UNIVERSITI PUTRA MALAYSIA

FACTORS ASSOCIATED WITH PHYSICAL INACTIVITY AMONG FIRST-YEAR UNDERGRADUATE STUDENTS OF UNIVERSITI PUTRA MALAYSIA

GOJE MOHAMMED

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FACTORS ASSOCIATED WITH PHYSICAL INACTIVITY AMONG FIRST-YEAR UNDERGRADUATE STUDENTS OF UNIVERSITI PUTRA MALAYSIA

By

GOJE MOHAMMED

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

November 2014

DEDICATION

Dedicated To

My father
Alhaji Goje Modu Balube
(For giving me the best of education)

My Mother
Hajiya Amina
(For her prayers and patience)

My wife
Zainab Sani Chiromari
(For her love and unconditional support)

And my two little kids
Sajeed and Sajeeda

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the Degree of Master of Science.

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By

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November 2014

Chairman: Salmiah Md Said, PhD

Faculty: Medicine and Health Sciences

Globally physical inactivity causes about 2 million preventable deaths per annum and it has been associated with increasing morbidity and mortality of cardiovascular and other non–communicable diseases. The prevalence of physical inactivity among Malaysian adults aged 18 years and above is 43.7%. The prevalence of physical inactivity among American college students was 16.7, the prevalence is 8.0% among Malaysian students and 15% among undergraduate students of Universiti Putra Malaysia (UPM). The purpose of this study is to identify the factors associated with physical inactivity among first year undergraduate students of UPM. A cross-sectional study was conducted in 2013 among 1135 first year undergraduate students of UPM using a cluster sampling. Data was collected between September and November 2013 using self-administered questionnaire. The data was analysed using descriptive, bivariate and multivariate data analysis by SPSS version 21. The response rate was 72.3%. Majority of the respondents were females (77.4%), Malay ethnic group (79.5%) and respondents age is 18 to 25 years. Total family income ranges from RM500.00 to RM 16,000.00. The findings revealed that the prevalence of physical inactivity among the respondents was 41.4%. The result further showed that there was a significant association between gender, family income, respondents who do not believe that student in their college are active, self-efficacy of physical activity, mental health, body image perception with physical inactivity. The independent factors for physical inactivity were females (AOR=4.3, 95% CI: 2.66,7.24); those with family income $\leq$ RM 2,500.00 (AOR=4.1, 95% CI: 2.98,5.90); respondents who do not believe that student in their school are active (AOR=1.8, 95% CI: 1.22,2.88); respondents with mental health probable cases (AOR=1.6, 95% CI: 1.15,2.31); low self-efficacy (AOR=1.7, 95% CI: 1.26,2.50); respondents who are currently overweight or obese (AOR=1.5, 95% CI: 1.01,2.28).

In conclusion, the prevalence of physical inactivity among first year undergraduate students of UPM is high. Intervention to reduce the prevalence of physical inactivity should be targeted on modifiable factors such as improving self-efficacy to do

physical activity, counselling to reduce mental health problems and encouragement in the use of UPM bicycle recently introduce in the campus.

Key words: Body Image, Mental Health, Physical Inactivity and Self-efficacy.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Master Sains

FAKTOR YANG BERKAITAN DENGAN KETIDAKAKTIFAN FIZIKAL DI KALANGAN PELAJAR IJAZAH TAHUN-PERTAMA UNIVERSITI PUTRA MALAYSIA

Oleh

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Ketidakaktifan fizikal dunia menyebabkan kira-kira 2 juta kematian yang boleh dicegah dalam setahun dan ia dikaitkan dengan peningkatan morbiditi dan mortaliti kardiovaskular dan penyakit tidak berjangkit yang lain. Prevalens ketidakaktifan fizikal prevalens di kalangan rakyat Malaysia dewasa berumur 18 tahun ke atas adalah 43.7%. Prevalens ketidakaktifan fizikal di kalangan pelajar kolej Amerika adalah 16.7%, prevalens di kalangan pelajar Malaysia adalah 8.0% dan 15% di kalangan pelajar prasiswazah Universiti Putra Malaysia (UPM). Tujuan kajian ini adalah untuk mengenal pasti faktor berkaitan Ketidakaktifan fizikal di kalangan pelajar tahun pertama prasiswazah UPM. Kajian keratan lintang telah dilakukan pada tahun 2013 dikalangan 1135 pelajar tahun pertama prasiswazah UPM dengan menggunakan persampelan kluster. Data telah dikumpul ka di antara September dan November 2013 menggunakan seorang soal selidik yang isi sendiri. Kadar respons adalah 72.3%. Majoriti responden adalah perempuan (77.4%), kumpulan etnik Melayu (79.5%) dan umur responden di antara 18 hingga 25 tahun. Julat jumlah pendapatan keluarga dari RM500.00 hingga RM 16,000.00. Hasil kajian menunjukkan prevalens Ketidakaktifan fizikal dalam kalangan responden adalah 41.4%. Selanjutnya hasil kajian menunjukkan terdapat kaitan yang signifikan di antara gender, pendapatan keluarga, responden yang tidak percaya bahawa pelajar di kolej mereka aktif, kecekapan diri bagi aktiviti fizikal, kesihatan mental, persepsi imej tubuh dengan Ketidakaktifan fizikal. Faktor bebas bagi Ketidakaktifan fizikal adalah perempuan (AOR=4.3, 95% CI: 2.7, 7.2); mereka yang mempunyai pendapatan keluarga $\leq$ RM 2,500.00 (AOR=4.1, 95% CI: 3.0, 5.9); responden yang tidak percaya bahawa pelajar di sekolah mereka aktif (AOR=1.8, 95% CI: 1.2, 2.9); responden yang berkemungkinan menghadapi kesihatan mental (AOR=1.6, 95% CI: 1.1, 2.3); kecekapan diri yang rendah (AOR=1.7, 95% CI: 1.3, 2.5); responden yang pada masa ini mengalami berat badan yang lebih atau obes (AOR=1.5, 95% CI: 1.0, 2.3).

Kesimpulannya, prevalens Ketidakaktifan fizikal dalam kalangan pelajar tahun pertama prasiswazah UPM adalah tinggi. Intervensi bagi mengurangkan prevalens Ketidakaktifan fizikal perlu disasarkan kepada faktor yang boleh di ubah seperti meningkatkan kecekapan diri bagi melakukan aktiviti fizikal, kaunseling bagi mengurangkan masalah kesihatan mental dan galakan menggunakan basikal yang baru diperkenalkan di kampus UPM.

Kata kunci: Imej tubuh**,** kesihatan mental, Ketidakaktifan fizikal dan kecekapan diri.

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Goje Mohammed

I certify that a Thesis Examination Committee has met on 13 November 2014 to conduct the final examination of Goje Mohammed on his thesis entitled "Factors Associated with Physical Inactivity among First-Year Undergraduate Students of Universiti Putra Malaysia" 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 Science.

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I hereby confirm that:

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This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
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Supervisory Committee: Dr. Ahmad Azuhairi Ariffin

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LIST OF ABBREVIATION/ ANNOTATION/ GLOSSARY OF TERMS

ACSM	American College of Sports Medicine
AHA	American Heart Association
AOR	Adjusted Odd Ratio
CDC	Centre For Disease Control
CHD	Coronary Heart Disease
CI	Confidence interval
CR	Cardiopulmonary
CVD	Cardiovascular Diseases
F	Female
FPSK	Fakulti Perubatan Dan Sains Kesihatan
GIS	Geographic Information System
HPA	Hypothalamic-pituitary-adrenal axis
ICC	Intra-class correlation coefficient
IPAQ	International Physical Activity Questionnaire
IQR	Interquartile range
JKE-UPM	Jawatankuassa Etika Universiti untuk Penyelidikan yang Melibatkan Manusia
K-Value	Kappa value
K-S	Kolmogorov-Smirnov
L-R	"Likelihood Ratio"
M	Male,
MET	Metabolic Equivalent of Task
MOH	Ministry of Health Malaysia
MyNCDS	Malaysian non communicable disease surveillance 1
N	Number
NCD	Non Communicable Diseases
NHMS	National Health and Morbidity Survey
NHIS	National Health Insurance Scheme
NIH	National Institute of Health
NMES	National Medical Expenditure Survey
OR	Odds Ratio
PA	Physical Activities
PARQ	Physical Activity Readiness Questionnaire
PASES	Physical Activity Self-efficacy Scale
RR	Relative Risk
SD	Standard Deviation
SPA	Somehow physically active
SPSS	Statistical Package For Social Sciences
SSKM	Saringan Status Kesihatan Mental-20
TV	Television
UPM	University Putra Malaysia
US	United States
US-DHHS	United States Department of Health and Human Services
VPA	Very physically active
WHO	World Health Organization
WHO-GHO	WHO-Global Health Observatory
X	Times

<	Less than
>	Greater than
≥	Greater than or Equal
%	Percentage

CHAPTER 1

INTRODUCTION

This chapter gives a brief description on the background of the study, problem statements, significance of the study, research question, and the objectives. It also shows the hypotheses of the study.

1.1 Background

Physical inactivity among adolescents is on the rise and policy makers and public health practitioners have identified it consequences (WHO, 2010). World Health Organization (WHO, 2014a) defines physical activity as ‘‘any bodily movement produced by skeletal muscles that requires energy expenditure’’ The term physical activity and exercise are inter-related but not the same, exercise is part of physical activity that is design, organised and is done continuously in such a way that the objective is to achieve physical fitness. Exercise as well as other activities which involve bodily movement and are done as routine activities such as playing, walking, active transportation, house errands and recreational activities are all part of physical activity (WHO, 2014a). The ability of the physical body to move, change position as a result of contraction or relaxation of the skeletal muscle with resultant energy dissipation above resting level is referred as physical activity. Being physically active improves both mental and musculoskeletal health and reduces other risk factors such as overweight, high blood pressure and high body cholesterol (Lim & Taylor, 2005). On the other hand, physical inactivity is the absence of the physical activity, and it is identified as the fourth leading risk factor of death globally (Harold et al., 2012).

The level of insufficient physical activity is rising in many countries with major implications for the prevalence of non-communicable diseases (NCDs), such as (cardiovascular disease, diabetes, cancer and their risk factors such as high blood pressure, increase sugar level and overweight) and the general health of the population worldwide (WHO, 2011). There is enough evidence to explain that physical inactivity plays a big role in contribution to mortality and disability from non-communicable diseases (NCDs) worldwide. Unlike other risk factors of NCDs, the control of physical inactivity at population level is slow.

According to United States Department of Health and Human Services (USDHHS), regular physical activity is associated with increase health benefit and decrease risk of all case mortality, it improves aerobic capacity, muscle strength, body agility, coordination and metabolic functioning (US DHHS, 1996). Physically active individual have reduced risk of developing cardiovascular disease and ischemic stroke (Wannamethee & Shaper, 2001), non-insulin dependent type (2) diabetes mellitus (Fulton-Kehoe, Hamman, Baxter and Marshall., 2001), colon cancer

(Brownson, Chang, and Smith, 1991) and osteoporosis (Rubin, Schirduan, gendreau, Sarfarazi, Mendola and Dalsky, 1993). Physical activity is associated with higher level of self-esteem and lower level of anxiety and stress (Theodorakis, Natsis, Papaioannou and Goudas, 2002).

The Surgeon's General Reports on Physical Activity and Health stated that increase levels of regular physical activity are associated with lower death rates (US DHHS, 2006). According to findings by Lee et al., 2012 as published in the British scientific journal (The Lancet, 2012), the population attributable fractions, calculated with adjusted relative risk of WHO region and country all-cause mortality associate with physical inactivity for coronary heart disease, type 2 diabetes, breast cancer, colon cancer and all-cause mortality related with physical inactivity in Malaysia are, 10.2% (9% CI 3.8, 16.9), 12.6% (9% CI 6.3, 19.6), 17.1% (9% CI 8.0, 26.6), 18.2% (9% CI 10.2, 26.5) and 16.4% (9% CI 13.0, 19.7) respectively and the estimated gain in life expectancy in years if physical inactivity is eliminated is 1.35 (1.06 to 1.65).

Based on four different studies among adult Malaysians, the National Health and Morbidity Survey II, 1996 (Institute for Public Health, [IPH] 1999; MOH NSPNCD, 2011) showed that about 88.4% of adult Malaysians aged 18 years and above were insufficiently active. Another study carried out in 2002 by Malaysian Adults Nutrition Survey (MANs, 2003) also showed 85.6% of adults Malaysians age 18 years and above do not participate in adequate exercise. Malaysian non-communicable disease survellance1 showed a lower prevalence of physical inactivity (60.1%) among adult Malaysians age 25-64 years while National Health and Morbidity Survey III in 2006 (IPH, 2008) showed a much lower prevalence of 43.7% among adults Malaysians aged 20-24 years.

In a study conducted among 743 university students aged 18 years and above to access their physical activity levels shows that on average, the students do not meet the current recommended level of physical activity (Dinger, 1999) and in another systematic review study using 19 primary studies (35,747 students) from 27 countries to analyse the prevalence of university student participation in physical activity shows that about 50% of students studying in university in United States and Canada were not active enough to gain health benefit (Irwin, 2004).

A study conducted among New Zealand adolescents has also shown that a greater reduction in physical activity occurring at a time when they are about completing their secondary education and making decision to proceed to tertiary institution and employment (Mclean, G., 2004). Lack of motivation, social distraction, academic stress, harsh environmental weather were among reasons of physical inactivity reported by university students (Gyurcsik, Bray, and Brittain, 2004). In a cross-sectional study by Hazizi, Hamdi, Leong, and Izumi. (2012), using pedometer to assess the physical activity levels among 174 young adult undergraduate Malay students with mean age of 20.7 $\pm$ 1.3 years old, revealed that 65.5% of the respondents were of low active/ somewhat active category, 19.5% are active while less than 15% are categorised as sedentary.

1.2 Problem Statements

Globally the prevalence of physical inactivity is on the rise in many countries including Malaysia. Based on the 2008 estimated prevalence, it showed that about 60.5% of adult Malaysian aged 15 years and above are physically inactive, with male 56.0% and females 65.0%, thus enlisting Malaysia among the top ten physically inactive nations in Asian region (WHO, 2011).
In an effort to establish a healthy lifestyle, a lot of work have been done to discourage physically inactive life, but still with all the established negative effects of inadequate exercise, a good percentage of young adults are sedentary and not physically active and most of the studies shows that the decline in physical activity occurs between adolescence and young adulthood (Lowry et al., 2000).

There is evidence that a larger proportion of students transiting to university engage in low levels of physical activity, with about one-third of previously active students becoming inactive during the transition (Bray and Born, 2004). Insufficient physical activity has been shown to be prevalent among university students. About 50% of university students from US and Canada (Irwin, 2004), 60% from Europe (Steptoe et al 1997; Stock, Wille and Kramer 2001), 39% from Australia (Leslie et al., 1999), were shown to be insufficiently active. About 52% of New Zealand University students also did not meet their countries guideline for adequate physical activity compared to 30% of their age group in the general population (Sports and recreation, New Zealand 2003).

In 2014 meeting of the World leaders to assess the effort made so far in combating NCDs from 2011, the 2014 NCD country profiles showed not enough progress across all the countries. A target of 10% reduction in prevalence of insufficient physical activity is among the 9 voluntary global NCD targets set for 2025 (WHO, 2014).

Report from US National Center for Educational Statistics by Hurst and Hudson (as cited in Bray & Born, 2004) shows an alarming decline in vigorous physical activity among 30-36% of student age group 18-24 year old enrolled in higher institute of learning in 1999/2000 compared to those in high school. Bray and Born, (2004) in a sample of 145 first year Canadian university undergraduate students also reported a higher decline in both duration and frequency of vigorous physical activity at university level by comparing student self-report of physical activity during last 2 months of high school and first 2 months in the university based on the standards recommended by United States Department of Health and Human services (USDHHS). The study reveals that 66.2% of the students have adequate levels of vigorous physical activity when in high school but a significant decline (44.1%) was observed during their early first year in the university.

University student levels of physical inactivity has been overlooked (Watson, Poczwardowski & Eisenman, 2000). Previous studies on physical inactivity focus

less on university students, studies on which factor is associated with physical activity particularly among young adults is not clearly understood, making the young people in this group including university students as important target for study (Pahkala et al., 2007). The Trends of prevalence of physical inactivity among Malaysian University student and or their age group is limited and not specific. Unlike in primary and secondary schools, the absence of proper and adequate structure on physical education, health promotion and awareness, makes the students most often to neglect the opportunities of utilizing the available facilities effectively.

First year students in university environment are a set of student who came from a previous controlled, structured schools and homes to a less controlled and structured university environment or campus. These changes in environment, in addition to time constrain due to course workload with high expectation on academic performance as well as new experience of social life and distraction has been shown to influence their ability to do physical activity regularly. A study by Ebben and Brudzynski (2008) among 1044 participants average age 20.5±5.77 years also reported that a reason for lack of exercise among college students in tertiary institution is "no time," "laziness," "other priorities," lack of "motivation," tiredness" and "more school workload." Studies relating mental health, environmental support and physical inactivity are limited, and are very limited studies assessing the relationship between physical activities among university students in Malaysia. Findings may also help update records in undergraduate prospectus as in relates to physical activity. It can also be used to reflect prevalence of age group 18-25 in the general population since a public university is a composition of the general public in terms of race and gender.

1.3 Significance of Study

According to WHO (2011) all-cause mortality list, physical inactivity is number four and it accounts for about 1.9 million deaths every year. Researchers have indicated that physical activity declines consistently during this period of transition to adolescent years (Kimm et al., 2002; Trost et al., 2002), during adolescences (Park and Kim, 2008) and in the transition to university, and specifically during the duration of study at university (Bray and Born, 2004).

First year undergraduate student fall in to the category of persons transiting from adolescent to adulthood. At this stage, the frequency of physical activity and level of activities decreases, and puts them to a high risk period of sedentary life styles and a special group for research. It is expected that findings will add value to the body of knowledge on physical inactivity and this will help policy makers in designing effective prevention and intervention programmes among university students in general and UPM students in particular.

Findings may help to identify the modifiable risk factors that lead to physically inactive life for possible intervention, to develop a healthy nation, a baseline data for health awareness and health promotion activities in the university.

1.4 Research Questions

The study is also expected to address the following research questions.

i) What is the prevalence of physical inactivity among first year undergraduate student in University Putra Malaysia (UPM)?
ii) What are the factors that are associated with physical inactivity among of first year undergraduate students in UPM?

1.5 Study Objectives

1.5.1. General Objectives

The general objective of this study is to determine the prevalence of physical inactivity and its associated factors among first year undergraduate students of the University Putra Malaysia.

1.5.2 Specific Objective

The specific objectives of this study are:

i) to determine the characteristics of respondents by their
   a. socio-demographic factors (age, gender ethnicity and family income)
   b. environmental support factor (availability of side-walks, street light, use of recreational facilities for physical activity, use of walking trails and sports fields, school as pleasant place to walk)
   c. physical activity readiness and medical history
   d. mental health status
   e. self-efficacy of physical activity
   f. body image perception and dissatisfaction
ii) to determine the prevalence of physical inactivity among first year university students
iii) to determine the association between socio-demographic factors, environmental support, mental health status, self-efficacy of physical activity and body image perception and dissatisfaction, and of physical inactivity.
iv) to determine the factors associated with physical inactivity.

1.6 Research Hypothesis

The alternative hypotheses are:

H_1: There is an association between socio-demographic factors (age, gender, family income and ethnicity) and level of physical inactivity among first year undergraduate student of UPM.

H_2 : There is an association between environmental support (availability of recreational areas, playground, cycling track and side walk) and level of physical inactivity among first year undergraduate students of UPM.

H_3: There is an association between mental health status and level of physical inactivity among first year undergraduate students of UPM.

H_4: There is an association between self-efficacy of physical activity and level of physical inactivity among first year undergraduate students of UPM.

H_5 : There is an association between body image perception and dissatisfaction and level of physical inactivity among first year undergraduate students of UPM.

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