COPYRIGHT© INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

FACTORS DETERMINING THE INTENTION TO USE MALAYSIAN DIETARY GUIDELINES AMONG UNIVERSITY STUDENTS IN MALAYSIA

BY

GHAZARI AMRI SANUSI

A dissertation submitted in fulfilment of the requirement for the degree of Master of Science (Marketing)

Kulliyah of Economics and Management Sciences
International Islamic University Malaysia

MAY 2018

ABSTRACT

The objective of this study is to examine factors influencing the intention to use Malaysian Dietary Guidelines (MDG) as a source of reference for healthy eating among university students in Malaysia. The Theory of Planned Behaviour (TPB) was used as the main theoretical framework and the present study examined the influence of four predictor variables (namely attitude, subjective norm, perceived behavioural control and perceived risk) on the intention to use the MDG. A total of 218 respondents participated in the study. To test the framework, the present study employed the Partial Least Squares (PLS) method for data analysis. The four predictor variables explained 24.5% of the variance in intention to use the MDG among university students in Malaysia. Furthermore, the result showed that three predictors; namely attitude, subjective norm and perceived risk, were the major contributors of the intention to use the MDG. Of the three, the present study found attitude to be the most significant predictor of intention to use the MDG. The relationship between perceived behavioural control and the intention to use the MDG was however, not supported.

خلاصة البحث

يهدف هذا البحث إلى فحص العوامل المؤثرة على قصد اتخاذ توجيهات الغذاء الماليزي مرجعا لأكل صحي بين طلاب الجامعة في ماليزيا.استخدم الباحث نظرية السلوك المخطط كإطار رئيس، واختبر آثار المتنبئات الأربع (السلوك، والمعيار النسبي، وتحكم السلوك المتوقع، والخطر المتوقع) على قصد استخدام توجيهات الغداء الماليزي .تكونت عينة البحث من 218 شخص. ولغرض اختبار الإطار الرئيس، استخدم الباحث منهج المربعات الصغرى الجزئية للتحليل. بينت المتنبئات الأربع أن 24.5% من التغاير تريد استخدام توجيهات الغداء الماليزي بين طلاب الجامعة في ماليزيا. وأشارت النتيجة كذلك إلى أن المتنبئات الثلاثة (السلوك، والمعيار النسبي، والخطر المتوقع) كانت مساهمات رئيسة في قصد استخدام توجيهات الغداء الماليزي. ومن بين الثلاثة، اكتشف أن السلوك هو أهم المتنبئ على استخدام توجيهات الغداء الماليزي. وأما العلاقة بين تحكم السلوك المتوقع وبين قصد استخدام توجيهات الغداء الماليزي فلا يجد الباحث دليلا يدعم ذلك.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Marketing)

……..
Wan Jamaliah bt. Wan Jusoh
Supervisor

……..
Kalthom bt. Abdullah
Co-Supervisor

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Marketing)

……..
Suharni bt. Maulan
Examiner

……..
Muhammad Tahir Jan
Examiner

This thesis was submitted to the Department of Business Administration and is accepted as a fulfilment of the requirement for the degree of Master of Science (Marketing)

……..
Noor Hazilah bt. Abd Manaf
Head, Department of Business Administration

This thesis was submitted to the Kulliyyah of Economics and Management Sciences and is accepted as a fulfilment of the requirement for the degree of Master of Science (Marketing)

……..
Hassanuddeen Abd. Aziz
Dean, Kulliyyah of Economics and Management Sciences

DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Ghazari Amri Sanusi

Signature ..... Date .....

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

DECLARATION OF COPYRIGHT AND AFFIRMATION OF FAIR USE OF UNPUBLISHED RESEARCH

FACTORS DETERMINING THE INTENTION TO USE MALAYSIAN DIETARY GUIDELINES AMONG UNIVERSITY STUDENTS IN MALAYSIA

I declare that the copyright holders of this dissertation are jointly owned by the student and IIUM.

Copyright © 2018 (Ghazari Amri Sanusi) and International Islamic University Malaysia.
All rights reserved.

No part of this unpublished research may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the copyright holder except as provided below

1. Any material contained in or derived from this unpublished research may be used by others in their writing with due acknowledgement.

2. IIUM or its library will have the right to make and transmit copies (print or electronic) for institutional and academic purposes.

3. The IIUM library will have the right to make, store in a retrieved system and supply copies of this unpublished research if requested by other universities and research libraries.

By signing this form, I acknowledged that I have read and understand the IIUM Intellectual Property Right and Commercialization policy.

Affirmed by Ghazari Amri Sanusi

……..…….. ……..
Signature Date

ACKNOWLEDGEMENTS

A good thesis is a completed thesis.

For that reason, I thank all who have helped me in one way or another.

Especially to Assoc. Prof. Dr. Wan Jamaliah Wan Jusoh and Assoc. Prof. Dr. Kalthom Abdullah, my first and second supervisors, respectively, I am greatly indebted for your support and advice throughout the research.

And, a big thank you to my dear friend Adnin Subri who have helped me throughout the course.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
beh	Behavioural
CFA	Confirmatory Factor Analysis
CR	Composite Reliability
MDG	Malaysian Dietary Guidelines
MFP	Malaysian Food Pyramid
MHP	Malaysian Healthy Plate
MOH	Ministry of Health, Malaysia
PLS	Partial Least Square
PMT	Protection Motivation Theory
QOH	Quality of health
QOL	Quality of life
SEM	Structural Equation Modelling
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

The chapter describes the background of the study. Section 1.2 highlights the study background and, following this, in Section 1.3 specifies the problem to be addressed in the present study. The research questions, objectives and contributions of the present study are outlined in Sections 1.4, 1.5 and 1.6, respectively. In Section 1.7, the definitions of the key constructs used are highlighted for ease of reference and understanding. Finally, the overall structure of the thesis is presented in Section 1.8.

1.2 BACKGROUND OF THE STUDY

In recent years, obesity has become one of the most common nutritional disorders (Isobe, 2016) and is considered as a major risk for many chronic and non-communicable diseases (Ellulu et al., 2014). According to the World Health Organization (2017), the worldwide prevalence of obesity has reached epidemic proportions. The statistics published by the World Health Organization indicated that there were more than two billion people classified as overweight and obese adults. In 2016, it was reported that 39% of adults aged 18 years and over were overweight. In the Asia and Pacific region, a recent report by the Asian Development Bank found that two out of every five adults in the region were either overweight or obese (Helble & Francisco, 2017). As a whole, the prevalence of obesity has in fact increased nearly tripled since 1975 and the trend is predicted to continue to increase (World Health Organization, 2015).

In this regard, the rapid increase in the rate of obesity in Malaysia has been quite alarming. According to a British medical journal, Malaysia has ranked the highest

among Asian countries for obesity (Nghiem, 2014). This is not surprising at all given Malaysia's rate of obesity of 44% is higher compared to the global rate of 30%. Obesity has become one of Malaysia's biggest health threats in recent years and has led the rise in the percentage of unhealthy Malaysians (Economic Planning Unit, 2013) as well as the high number of deaths due to otherwise preventable obesity-related diseases (Institute for Public Health Malaysia, 2015; Low et al., 2015). The prevalence of diabetes, for example, has increased twofold from 11.6 % in 2006 to 22.6 % in 2013 (Khor, 2012). The Malaysian's Minister of Health Dato' Sri S. Subramaniam had described the mounting concerns over the obesity situation in the country as an "obesity epidemic" (Carvalho et al., 2016) and warned the population of a "crisis in unhealthy behaviour" (Jegathesan, 2014).

As demonstrated by previous literature, there are many factors that contribute to obesity including genetics, sedentary lifestyle and food consumptions (Ismail et al., 2002; Walley et al., 2006). The association between unhealthy food consumption and obesity has been well documented in the literature (Chhaya & Jadav, 2012), as with the association between obesity and non-communicable diseases (Banjare & Bhalerao, 2016; Webber et al., 2014). As countries around the globe go through the 'nutrition transition' phase (Popkin, 2001), the change in diet of the population, such as preference for fast and take-away food, eating out and having late supper (Ashakiran & Deepthi, 2012; Boo et al., 2008; Kinsey & Ormsbee, 2015), as well as the rise of the "foodie culture" (Lin, 2014), have rapidly fuelled the obesity epidemic and the trend is predicted to continue.

While the prevalence of obesity increases with age, obesity is not only a major public health issue that affects adults (Magarey et al., 2003), the obesity crisis is also rife among young adults, including university students (e.g. Al-Ghabban, 2014; Haque

et al., 2015; Peltzer et al., 2014). In Malaysia, the rates of obesity among university students varied from one study to another and it could range between 14% (Sugathan & Bagh, 2014) to 20% (Gopalakrishnan et al., 2012) to 32% (Kabir et al., 2014). Comparison with other countries equally showed a high prevalence of obesity among university students. In neighbouring Thailand, the rate of obesity among university students was around 33.8% (Pengpid & Peltzer, 2015) and in India, the rate could be as high as 64.3% (Pengpid & Peltzer, 2014).

Previous studies (e.g. Barlow et al., 2016; Chhaya & Jadav, 2012; Swinburn et al., 2004) have extensively discussed and established the link between the risk of obesity and unhealthy food consumption. In this light, students are expected to eat a healthy diet as they need the foods to maintain their energy for their daily activities as well as to meet the rigour of the academic programmes. For students, a healthy diet is very important as previous studies have demonstrated that healthy diet tended to be associated with healthy lifestyle, physical, social and emotional well-being (Kolodinsky et al., 2007; van Den Berg et al, 2012). More importantly, a healthy diet is also associated with better academic performance (Florence et al., 2008; Rausch, 2013). Eating regular and well-balanced meals can help improve their cognition, concentration and energy (Adolphus et al., 2013; Kar et al., 2008). Conversely, students with a poor diet and eating behaviour have shown numerous physical signs of malnutrition, which in turn may affect their learning and cognitive abilities (Gomez-Pinilla, 2008). In this light, past studies have repeatedly shown that unhealthy food consumption negatively affect students' performance and academic achievement (Chinkoya, 2014; Correa-Burrows et al., 2016; Manwa, 2013).

However, by and large, eating is an individual choice (Wadołowska et al., 2008), hence, an individual can freely choose what amount, when, where and with whom, he

or she consumes food (Sobal et al., 2006). This implies that food choice decision varies for different individuals and situations (Mela, 2001) and is a complex decision-making process. The decision making process is influenced by many factors, such as emotional, body image, food preference, personal values and beliefs, mass media, peer pressures etc. (Peltzer, 2002).

Review of literature on food choice decisions by university students indicated that most university students do not eat well (Al-Naggar et al., 2013; Gan et al., 2011; Kock et al., 2012). They tend to have poor nutritional knowledge (Booth et al., 2013; Elhassan et al., 2013; Ozdoğan & Ozcelik, 2011) and often make poor food choice decisions (Abdel-Megeid et al., 2011; Alsaffar, 2014). The students are also exposed to sub-optimal eating environments, such as buffet style café, larger food portion and fast food (Barzegari et al., 2011; Gerson et al., 2013). They consume a high quantity of fast foods, snack foods, soft drinks, high-calories food while eating less of fruits, vegetables and dairy products than the recommended quantity (Al-Khamees, 2009). Based on the results of the studies by Cefai and Camilleri (2011), Holben et al. (1998) and Kolodinsky et al. (2007), the present study summarises that a typical diet for a majority of the university students, both internationally and locally, was not meeting the recommended dietary requirements.

The university years are a critical period in the students' lives; it is the period when appropriate diet practices and eating behaviours can be developed or reinforced (Coklin et al., 2005) and will continue to become lifelong habits (Peterson et al., 1994). Healthy diet practices and eating behaviours adopted during the university years may facilitate healthier food consumptions and eating behaviours in adulthood. In contrast, poor diet practices and eating behaviours will continue in adulthood and they may be difficult to break once acquired (Coklin et al., 2005).

As university students transition into adulthood, it is critically important to ensure optimal health and well-being of the students because the development of a poor dietary habit in this stage of university life may have also striking effects in adulthood. Thus, the implications go beyond just ensuring a healthy student who excels in his academic and college performance.

University students are the future workforce. A majority of these students will enter the workforce as soon as they complete their tertiary studies. Therefore, as observed by Frone (2007), it is the long-term interest of employers to be concerned with the health of the next generation of workers. The argument is that obese youngsters are more likely to have an increased risk of various health-related issues in adulthood (Rickert, 1996).

From the perspective of employers, obesity is increasingly seen as company's problem due to the fact that good health of the workers has significant influences on the work environment, productivity, and importantly, the company's bottom line (Greenfield, 2013; Manning & Napier, 2013). Moreover, poor health may lead to workers being unfit to work and, consequently, adding more cost to the company.

In this regard, obesity has been found to be associated with an increase in absenteeism caused by high frequency and increased length of sickness absence. The empirical studies conducted by Frone (2007), Kim and Popkin (2006) and Tucker and Friedman (1998) found that obese employees tended to have higher absenteeism rates from work compared with their non-obese counterparts. The study by Andreyeva et al. (2014) in the US estimated that obese workers were absent from work between 1.1 to 1.7 days more than their counterparts of normal weight. Likewise, in Australia, a study commissioned by the Australian Institute of Health and Welfare (2005) reported that average absenteeism was longer for the obese (3.8 days) than non-obese (3.0 days)

employees. Hence, the obesity-attributable cost of absenteeism is also substantial (Andreyeva et al., 2014; Finkelstein et al., 2010). According to a study conducted by Finkelstein et al. (2010), the cost of obesity of full-time workers to employers in the US reached $73.1 billion a year. The sum includes the costs of absenteeism, work productivity and medical costs. The same study added that the per capita cost of obesity is $16,900 for obese women with a BMI over 40 and $15,500 for obese men in the same BMI class.

In the local context, the Malaysian Employers Federation (MEF) reported that employers have to pay three times higher to pay the cost of sick employees (Anonymous, 2015). On average, Malaysian employers reported to suffer equivalent to 26.3 million man-days lost a year due to sick leave. In addition, employers have to pay about RM2.9 billion a year in overtime payments to replace workers who are on medical leave and RM3.3 billion to pay for medical bills (Cruez, 2014). The financial losses are indeed huge.

Thus, unhealthy food consumption is harmful to the health status and is a major risk factor for obesity. The poor eating habits may have a significant role in future risks of obesity-related diseases. To address the concerns of the overall well-being of the Malaysian population, as well as address diet-related health concerns of the population, the government has implemented various programs and campaigns which are aimed at promoting the importance of healthy eating and active lifestyle through education (Ministry of Health Malaysia, 2003). One key initiative is the introduction of the Malaysian Dietary Guidelines (MDG) in 1999. The MDG comprises of a set of advisory statement that provides recommendations on the types and quantity of foods that members of the public should be consuming for a healthy diet (Norimah et al., 2010; Tee, 2011). The MDG is not a rigid prescription but only a guide to help the public

make daily food choices. By and large, the MDG encourages users to adopt appropriate food habits, be more active and make wiser food choices.

The use of a dietary guideline has proven to be an effective tool that could help individuals make informed choices about their daily dietary intakes (Kandiah & Jones, 2002). Following the right diet that complies with the dietary guidelines has also been shown to reduce the risks for obesity and chronic diet-related diseases (e.g Kant et al., 2004; Kurotani et al., 2016; Willet & McCullough, 2008). An individual will be motivated to use the dietary guideline as it provides him or her with recommendations and technique to achieve a healthy diet that are based on unbiased, scientific evidence. It would be confusing, and even harmful, to the members of the public if individuals or groups start to promote consumption of food products that are not based on a scientific consensus.

However, as results of previous studies showed, majority of university students in Malaysia have insufficient nutrition knowledge (Elhassan et al., 2013) and with a low level of health literacy (Emma Mirza Wati et al., 2015). The degree of MDG usage as a source of reference for healthy eating among the Malaysian population (including university students) as reported in a number of studies (e.g. Alattraqchi et al., 2014; Muhammad Faiz & Naleena Devi, 2012; Saw et al., 2012; Sia et al., 2013; Zalilah et al., 2015) was noticeably low. This becomes the main motivation for the present study.

1.3 STATEMENT OF THE PROBLEM

A recent finding of the Malaysian Food Barometer (Poulain et al., 2014) has shown that unhealthy food consumption and poor eating behaviours are the leading cause of obesity in Malaysia. The other key factor of obesity is historical lack of an active lifestyle tradition (Jegathesan, 2014).

In 1999, the Malaysian Government, through the Ministry of Health, introduced the MDG which is a compilation of the dietary recommendations in order to promote nutritional well-being of the population (Ministry of Health Malaysia, 2010). The aim of the MDG is to educate Malaysian public over two years of age on the "appropriate means of enhancing their health through sound dietary practices" and healthier lifestyle (Ministry of Health Malaysia, 2010: iii). In other words, it attempts to promote a desirable eating behaviour among the Malaysian population. The MDG was subsequently reviewed and revised in 2010.

However given the growing prevalence of obesity in Malaysia (e.g. Ismail et al., 2002; Vickneswaran et al., 2015), the efficacy of the MDG as a tool to promote healthy eating has been questioned (Ismawati et al., 2014; Norimah et al., 2010). The study by Norimah et al. (2010), for example, concluded that more than half of the respondents were unfamiliar with the key messages in the MDG. This indicates that there is still a wide gap between awareness of healthy eating, knowledge and behaviour. Recent empirical findings also showed that the MDG have yet achieved the desired success in terms of the intended behaviour of healthy eating across generations: from toddlers (Alattraqchi et al., 2014; Muhammad Faiz & Naleena Devi, 2012; Zalilah et al., 2015) to children (Hui et al., 2016; Kar et al., 2016) to youngsters (Chin & Mohd Nasir, 2009; Moy et al., 2009; Zalilah et al., 2006) to adults (Chee et al., 1997; Saw et al., 2012; Sia et al., 2013). These studies found Malaysian populations are not eating properly in accordance with the recommendations of the MDG.

The present study is concerned with the eating habits of university students. Before going into tertiary education, students' dietary habits are shaped by the eating habits of their family (Lupi et al., 2015). However, as the students move into an independent living arrangement as face significant peer pressures, their lifestyle start to

change and this could radically influence their eating habits (Cefai & Camilleri, 2011; Deliens et al., 2014; Delvarani et al., 2013). Previous analysis of the university students' diet (e.g. Al-Khamees, 2009; Manwa, 2013; Zuercher & Kranz, 2012) showed that they tended to have poor eating habits and, as such, developed poor and riskier eating behaviours (Papadaki et al., 2007; Tanton et al., 2015).

Due to their unhealthy diet and poor eating behaviours, Booth et al. (2013) categorised university students in the "at-risk" population group. For the same reason, Rickert (1996) described university students as a "nutritionally vulnerable population". This creates a concern because university students need a balanced and healthy diet to maintain their energy for their daily activities and meet the rigour of the academic programmes.

The use of a dietary guideline can be an effective tool in helping the students to make healthy food choice decisions, as demonstrated in the study by Kandiah and Jones (2002). In the experimental study, students who were exposed to the US' Food Guide Pyramid showed significant compliance in meeting the recommendations of the dietary guideline compared with the control group who had no exposure to the dietary guideline. Having a guide helps students to make better food choice decisions (Kolodinsky et al., 2007) and become "better eaters" (Illich et al., 1999). A study by Wardle et al. (2000) demonstrated that students with better nutritional knowledge are almost 25 times more likely to meet current recommendations for fruit, vegetable and fat intakes than those who lacked the knowledge.

Despite the growing trend emphasising the importance of healthy eating in Malaysia, there is still a lack of study on how the MDG can be used as an informational tool to help university students to make informed decisions on healthy food choice decisions. A review of existing studies (e.g. Amarra et al., 2016; Fatimah, 2002; Lua et

al., 2012; Mohd Razif et al., 2013; Wan Putri Elena et al., 2014) shows that there is little work carried out to understand the behavioural aspect of the MDG, such as intention to use, barriers preventing usage etc. Existing studies have also neglected to address the factors influencing the decisions of university students to use the MDG as a source of reference for healthy eating. Therefore, this lacuna in the current body of knowledge cannot be continuously left unchecked.

Given the many advantages of the MDG, the present study is not only timely but is also necessary. It is also in line with the calls by previous related studies (e.g. Norimah et al., 2010; Tee, 2011) for more research to be carried out in this largely neglected area of research.

1.4 RESEARCH QUESTIONS

The research questions of the present study are as follows:-

1) What is the current level of awareness and understanding of the MDG among university students in Malaysia?
2) Does attitude affect the intention to use the MDG among university students in Malaysia?
3) Does subjective norm affect the intention to use the MDG among university students in Malaysia?
4) Does perceived behavioural control affect the intention to use the MDG among university students in Malaysia?
5) Does perceived risk affect the intention to use the MDG among university students in Malaysia?
6) Which is the most significant predictor of the intention to use the MDG among university students in Malaysia?

1.5 RESEARCH OBJECTIVES

1.5.1 General Objective

The main objective of the present study is to examine factors influencing the intention to use the MDG as a source of reference for healthy eating among university students in Malaysia.

1.5.2 Specific Objectives

The specific research objectives that have been developed to guide the present study are:-

1) to describe the current level of awareness and understanding of the MDG among university students in Malaysia;
2) to evaluate the effect of attitude on the intention to use the MDG among university students in Malaysia;
3) to evaluate the effect of subjective norm on the intention to use the MDG among university students in Malaysia;
4) to evaluate the effect of perceived behavioural control on the intention to use the MDG among university students in Malaysia;
5) to evaluate the effect of perceived risk on the intention to use the MDG among university students in Malaysia;
6) to identify the most significant predictor of intention to use the MDG among university students in Malaysia.

1.6 DELIMITATIONS OF THE STUDY

According to Cresswell (2014), a delimitation of a study allows researchers to define the boundaries, focus and scope of the research to only a central phenomenon of interest.