

BARRIERS AFFECTING INADEQUATE INTAKE OF FRUITS AND VEGETABLES: AN ONLINE SURVEY AMONG ADULTS IN MALAYSIA

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LIST OF ACRONYMS AND ABBREVIATIONS

FAMA	Federal Agricultural Marketing Authority
IHBR	Institute for Health Behavioural Research
MREC	Medical Research & Ethics Committee
MDG	Malaysian Dietary Guidelines
NHMS	National Health Morbidity Survey
NMRR	National Medical Research Register
SME	Subject Matter Expert
SCT	Social Cognitive Theory
WHO	World Health Organization

LIST OF TABLES

Table 1	The definitions of the three (3) key domains that will be used in the study
Table 2	No. of questions for each section for fruits and vegetables
Table 3	Mean score interpretation of 5-point Likert Scale
Table 4	Reliability Analysis
Table 5	Characteristics of Participants
Table 6	Fruit and vegetable intake by participants according to the recommendation
Table 7	Participants with "adequate" and "inadequate" intake of fruits and vegetables according to age
Table 8	Participants with "adequate" and "inadequate" intake of fruits and vegetables according to occupation
Table 9	Participants with "adequate" and "inadequate" intake of fruits and vegetables according to income
Table 10	Fruits: Description of item, frequency of answers, mean and standard deviation about personal factors
Table 11	Fruits: Description of item, frequency of answers, mean and standard deviation about environmental factors
Table 12	Fruits: Description of item, frequency of answers, mean and standard deviation behavioural factors
Table 13	Vegetable: Description of item, frequency of answers, mean and standard deviation about personal factors
Table 14	Vegetable: Description of item, frequency of answers, mean and standard deviation about environmental factors
Table 15	Vegetable: Description of item, frequency of answers, mean and standard deviation about behavioural factors
Table 16	A significance between occupation groups, age groups and income groups with personal factors, environmental factors and behavioural factors on fruit and vegetable intake.
Table 17	Mean differences between personal factors, environmental factors and behavioural factors among occupation groups, age groups and income groups on fruit and vegetable intake.

LIST OF FIGURE

Figure 1) Conceptual Framework Inadequate Intake of Fruit and Vegetables

TABLE OF CONTENTS

	ACKNOWLEDGEMENTS	viii
	EXECUTIVE SUMMARY	vix-x
1.0	INTRODUCTION	1
	 1.1 Problem Statement 1.2 Rational of Research 1.3 Research Question 1.4 Objectives: 1.4.1 General Objective 1.4.2 Specific Objectives 1.5 Definition of Inadequate/Low Fruit and Vegetable Intake 1.6 Conceptual Framework 1.6.1 Conceptual and operational definition 	2 2 3 3 3 3 3 3 5
2.0	METHODOLOGY	6
	 2.1 Study Design 2.2 Subjects and Recruitment Procedures 2.3 Inclusion and Exclusion Criteria: 2.3.1 Inclusion Criteria 2.3.2 Exclusion Criteria 2.4 Instrument and Measures 2.5 Survey Pretesting 2.6 Reliability Analysis (α) 2.7 Statistical Analysis 2.8 The Risk/ Benefit Assessment of The Study 	6 6 6 6 7 8 9 9
3.0	RESULTS	10
	 3.1 Characteristics of Participants 3.2 Daily Intake of Fruit and Vegetable by Participants 3.3 Percentage of Participants With "Adequate" and "Inadequate" Intake of Fruits and Vegetables According to Age, Occupation, and Income Categories. 3.4 Analysis of Personal, Environmental and Behavioural Factors 	10 12 12
	Affecting Fruit Consumption 3.4.1 Personal Factors 3.4.2 Environmental Factors 3.4.3 Behavioural Factors	13 15 17

	3.5 Analysis of Personal, Environmental and Behavioural Factors	18
	Affecting Vegetable Consumption	
	3.5.1 Personal Factors	19
	3.5.2 Environmental Factors	20
	3.5.3 Behavioural Factors	22
	3.6 Comparison of Personal, Environmental and Behavioural Factors on Fruit and Vegetable Intake Between Demographic Variable	23
	3.7 Post Hoc Tests Were Used to Detect Pairs of Means That Caused Significant Differences in Fruit and Veg etable Intake	24
4.0	DISCUSSION	26
5.0	LIMITATION OF THE STUDY	27
5.0	LIMITATION OF THE STUDY	27
5.0 6.0	CONCLUSION AND RECOMMENDATION	27
6.0	CONCLUSION AND RECOMMENDATION	27
6.0	CONCLUSION AND RECOMMENDATION	27
6.0 7.0	CONCLUSION AND RECOMMENDATION CONFLICT OF INTEREST	27
6.0 7.0	CONCLUSION AND RECOMMENDATION CONFLICT OF INTEREST	27
6.0 7.0	CONCLUSION AND RECOMMENDATION CONFLICT OF INTEREST REFERENCES	27 28 29

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EXECUTIVE SUMMARY

Fruits and vegetables (FVs) are important sources of nutrients, including vitamin A, vitamin C, folate, potassium, and fiber. Epidemiologic studies have demonstrated inverse relationships between intakes of fruits and vegetables and the risks of developing cardiovascular disease, hypertension, and some types of cancers. Based on the health benefits of FVs consumption, the World Health Organization (WHO) recommends consuming at least 400 g of FVs per day to prevent chronic diseases such as heart disease, cancer, diabetes, and obesity(.) According to the Malaysian Dietary Guidelines (2020) recommendation, inadequate/low fruit and vegetable intake in this study is defined as consuming less than five (5) servings of fruits and vegetables per day() consisting of two (2) servings of fruits and three (3) servings of vegetables.

The study aims to identify the barriers affecting the inadequate intake of FV among adults in Malaysia. The study used the Social Cognitive Theory (SCT) to explain the personal, behavioural, and environmental factors and their interactions with inadequate FV intake.

This cross-sectional study used an online survey during the ongoing Recovery Movement Control Order (RMCO) for the COVID-19 pandemic. Online surveys through the Internet provide easy access to a mass potential survey participant from a multitude of locations in Malaysia with minimal costs and barriers. Descriptive analysis used the mean and standard deviation for continuous factors, while categorical factors were summarized using frequencies and percentages. Comparisons between demographic variables and personal, environmental and behavioural factors on FV intake were performed using ANOVA and followed with post-hoc comparison tests for a significant result.

The total number of participants who completed the online survey was 745 (93.5%) out of 800 sample sizes needed. Out of 745 participants, 77.9% were females, and the majority of participants were between 36-45 years old. Most participants were government employees (64.6%), with more than half of the total participation (60.0%) having a degree/ masters as their highest education level. Most participants (58.8%) were from the central region of Malaysia, followed by the East Coast (19.7%) of Malaysia. For ethnicity, 77.7% were Malay, 9.3% were Indian, 6.7% were Bumiputera Sabah/Sarawak, 5.5% were Chinese and 0.8% were from other minor ethnicities. Most respondents' monthly household income levels were 43.1% from M40, followed by B40 (35.7%) and T20 (18.4%).

Based on the overall interpretation, total mean scores show that environmental factors (2.58) and behavioural factors (2.43) are moderate barriers affecting fruit intake, while personal factors (2.20) are considered low barriers. Whereas, regarding barriers affecting vegetable intake, it showed that all three factors, namely environmental factors (2.10), also lead to the affecting barriers, followed by behavioural factors (2.08) and personal factors (2.04), are considered low barriers.

The study has identified the significant self-reported barriers to meeting fruit intake recommendations among Malaysian adults. These barriers include the unavailability of fruits in the shops or restaurants while eating outside. On the other hand, there were no statistically significant barriers to meeting recommendations for vegetable intake among Malaysian adults. Nevertheless, two-thirds of participants reported eating vegetables at every main meal. These findings have also shown that government employees aged 56 years and above had significantly more barriers to fruit intake as an environmental factor. Further research is warranted to investigate the hypothesis that inadequate portion size intake, rather than barriers, affects vegetable consumption.

Therefore, it is hoped that developing an intervention program using nudge strategies and behavioural insight will increase FV intake and promote healthy dietary behaviours among the target groups.





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