



**UNIVERSITI PUTRA MALAYSIA**

***MEAL TAKING BEHAVIORS AT WORK AND THEIR ASSOCIATED  
FACTORS AMONG FACULTY OF MEDICINE AND HEALTH  
SCIENCES STAFF, UPM 2017***

**EBRAHIM MOHAMMED ABDULLAH EBRAHIM**

**FPSK(M) 2017 22**



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By

**EBRAHIM MOHAMMED ABDULLAH EBRAHIM**

**Dissertation Submitted to the Department of Community Health , Faculty of  
Medicine and Health Sciences, Universiti Putra Malaysia in Fulfillment of the  
Requirements for the Degree of Master of Public Health**

**August 2017**

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## DEDICATION

To my country, Yemen, where I belong,  
To my dear family, father, mother, brothers, and my beloved wife,  
To my teachers who have ever taught me a word, anywhere and anytime,  
To whomever passionate about helping humanity, and contributing to research and science.



Abstract of dissertation presented to the Department of Community Health,  
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**August 2017**

**Chairman : Dr Titi Rahmawati binti Hamedon**  
**Faculty : Medicine and Health Sciences**

Food is important for thoughts, productivity, and health. Workers spend half of their waking hours in weekdays at work and this long time can contribute to their health positively or negatively. Meal taking behaviors at workplaces are important to be assessed as this may lead to determination of the current situation and to future interventions improving working conditions and nutrition of workers. This study was conducted to determine the meal taking behaviors status at work of the Faculty of Medicine and Health Sciences Universiti Putra Malaysia staff (FMHS, UPM).

This is a cross-sectional study conducted among 577 staff at the FMHS, UPM. Proportionate simple random sampling was used to select a representative sample of 160 that were assessed for their meal taking behaviors and the factors influencing these behaviors. A pretested questionnaire and weight and height scales were used to obtain the required information. Out of the selected 160 staff, a number of 137 responded in this study giving an 85.6% response rate.

The determined proportion of poor and good meal taking behavior in this study was 46% and 54%, respectively. Female gender and non-smokers were significantly associated with good meal taking behaviors with  $P < 0.001$  and 0.044, correspondingly. Similarly was home prepared and canteen foods for breakfast and lunch meal sources significantly associated with good meal taking behaviors with  $P = 0.007$  and  $P = 0.049$  for breakfast and lunch meal sources, respectively.

The high proportion of poor meal taking behaviors shall draw attention toward the need for health education especially among males, conducting stop smoking campaign, and encouraging canteen use and enhancement of its nutritional variation and content.

**Keywords:** Meal taking behaviors, eating behaviors, eating patterns, food intake.



Abstrak disertasi yang dikemukakan kepada Jabatan Kesihatan Komuniti,  
Universiti Putra Malaysia sebagai memenuhi keperluan untuk  
Ijazah Sarjana Kesihatan Awam

**TINGKAH LAKU PENGAMBILAN MIL DI TEMPAT KERJA DAN  
FAKTOR BERKAITAN DALAM KALANGAN STAF FAKULTI  
PERUBATAN DAN SAINS KESIHATAN, UPM 2017**

Oleh

**EBRAHIM MOHAMMED ABDULLAH EBRAHIM**

**Ogos 2017**

**Pengerusi : Dr Titi Rahmawati binti Hamedon**  
**Fakulti : Perubatan dan Sains Kesihatan**

Makanan penting untuk fikiran, produktiviti, dan kesihatan. Pekerja menghabiskan masa separuh daripada masa jaga mereka pada hari bekerja di tempat kerja dan masa yang panjang ini menyumbang kepada kesihatan mereka secara positif atau negatif. Tingkah laku pengambilan mil di tempat kerja adalah penting untuk dinilai kerana hal tersebut boleh membawa kepada penentuan situasi semasa dan intervensi masa hadapan bagi memperbaiki situasi bekerja dan nutrisi pekerja. Kajian ini dijalankan untuk menentukan status tingkah laku pengambilan mil di tempat kerja staf Fakulti Perubatan dan Sains Kesihatan, Universiti Putra Malaysia (FMHS, UPM).

Kajian keratan rentas telah dijalankan dalam kalangan 577 staf di FMHS, UPM. Persampelan rawak mudah bersekadar dengan setiap jabatan telah digunakan untuk memilih sampel representatif sebanyak 160 yang telah dinilai bagi tingkah laku pengambilan mil mereka dan faktor yang mempengaruhi tingkah laku tersebut. Soal selidik praujian dan timbang bagi berat dan ketinggian telah digunakan bagi memperoleh maklumat yang diperlukan. Daripada 160 staf yang dipilih, sebanyak 137 telah memberikan respons dalam kajian ini, memberikan kadar sebanyak 85.6% respons.

Perkadaran yang ditentukan bagi tingkah laku pengambilan mil bagi yang buruk dan baik ialah masing-masing 46% dan 54%. Gender wanita dan yang tidak merokok secara signifikan amat berkaitan dengan tingkah laku pengambilan mil baik dengan sewajarnya pada  $P < 0.001$  dan  $0.044$ . Begitu juga bagi makanan yang disediakan di rumah dan di kantin untuk sumber sarapan dan makan tengah hari secara signifikan

berkaitan dengan tingkah laku pengambilan mil baik , iaitu masing-masing  $P=0.007$  dan  $P=0.049$  untuk sumber sarapan dan makan tengah hari .

Perkadaran yang tinggi bagi tingkah laku pengambilan mil buruk harus menarik perhatian terhadap keperluan untuk pendidikan kesihatan, terutama dalam kalangan lelaki, pelaksanaan kempen berhenti merokok, dan penggalakan penggunaan kantin dan pengukuhan variasi dan kandungan nutrisional.

**Kata kunci:** Tingkah laku pengambilan mil, tingkah laku pemakanan, pola pemakanan, ambilan makanan.





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I certify that a Dissertation Examination Committee has met on 1<sup>st</sup> August 2017 to conduct the final examination of Ebrahim Mohammed Abdullah Ebrahim on his dissertation entitled “Meal Taking Behaviors at Work and their Associated Factors among Faculty of Medicine and Health Sciences Staff, UPM 2017” in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Public Health.

Members of the Dissertation Examination Committee were as follows:

**Ahmad Azuhairi Ariffin, MBBS, MCMed (OH)**

Senior Medical Lecturer  
Faculty of Medicine and Health Sciences  
Universiti Putra Malaysia  
(Chairman)

**Suhainizam Muhamad Saliluddin, MBBCh., MPH (OH)**

Senior Medical Lecturer  
Faculty of Medicine and Health Science  
Universiti Putra Malaysia  
(Internal Examiner)

**Mohd Hasni Ja’Afar, MD, MPH, PhD**

Associate Professor  
Department of Community Health, Faculty of Medicine  
Universiti Kebangsaan Malaysia  
Malaysia  
(External Examiner)

---

**Professor Dato’ Dr. Abdul Jalil Nordin, DSIS  
MD (UKM), MMed. (Radiology – UM)**  
Professor and Dean  
Faculty of Medicine and Health Sciences  
Universiti Putra Malaysia

Date:

This dissertation was submitted to the Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Master of Public Health. The members of the Supervisory Committee were as follows:

**Dr. Titi Rahmawati Hamedon, MD, Master Com. Health (Occupational Health)**  
Senior Medical Lecturer  
Faculty of Medicine and Health Sciences  
Universiti Putra Malaysia  
(Chairman)



**Professor Dato' Dr. Abdul Jalil Nordin, DSIS  
MD (UKM), MMed. (Radiology – UM)**  
Professor and Dean  
Faculty of Medicine and Health Sciences  
Universiti Putra Malaysia

Date:

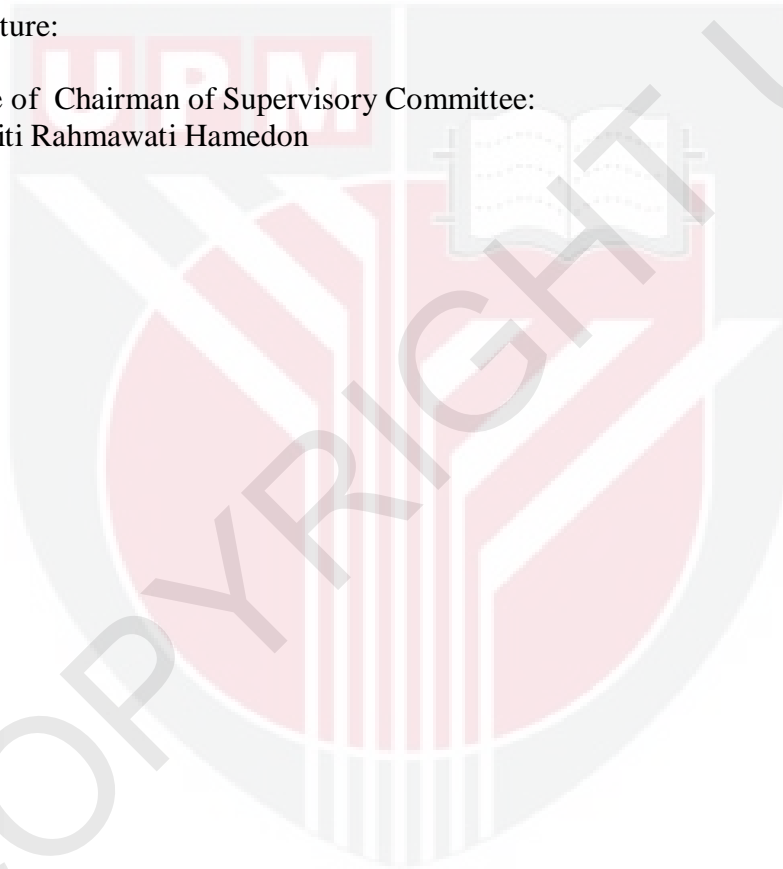
### **Declaration by Members of Supervisory Committee**

This is to confirm that:

- the research conducted and the writing of this dissertation was under our supervision;
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Signature:

Name of Chairman of Supervisory Committee:  
Dr. Titi Rahmawati Hamedon



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## LIST OF ABBREVIATIONS

BMI	Body Mass Index
DM	Diabetes Mellitus
FMHS	Faculty of Medicine and Health Sciences
HTN	Hypertension
ILO	International Labor Organization
IPH	Institute of Public Health
LR	Likelihood ratio
MANS	Malaysian adult nutrition survey
MTB	Meal taking behaviors
MCT	Measures of central tendency
NCD	Non-communicable disease
NHMS	National health and morbidity survey
PLOS	Public Library of Science
RM	Ringgit Malaysia
UPM	Universiti Putra Malaysia
WHO	World Health Organization

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background

Health is a right for every human and the enjoyment of its highest attainable standard should be the aim at all times (World Health Organization [WHO], 1989). The entitlements under such a right goes far beyond the mere provision of health care services to include optimum nutrition, disease prevention, and proper work environment. In the 21<sup>st</sup> century, and with massive urbanization and with the influences and adoption of Western eating trends offering fast foods for people whether at home or work with habits and tastes standards and with mass production made people eat the same unhealthy foods around the world (Ritzer, 2006). And since workers are becoming busier in the modern era, these unhealthy trends has infiltrated so deeply into their lives. This has both affected their performance in their areas of discipline (Arnetz, Broadbridge, & Ghosh, 2014) and contributed to the increase in the incidence of non-communicable disease (Wanjek, 2005).

When it comes to nutrition, as a public health concern, focus should be put on poor nutrition which does not include only underfeeding and malnutrition but also overfeeding and obesity, and a special consideration should be given for further studies in this area. Nowadays, the Malaysian community is going through a transformation in eating trends (Fournier, Tibere, Kaporte, Mognard, Ismail, et al., 2016), and the prevalence of obesity and overweight has increased significantly over the past years (Mohamud, W. N. W., Musa, Khir, Ismail, et al., 2011). Such an increase is attributed to dietary behaviors and physical activity patterns of people and therefore risk of dyslipidemias, diabetes, hypertension, and cardiovascular disease as a whole has consequently increased (Mohamud et al., 2011). Work takes lots of individuals' time and thus many interventions has proven successful when introduced to the workplace (Anderson et al., 2009). In fact, the systematic review by Anderson, et al. (2009) has concluded that worksite nutrition modifications and physical activity programs achieve improvements to employee health particularly in employees' weight status. However, for such interventions to take place at any given environment, initial assessment of current employees' behaviors toward their food at work is necessary.

Employees' work for prolonged hours and this puts them at risk of having low energy and loss of concentration especially those working in the field of knowledge and academia (Arnetz, Lucas, & Arnetz, 2011). It is acknowledged that effective cognitive functioning, skills, and productivity are energy dependent and that energy is required to turn thoughts into actions (Arnetz, Boradbridge, & Ghosh, 2014). Additionally, several reports propose that knowledge workers have increased risk of low energy syndromes and mood disorders impairing their functional capacity and decision making ability in their work (Bos, Dijksterhuis, & van Baaren, 2012), reduce productivity, and deplete their enthusiasm (Ricci, Chee, Lorandeanu, & Berger, 2007).

Financially such effects puts great burden on employers (Ricci et al., 2007). The relationship between proper food intake and productivity is not only in terms of impaired productivity due to food skipping or low intake but goes beyond that to include binge eating as a behavior that also impairs productivity (Bedrosian, Striegel, Wang, & Schwartz, 2012).

Many options for food provision at work are described in the literature with canteens, cafeterias, mess room, mobile refreshment facilities, meal vouchers, and kitchenettes being the most common (Wanjek, 2005). Each option has its own characteristics and can be manipulated to meet as high as possible employees' health needs. In short, well studied workplace nutrition plans along with positive behaviors of workers toward their meals shall promote workers health, increases productivity, and presumably decrease non-communicable disease occurrence.

## **1.2 Problem Statement**

Proper diet is an essential component of a healthy life and access to healthy options of food consequently promotes for good health. Appropriate nutrition means a strong immune system, less diseases and better health (Percival, 2011). Nowadays, Malaysian employees spend around nine hours at work every weekday, in addition to the very long hours consumed in transport and communication (Messenger, Lee, & McCann, 2007). This long period makes up over one third of their normal day and even more than half of their waking hours. Therefore, understanding work contributions and determinants to their health is necessary. One determinant is food availability and safety which is a component of occupation health and safety according to some authors (Wanjek, 2005), and is going to be covered as one focus of this study. In this regard, assessment of staffs' behaviors toward their meals and their use of food facilities will help in drawing the full picture.

From a study conducted by Rampal, Saeedi, Bezenjani, Salmiah, & Norlijah (2012) at Universiti Putra Malaysia, it was shown and clearly stated that the staff at the university has poor nutritional status with only 47.4 % staff with normal weight and the remaining 52.6 % was distributed among underweight, overweight, and obese (Rampal et al., 2012). This problem extends beyond this mere institution to be of a national nature with a prevalence of overweight and obesity of 53.1% among general Malaysians (Mohamud et al., 2011) . Such a range of poor nutritional conditions along with many other risk factors of non-communicable morbidities, encourages further exploration of eating behaviors and their determinants. In this study aims are set for evaluating the behaviors of the staff toward their meals at work which shall provide information on any associations and raise thoughts for intervention.

Research on eating behaviors of employees has been well studied in developed countries. However, in Malaysia research in this field is scarce, especially from an occupational health point of view. In Finland, many studies has explored employees' eating patterns and use and nutritional values of canteens food (Raulio, Roos,

Rahkonen, & Prättälä, 2005). The focus of many pieces of their research was on workplace lunch, as lunch is the main Finnish meal and is usually taken at work (Raulio et al., 2005), in Malaysia lunch shares similar importance and thus should be eaten wisely in terms of time, duration, variety, and nutritional content and therefore behaviors toward it shall be carefully evaluated.

In addition to above, workplace is considered an excellent arena for interventions and health promotion (Anderson et al., 2009). In regard to cardiovascular health, worksite interventions and dietary modifications of a period as short as 12 weeks has proven effective in lowering both body weight and blood levels of cholesterol, Lipoprotein (LDL), and Triglycerides (Karen, White & Jacques, 2007). In a study conducted in Ireland, 7 to 9 months follow-up of combined environmental dietary modification and nutrition education intervention revealed significant ( $p < 0.05$ ) reduction in both body weight indexes of workers and reductions in daily salt intake (Geaney et al., 2016). Such results shall draw attention to the value of these interventions and for need of exploration of opportunities for improving staffs' health at work.

Lastly, in order to cover the gap of scarce knowledge about reasons behind the highly prevalent abnormal nutritional statuses among employees, assessment of their behaviors toward their meals at work and the associated factors will be studied. Additionally and based on the results thoughts for future interventions may be proposed in effort to promote for a healthier workplace.

### **1.3 Significance of the study**

This study aims to draw attention regarding meal behaviors in workplaces. Studies in developed countries started from linking the abnormal nutritional status to food consumption at work and found relationships influencing employees' weights and nutritional status and this provided a space for improvement and intervention (Anderson et al., 2009; Kjøllesdal, Holmboe-Ottesen, & Wandel, 2011). Similarly, findings of this study forms a baseline for further larger studies particularly interventional since the captive nature of the institution. Additionally, workplace interventions carries a positive potential value for better health and reduction of cardiovascular risk factors (Karen White & Jacques, 2007) and therefore studies concerning meal taking behaviors (MTB) may bring the problems to light and encourage the pursuit of solutions.

### **1.4 Research questions**

Many research questions can be raised regarding the meal taking behaviors of the faculty's staff. Some to be addressed are:

- 1- What is the proportion of poor meal taking behaviors among the respondents?
- 2- What is the proportion of abnormal weight statuses among the respondents?

- 3- Is there an association between the socio-demographic characteristics and meal taking behaviors status of staff?
- 4- Is there an association between the employment characteristics and meal taking behaviors status of staff?
- 5- Is there an association between major health-related characteristics and meal taking behaviors status of staff?
- 6- Is there an association between weight status and meal taking behaviors of the staff?
- 7- Is there an association between source of meals and meal taking behaviors status?
- 8- Is there an association between place of having food and meal taking behaviors status?

## **1.5 Study Objectives**

### **1.5.1 General Objective**

To determine the meal taking behaviors status at work and their associated factors among UPM Faculty of Medicine and Health Sciences staff.

### **1.5.2 Specific Objectives**

1. To describe the socio-demographic (age, gender, marital status, ethnicity, level of education, income, etc), the employment, and health-related characteristics of the respondents.
2. To determine the proportion of good and poor MTB at work among the respondents and the proportions of body weight statuses (underweight, normal, overweight, and obese)
3. To determine the source of getting meals at work and the place of having meals at work.
4. To determine the association between socio-demographic (age, gender, marital status, etc), employment, and health-related characteristics and MTB status.
5. To determine the association between body weight status and MTB status.
6. To determine the association between sources of getting meals and places of having meals and MTB status.

## **1.6 Null Hypotheses**

The hypotheses of the study are:

- 1)  $H_0$  - There is no significant association between gender, age, marital status, level of education, and income and staffs' behaviors toward their meals at work.
- 2)  $H_0$  - There is no significant association between the employment characteristics and meal taking behaviors.
- 3)  $H_0$  - There is no significant association between nutritional status and meal taking behaviors.

- 4)  $H_0$  - There is no significant association between sources of getting food and meal taking behaviors.
- 5)  $H_0$  - There is no significant association between place of having food and meal taking behaviors.





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