significance of the Study	16
1.4 Purpose of the Study	17
1.5 Problem Statement	18
1.6 Research Justification	19
1.7 Research Questions	20
1.8 Research Objectives	20
1.9 Research Hypothesis	21
1.10 Scope and Limitations	22
CHAPTER 2: LITERATURE REVIEW	23
2.1 Obesity and Metabolic Disease	23
2.2 A review of Dietary Assessment Methods: Food Frequency Questionnaires (FFQs)	24
2.3 A review of Psychological Assessment Tools: DASS-21	26
2.4 A review of Physical Activity Assessment Tools: IPAQ	28
2.5 Lipid Profiles as Parameters.	30
2.6 Dietary Fat Intake and Lipid Profiles	32
2.7 Stress, Anxiety, Depression and Lipid Profiles	34
2.8 Physical Activity and Lipid Metabolism	35
2.9 The Combined Effect of Diet, Psychological well-being and Physical Activity	

CHAPTER 1: INTRODUCTION

1.1 Introduction of The Study

Overweight and obesity are characterised by abnormal accumulation of adipose tissue, which poses a potential threat to an individual's well-being. An individual with a body mass index (BMI) exceeding 22.9 kg/m^2 is classified as overweight, whereas a BMI surpassing 27.5 kg/m^2 is indicative of obesity. According to the World Health Organisation (2021), the worldwide prevalence of obesity nearly tripled between 1975 and 2016 (Ahmed & Konje, 2023). In Malaysia, based on a nationwide survey conducted in 2019, there has been an upward trajectory in the prevalence of obesity. The rates have escalated from 15.1% in 2011 to 17.7% in 2015 and ultimately reached 19.9% in 2019 (Chong, Lai, Mohd Sallehuddin, & Ganapathy, 2023). The rising occurrence of obesity, specifically among individuals in the young adult age group, has generated a heightened curiosity in comprehending the complex interaction of genetic, phenotypic and behavioural elements (Górczyńska-Kosiorz, Kosiorz, & Dziegielewska-Gęsiak, 2024).

With the increase in obesity rates, the importance of effective weight management programs has grown to encourage healthier habits and reduce health risks. One example of this effort is the "Fit for Future" program, which is designed to promote physical activity and encourage healthy eating habits in those involved. Yet, the success of such initiatives can differ greatly from person to person, indicating that dietary intake, psychological well-being and physical activity might be key in impacting how individuals react to lifestyle changes. Dietary intake of a person can affect health status, as we know that food can give our bodies instructions either in good or bad ways. Individuals can become overweight, underweight or undernourished and be at risk for the development of disease, especially non-communicable diseases like obesity, diabetes, hypertension and cardiovascular disease. Meanwhile, psychological well-being also plays a factor in getting a healthy lifestyle as mental health includes our emotional, psychological and social