

UNIVERSITI PUTRA MALAYSIA

PREVALENCE AND FACTORS ASSOCIATED WITH OVERWEIGHT AND OBESITY AMONG SECONDARY SCHOOL STUDENT IN PUCHONG, SELANGOR MALAYSIA

OJO ESEHI QUEEN

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PREVALENCE AND FACTORS ASSOCIATED WITH OVERWEIGHT AND OBESITY AMONG SECONDARY SCHOOL STUDENT IN PUCHONG, SELANGOR MALAYSIA



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

December 2018

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

PREVALENCE AND FACTORS ASSOCIATED WITH OVERWEIGHT AND OBESITY AMONG SECONDARY SCHOOL STUDENT IN PUCHONG, SELANGOR MALAYSIA

By

OJO ESEHI QUEEN

December 2018

Chairman: Mohd RaFee Bin Baharudin, PhDFaculty: Medicine and Health Sciences

Background: Worldwide, overweight and obesity are one among the major public health problem which is resposibles for 5% of death yearly. World Health Organization (WHO) reported that there is an increase in the prevalence of overweight and obesity; about 1.9 billion adults were overweight and 600 million were obese, 18% of children and adolescents aged 5-19 were either overweight or obese in 2016. The rate of obesity has tripled, as they rapidly become more urbanized with increased consumption of calorie foods and adoption of a more sedentary life-style. In Malaysia over the past three decade, there has been a clear increase in the prevalence of overweight and obesity. Among secondary school children, 44% were perceived overweight while 14% obesity (Adolescent Nutrition Survey, NHMS, 2017).

Objectives: The objective of the study is to determine the prevalence and factors associated with overweight and obesity among secondary school student in Puchong district, Selangor Malaysia.

Methodology: A cross-sectional study was conducted in secondary schools in Puchong district of Selangor Malaysia. A constructed validated pretested questionnaire was used for the data collection. The questionnaire consists of six sections, which include: a) Socio-Demography charateristics, b) Physical Activity Questionnaire c) Self Esteem Scale, d) Body Parts Satisfaction Scale e) Body Size Perception Scale and e) Smoking questionnaire. Weight and height was measured and converted to body mass index (BMI). The study analysis was done using Statistical Package for social sciences (SPSS) version 22. Basic descriptive analysis was carried out for the mean, median, frequency and percentage. Chi square test was used to test association between the variables. Simple logistic regression was used to determine the crude odd ratio and variables with p value < 0.25 were entered into the multiple logistic regression to determine the adjusted odd ratio/predictors of overweight and obesity. Level of significance was set at 0.05.

Result: The response rate was 100%. The prevalence of overweight and obesity was 10% and 3.9% respectively. Out of the 281 student that participated in the study 164 were female (58.4%) while 117 were male (41.6%). Age (0.001), father's education (p=0.006), mother education (p= 0.023), body part satisfaction (p= 0.001) and body image (p= 0.009) were significantly associated with overweight and obesity, then were entered into logistic regression model. Multiple logistic regression analysis showed that the predictors of obesity were age (AOR=2.756, 95% CI: 1.327-5.721, p=0.007) body parts satisfaction (AOR=4.019, 95% CI: 1.925-8.390, p= 0.001) and body size perception (AOR=2.917, 95% CI: 1.204-7.202, p= 0.018).

Conclusion: In conclusion the significant predictor of overweight and obesity among secondary school student in Puchong district Selangor, Malaysia were age, body parts satisfaction and body size perception. The findings from this study can be used by policy makers to conduct a more represatitive study and plan preventive measures to tackle the increasing prevalence of overweight and obesity among the target population.

Keywords: Overweight & Obesity, Association, Predictors, Secondary School, Malaysia.

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

PREVALENCE DAN FAKTOR YANG BERKAITAN DENGAN OVERWEIGHT DAN OBESITI DENGAN PELAJAR SEKOLAH SEKOLAH SEPULUH DI DAERAH PUCHONG, MALAYSIA

Oleh

QUEEN ESEHI OJO

Disember 2018

Pengerusi : Mohd RaFee Bin Baharudin, PhD Fakulti : Perubatan dan Sains Kesihatan

Latarbelakang: Latar belakang:di seluruh dunia,berat badan berlebihan dan obesiti adalah satu daripada faktor utama masalah kesihatan yang menyumbang 5% kepada kematian sepanjang tahun.world health organization (WHO) melaporkan terdapat peningkatan kelaziman berat badan berlebihan dan obesity;kira-kira 1.9 bilion dewasa mempunyai berat badan berlebihan dan 600 million adalah obesiti.18% daripada kanak-kanak dan remaja lingkungan umur 5-19 tahun didapati berat badan berlebihan atau obesiti.kadar peningkatan obesity meningkat tiga kali ganda berlebihan arus pemodenan dengan pengambilan kalori makanan yang berlebihan dan mengamalkan gaya hidup yang tidak aktif.di Malaysia,lebih daripada tiga dekad yang lalu,peningkatan dalam masyarakat yang mempunyai berat badan berlebihan atau obesiti telahpun wujud.44% dalam kalangan pelajar sekolah disahkan berat badan berlebihan manakala 14% adalah obesiti.

Objektif: Objektif kajian ini adalah untuk menentukan kelaziman dan faktor yang mempengaruhi berat badan berlebihan dan obesiti dalam kalangan pelajar sekolah di kawasan puchong, Selangor Malaysia.

Metodologi: Sebuah kajian keratan rentas telah dijalankan di sekolah menengah di kawasan puchong,Selangor,Malaysia.kajian dijalankan dengan mengemukakan borang soal selidik yang digunakan untuk mengumpul data.borang soal selidik tersebut mengandungi enam bahagian yang mana termasuk a) ciri-ciri socio-demografi,b)kajian aktiviti fizikal,c)skala diri d) skala keperluan bahagian badan e)skala persepsi saiz badan dan e)kajian merokok.berat dan tinggi diukur dan ditukarkan kepada body mass index(bmi).analisis kajian telah dilengkapkan mengunakkan statistical package for social sciences(spss) versi 22.asas deskriptif

analisis digunakan untuk min,median,frekuensi dan peratus.ujian persegi chi digunakan untuk menguji faktor yang mempengaruhi antara pemboleh ubah.regresi logistik mudah digunakan untuk menentukan purata kasar ganjil dan pamboleh ubah dengan nilai p < 0.25 telah dimasukkan kedalam regresi logistik pelbagai untuk menentukan perubahan peratus ganjil/peramal berat badan berlebihan dan obesiti.tahap kepentingan telah ditetapkan pada 0.05.

Keputusan: Kadar tindak balas adalah 100%. Kelaziman berat badan berlebihan dan obesiti adalah 10% dan 3.9% lain-lain. Jumlah pelajar yang mengikuti kajian ini adalah 281 orang pelajar di mana 164 daripada pelajar perempuan(58.4%) manakala 117 daripada pelajar lelaki. Umur (p=0.001) pelajaran bapa(p=0.006),pelajaran ibu(p=0.0023).keperluan bahagian badan (p=0.001) dan persepsi saiz badan (p=0.009) adalah pengaruh penting dengan berat badan berlebihan dan obesity,selain itu,model regresi logistic telah dimasukkan.analisis regresi logistic pelbagai menunjukkan peramal berat badan berlebihan dan obesiti adalah umur(AOR=2.756, 95% CI: 1.327-5.721, p=0.007), keperluan bahagian badan (AOR=4.019, 95% CI: 1.925-8.390, p= 0.001) dan persepsi saiz badan (AOR=2.917, 95% CI: 1.204-7.202, p= 0.018).

Kesimpulan: Kesimpulannya, kepentingan peramal berat badan berlebihan dan obesity di kalangan pelajar sekolah menengah di kawasan puchong,Selangor,Malaysia adalah umur, keperluan bahagian badan dan persepsi saiz badan.keputusan kajian ini boleh digunakan oleh pembuat dasar untuk menjalankan lebih banyak perwakilan kajian dan merancang sukatan pencegahan untuk mengatasi kenaikan kelaziman berat badan berlebihan dan obesiti dalam kalangan populasi yang ditetapkan.

Kata kunci: Berat badan berlebihan & Obesiti, Mempengaruhi, Peramal, Pelar sekolah menengah, Malaysia.

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Suriani Binti Ismail, PhD

Associate Professor Faculty of Medicine and Health Sciences Universiti Putra Malaysia (Chairman)

Huda Binti Zainuddin

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

ROBIAH BINTI YUNUS, PhD

Professor and Dean School of Graduate Studies Universiti Putra Malaysia

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LIST OF ABBREVIATIONS

%	Percentage
APA	American Academy of Pediatrics
BASS	Body Area Satisfaction Scale
BMI	Body Mass Index
CDC	Centers for Disease Control
CI	Confidence Interval
CVD	Cardiovascular Disease
EIU	The Economist Intelligence Unit
FAO	Food and Agriculture Organization
IOTF	International Obesity Task Force
Kcal	Kilocalories
Kg/m ²	Kilogram per meter square
MGRS	Multicentre Growth Reference Study
MmHg	Millimetres of mercury
MOH	Ministry of Health
Ν	Number
NA	Not available
NCD	Non-Communicable Disease
NCHSS	National Centre for Health Statistics
NHMS	National Health and Morbidity Survey
NSP-NCD	National Strategic Plan for Non-Communicable Diseases
OB	Obesity
OECD	Organization for Economic Co-operation and Development
OR	Odds Ratio
OV	Overweight
Р	α level of significance
PAQ-A	Physical Activity Questionnaire for Adolescents
PAQ-C	Physical Activity Questionnaire for Children
RM	Ringgit Malaysia
SES	Socio-economic status
SD	Standard deviation

G

SPSSStatistical package for the Social SciencesUKUnited KingdomUNUnited NationsUSAUnited States of AmericaU.S.D.H.H.SUnited States Department of Health and Human ServicesWHOWorld Health Organization



CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Overweight means, for someone to weight too much while obesity means someone having too much fat for healthy living. According to World Health Organization (WHO) overweight and obesity prevalence among adult age 18years and above in 2015 were 30% and 18% respectively (National Health & Morbidity Survey [NHMS] 2015) compared to the percentage in 1996 where it was 16.6% and 4.4% respectively. The prevalence of children age below 18years was 11.9% (NHMS 2015).

Over the past century, there has been a dramatic increase in the prevalence of overweight and obesity level both in developing and developed countries (Ng CD 2015). Actualy, the prevalence of overweight and obesity are really becoming more health issue in developing country than in developed country (Hazreen et al., 2015). World Health Organization (WHO) reported that there is an increase in the prevalence of overweight and obesity; around 1.9 billion adults were overweight and 600 million were obese (WHO, 2014). Globally, the prevalence of obesity among children has increase from 4.2% in 90's to 6.7% in 20's century. Also, it has been noted by the Central for Disease Control and Prevention (CDC) that the prevalence of obesity among adolescents aged 12 to 19 years old were increased from 5% in 1980 to around 21% in 2012 (CDC,2013). Already 43 million children below the age of five were overweight in 2010 and projected to reach 60 million by 2020 (Garipagaoglu et al.,2009; Onis et al.,2010; WHO, 2011).

Children are relevant group as childhood lifestyle may track into adulthood and may influence weight status later in life, with almost 70% of obese children or adolescent becoming obese adults (Reilly, 2007). In developing countries over the past 20 years, the rate of obesity has tripled as they rapidly become more urbanized with increased consumption of calorie foods and adoption of a more sedentary life-partner (Haider & Cosman 2012). Averagely, prevalence of childhood obesity for developing countries in 2010 was 6.1% and predicted to attain 8.6% 2020 while for developed countries was 11.7% in 2020 and predicted to attain 14.1% by 2020 (de Onis et al., 2010). They are experiencing an increase in non-communicable disease risk factor like overweight and obesity (WHO, 2011). Also, the consequence of be overweight or obese on the health and development of children and adolescents can extend to adulthood, thereby increasing the risk of chronic non-communicable diseases and disability (Deren et al., 2018)

In some region of the world, Asia region for example, the epidemic is now an significant public health problem. The prevalence of obesity in 2010 was 4.9% and was predicted to reach 6.8% by 2020 (de Onis et al., 2010). In South East Asian region where Malaysia is located, about 300,000 deaths due to overweight and obesity where reported at the year 2011 (WHO, 2011). In Malaysia, the Third National Health and Morbidity Survey (NHMS III) IN 2006 showed a prevalence of obesity to be 14% in adult 18 years and above while in children below 18 years was 5.4% Ministry of Health. In 2017 NHMS III reported that about 44% of adolescent were overweight and 14% were obesity in Malaysia (MOH, 2009 & MOH, 2017). Adolescence as considered by WHO is from 10 to 19 years, has currently recorded a prevalence of 20% in UK and Australia, 15.8% in Saudi Arabia, 15.6% in Thailand, 10% in Japan, and 7.8% in Iran (Arya & Kumar, 2014)

Obviously, in the world-wide there are several causes of overweight and obesity in childhood (which include 5-19 age groups) and many are still under-findings by researcher. General overweight and obesity problem can be seen or accepted as a consequence of imbalance between energy intake and energy expenditure, from lifestyle adopted. Previously, during childhood the following are identify to be the causes of overweight and obesity, socio-demographic factors, physiological factors, dietary behavior, genetic factor, endocrine disorders and in some cases a combination one or two above (WHO, 2011; Saboo et al., 2015). Meanwhile, genetic factors often needs to be coupled with contributing environmental and behavioral factors in order to affect weight gain individual (CDC, 2010) Some other factor can affect eating habits and as a result can also causes overweight or obesity in adolescent; these other factor include depression, stress, anxiety, ethnically, education, social support and income (Andersen, 2008; Biro & Wien, 2010; Rohrer, 2009). Worldwide, more deaths are link to overweight and obesity than in underweight, for example 65% of the world's population live in countries where overweight and obesity kill more people than underweight, this includes all highincome and most middle-income countries (WHO, 2008). Higher chance of obesity, premature death and disability in adulthood is associated with childhood and adolescent obesity. Overweight and obesity is a complex disorder to better health and well-being in general and it is becoming most prevalent nutritional disaster among the higher socio-economic group in developing and developed countries. Obesity is one of the prevalence health problems globally in most of the population, affecting children, adolescent and adult (Robert & Mayer, 2010). Childhood obesity has both immediate and long-term effects on health and well-being. The major factors contributing for the increase in prevalence of overweight and obesity are physical inactivity and unhealthy diet (WHO, 2013) and despite the various strategies on diet and physical activity, there is still an increasing prevalence of overweight and obesity; therefore, there is need to recognize other factors associated such as the psychological and social factors.

1.2 Problem Statement

Overweight and obesity has become the most significant health problem globally, which have the tendency of affecting children and adult inclusively (Saboo et al., 2014). The prevalence of childhood is higher in Asian (17.7 million) than in Africa (13.3 million) and almost half of overweight children in Asian region are obese finally (Yaufa & Hyunjung, 2012; WHO, 2018). In Malaysia, the national prevalence of obesity has increased from 5.7% in 2011 to 11.9% in 2015 (NHMS 2011, NHMS 2015). The prevalence of obesity among adults 18 years and above was 4.4% in 1996 (MOH, 1997), compared to 12.3% in 2004 (Rampal et al., 2007) and 14.2% in 2006 (MOH, 2008). In adolescents, the prevalence of risk of overweight and overweight was 11.4% and 8.2% respectively in 2005 among secondary school students in Klang district (Rampal et al., 2007) and also prevalence were 12.5% and 11.7% respectively in a studies carried out among adolescent in Putrajaya in 2010 (Rampal et al., 2011). In regardless of all the effort and actions that has been taken or put in by international body, national governments and several other organizations in given awareness and method to prevent and control the trend, cost, impact of overweight and obesity, the prevalence continues to add and get worse (The Health Industry of Malaysia Health and Social Care Essay).

Globally, overweight and obesity are responsible for 5% of death, and has virtually doubled since 1980, where the prevalence of both overweight and obesity has increase from 4.2% in 1990 to 6.7% in 2010 and is like to reach 9.1% which is approximately about 60million by the year 2020 (WHO, 2016). In Malaysia, the trend of obesity has really increase according to Second National Health & Morbidity Survey, among 18 years & above adult, there is increase in prevalence of overweight and obesity from 4.4% in 1996 to 14.2% in 2006 (Rampal et al.,2007; MOH, 2008). In adolescents, the prevalence of risk of overweight and obesity was 11.4% and 8.2% respectively in 2005 among secondary school students in Klang district prevalence of 12.5% and 11.7% respectively (Rampal et al., 2011).

The cost of overweight and obesity during childhood is on increase. WHO ranks overweight and obesity as 3rd on the list of health risks in high income countries, responsible for 8.4% of deaths and 6.5% of disability reducing life span (IOTF). In the southeast region of Asia country, the Economist Intelligence Unit (EIU) gave a report to show the cost (direct and indirect) of obesity amounting to as high as 10 billion US dollar in six countries which includes Vietnam, Thailand, Singapore, Philippine, Malaysia and Indonesia between 2010 and 2014. The figure below gives example of cost of obesity in six countries in the southeast region of Asian including Malaysia.





The impact of overweight and obesity in adolescent can development into adult obesity and can predispose to early mortality with increased opportunity of developing into non-communicable diseases at early life (WHO, 2011; WHO, 2015). Also, overweight and obesity have negative impact on health, which is associated with disease like cardiovascular disease, fatty liver disease, Type 2 diabetes, gastroesophageal reflux, sleep apnea, asthma and some cancers of breast, colon, prostrate and gall bladder (American Academy of Pediatrics, 2014 & WHO, 2015). It can also lead to serious behavioural, social or economic, psychological consequences like discrimination; reduce self-esteem, body image dissatisfaction and other psychological disorders which can persist into adulthood (WHO, 2008 & Andersen, 2014). Since other evidences reported that the prevention and the management of adolescent overweight and obesity is one of the ways to prevent obesity in adult life. Therefore, this study aims to look into step in the prevention and control of obesity during childhood considering the high prevalence of overweight and obesity and his complicatons for health and economy now and future. Forwardmore, there is need to assess the factors associated with overweight and obesity among secondary school students in Puchong district of Selangor, Malaysia.

1.3 Significance of Study

This study aims to provide an overview of the prevalence and factors associated with overweight and obesity among secondary school student (adolescents) as well as the contributing causes based on the findings of previously studied. So through this study finding, it has been notice that so many factors like socio-demographic characteristics (father's and mother's level of education) and psychological factors (body image, body parts dissatisfaction) are in association with overweight and obesity. Second, the government could use the information to develop programs to prevent or control overweight and obesity among adolescent in Puchong district Malaysia. These findings and recommendations would also contribute to the scientific body of knowledge in this study area and can serve as a basic of child health policies implementation respectively.

1.4 Objective of the Study

1.4.1 General Objective of the Study

The objective of the study is to determine the prevalence and factors associated with overweight and obesity among secondary school student in schools in Puchong district, Selangor Malaysia.

1.4.2 Specific Objective

- i. To describe the socio-demographic characteristics (age, gender, ethnicity, religion, level of parents education, household income), physical activity, psychological factors (body image, self-esteem, body parts dissatisfaction) and smoking status among the respondent.
- ii. To describe the prevalence of overweight and obesity among the respondent.
- iii. To determine the association between socio-demographic characteristics (age, gender, ethnicity, religion, level of parents education, household income), physical activity, psychological factors (body image, self-esteem, body parts dissatisfaction) smoking status with overweight and obesity among the respondent.
- iv. To determine the predictors of overweight and obesity among respondent.

1.5 Research Hypothesis

- i. There is an association between socio-demographic characteristics (age, gender, ethnicity, religion, level of parents education, household income) with overweight and obesity among secondary school student in schools in Puchong district, Selangor Malaysia.
- ii. There is an association between physical activity with overweight and obesity among secondary school student in schools in Puchong district, Selangor Malaysia.
- There is an association between psychological factors (self-esteem, body parts dissatisfaction and body size perception) with overweight and obesity among secondary school student in schools in Puchong district, Selangor Malaysia.
- iv. There is an association between smoking status with overweight and obesity among secondary school student in schools in Puchong district, Selangor Malaysia.

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BIODATA OF STUDENT

Queen Esehi Ojo is an indigene of Bini, Edo state in the western part of Nigeria. She was born into the family of five as the eldest. She had her primary school education at Agboda primary school and her qualification of Secondary School Certificate Exams in 1999 in Edo state. She obtained her diploma in Microbiology from Uniben, OND in Computer science from Esut, and then her first degree in BSc. Computer science from Adekunle University Akungbe Akoko, Ondo state Nigeria in 2010. She did her internship and National Youth Service in 2010 and 2011 respectively. She worked at the Department of signal and Telecom, Nigeria railway Enugu.

She commenced her Master of Science degree in Community Health in 2014 under the supervision of Dr Surina Ismail Binit at the Faculty of Medicine & Health Sciences, Universiti Putra Malaysia. She is married and have with her husband two blessed & beautiful princess namely Bracha and Bedisa





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