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INFLUENCE OF EATING BEHAVIOURS AND PSYCHOSOCIAL FACTORS ON OVERWEIGHT AND OBESITY AMONG MEDICAL STUDENTS IN A PUBLIC UNIVERSITY IN MALAYSIA

Nor Afiah MZ*[1], Suriani I [1], Abdul Hakim Mohamad Sapian [2], Simmadorai R[2], Nor Shahida Akhma Mohd Nasir[2],

[1]Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia
[2]Medical Student, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia

***Corresponding Authors:** Associate Professor Dr Nor Afiah Mohd Zulkefli*
Email: norafiah@upm.edu.my

Abstract:

Background:

Obesity and overweight is one of the global health problems nowadays. The number of overweight and obese male and female in Malaysia age 18 years and older has increased from 1996 to 2006. This study aimed to determine the eating behaviours and psychosocial factors influencing the prevalence of overweight and obesity among medical students in a public university in Malaysia.

Methods:

A cross sectional study was carried out on 211 medical students selected through simple random sampling in 2014. Their body weight and height were measured, and a validated self-administered questionnaire was used to collect information on the Body Mass Index, socio demographic factors, eating behaviours and psychosocial factors. Data was analysed using SPSS version 21.

Results:

The prevalence of overweight and obesity among respondents was 16.6% and 3.8% respectively. The results indicated that there were signification associations between race (χ^2=11.838; p = 0.001), religion (χ^2=10.989; p = 0.001), and alcohol consumption (χ^2 = 4.641; p = 0.031) with overweight and obesity**.**

Conclusions:
Prevalence of overweight and obesity was 20.4%. Race, religion and alcohol consumptions were associated with overweight and obesity. Therefore there is a need to address the influence factors on overweight and obesity among medical students in this public university in Malaysia.

Key Words: overweight and obesity, eating behaviours, psychosocial health related, medical students

1.0 Introduction:

According to World Health Organization (WHO), obesity and overweight is an excessive or abnormal accumulation of fat which can lead to the impairment of health. Obesity and overweight is the fifth leading risk for global deaths because at least 2.8 million adults die each year attributed as being overweight or obese (WHO, 2014). As of 2008, more than 1.4 billion adults are overweight, and of all of these overweight people, nearly 200 million men and 300 million women were obese (UNESCO, 2014). Based on a survey in Canada by the Canadian Community Health Survey Cycle 2.2 (CCHS 2.2) (2004), the prevalence of obesity among Canadian youth has tripled over 25 years from only 3% in 1979 to 9% in 2004. Meanwhile, over the same time period, the prevalence of overweight has doubled from only 14% to 29% (CDC, 2014). Overweight for youth is defined as having BMI between 25 to 29.9 in the age group of 15-24 years old. Obesity for youth is defined as having BMI of 30 and higher in the age group of 15-24 years old (CDC, 2014; UNESCO, 2014). There are many various lethal diseases that emerge due to obesity and overweight. It is stated that every year at least 2.8 million adults die as a result of being obese or overweight (Xiao et al., 2013). Obesity will increase the incidence of cardiovascular disease (CVD) and type 2 diabetes mellitus as by 2030; over 62% of peoples are predicted to develop diabetes with CVD as the leading cause of death.

In a study conducted in Asian Institute of Medicine, Science and Technology (AIMST) reveals that prevalence of overweight and obesity among the medical students of AIMST University is on the rise, which is a comparable to the earlier findings conducted in Malaysia (Gopalakrishnan et al., 2012). Despite several studies have reported on factors associated with overweight and obesity, much less is known about the association between overweight and obesity and psychosocial factors and eating behaviours among medical students in Malaysia. Therefore this study was to determine the prevalence of overweight and obesity and its association with the psychosocial health related factor and eating behaviours among medical students in a public university in Malaysia

2.0 Materials and Method

This was a cross sectional study carried out among medical students in the Faculty of Medicine and Health Sciences, of a public university from June to July 2014. There were total of 639 medical students in this faculty in year 2014. The list of medical students studying in the faculty between the study period was used as a sampling frame. There were 211 medical students selected using simple random sampling as the respondents. The medical student who known to be depressed, anxious or stressed was excluded from this study. The independent variables include socio-demographic factors (gender, age, race, religion and financial aid), eating behaviour (emotional eating, external eating and restrained eating) and psychosocial health related factors (depression, anxiety, stress, physical activity, smoking, alcohol consumption) whereas the dependent variables were overweight and obesity. The data were collected using weighing scale, measuring tape and pre-tested, validated self-administered questionnaire on socio demographic factors (gender, age, race, religion and financial aid), psychosocial health related questionnaires (DASS21, IPAQ, smoking, alcohol) and eating behaviour questionnaire (DEBQ) (Lovibond & Lovibond 2013; Craig, Marshall & Sjostrom 2003; MOH, 2008; NHMS, 2011; Snoek et al. 2013). Standing height was measured to the nearest 0.1 cm without shoes, using a stadiometer. Participants wearing light clothes, were weighed to the nearest 0.01 kg, on a digital scale which was first calibrated using a standard weight and re-checked daily. Body mass index (BMI) was calculated as weight in kg divided

by height in metres squared. Respondents overweight and obesity were defined as ≥25.0–29.9 kg/m^2 and ≥30 kg/m^2, respectively. All analysis was conducted using SPSS Version 21. To assess the associations between the independent and dependent variables, Chi-square test and Spearman correlation test with the level of confidence equal to 0.05 were used. The required ethics approval was obtained from the university and approval to conduct the study was also obtained from the faculty.

3.0 Results

Response rate of this study was 100%.

3.1 Prevalence of obesity and overweight among respondents

Table 1 presents the prevalence of overweight and obesity among the respondents. There was 62.6% of the respondents had normal body mass index however 16.6% of the respondents were overweight and 3.8% of the respondents were obese.

Table 1: Prevalence of overweight and obesity among respondents (N=211)

Body Mass Index	n	%
Underweight	36	17.1
Normal	132	62.6
Overweight	35	16.6
Obese	8	3.8

3.2 Social demographic factors of respondents and its association

Majority (67.8%) of the respondents was from age group of 19 to 21 years old, females (66.8%), Malays (63.5) and Muslims (21.3%). Scholarship (96.2%) was a main financial aid for the respondents (Table 2).

Bvariate analysis among sociodemographic factors and overweight and obesity show only race (χ^2=11.838; p=0.001) and religion (χ^2=10.989; p=0.001) were significantly associated with overweight and obesity while others did not show any significant associations. About 27.6% and 27.2% were overweight and obese among Malay and Muslim respectively.

Table 2: Association between sociodemographic factors with overweight and obesity (N=211)

Characteristics	Overweight and obesity				Total	Chi-square test		
						χ^2	*df*	*p*
	Yes	%	No	%				
Age						1.092	1	0.296
19-21	32	22.4	111	77.6	143			
22-24	11	16.2	57	83.8	68			
Gender						0.396	1	0.529
Male	16	22.9	54	77.1	70			
Female	27	19.1	114	80.9	141			
Race						11.838	1	**0.001**
Malay	37	27.6	97	72.4	134			
Non-Malay	6	7.8	71	92.2	77			
Religion						10.989	1	**0.001**
Muslim	37	27.2	99	72.8	136			
Non-Muslim	6	8.0	69	92.0	75			
Financial aid						0.318	1	1.000
Scholarship	42	20.7	161	79.3	203			
Without scholarship	1	12.5	7	87.5	8			

3.3 Eating behaviour among the respondents and its association.

In this study, eating behaviour was divided into restrained eating, emotional eating and external eating as shown in Table 3. There was 55.9% of respondents had high restrained eating, 54.5% had high emotional eating and 52.1% had high external eating.

However eating behaviour has no significant association with overweight and obesity.

Table 3: Association between eating behaviours with overweight and obesity (N=211)

Characteristics	Overweight and obesity				Total	Chi-square test		
						χ^2	*df*	*p*
	Yes	%	No	%				
Restrained eating						7.494	1	0.006
Low	11	11.8	82	88.2	93			
High	32	27.1	86	72.9	118			
Emotional eating						0.037	1	0.847
Low	19	19.8	77	80.2	96			
High	24	20.9	91	79.1	115			
External eating						0.235	1	0.628
Low	22	21.8	79	78.2	101			
High	21	19.1	89	80.9	110			

3.4 Psychosocial health related status among the respondents and its associations

Table 4 indicates psychosocial health status among the respondents. Majority of the respondents (72.5%) were not depressed, anxiety (44.5%) or stress (77.0%).

In terms of physical activity, the vast majority of the respondents (46.0%) had moderate score of physical activity, followed by 42.6% of them had high score of physical activity and 11.4% of them with low physical activity. There was 95.7% of the respondents, which were the majority did not smoke and did not consume alcohol (84.8%).

Among 32 respondents who consumed alcohol, only 6.2% were overweight and obese which also shows a significant association with the overweight and obesity in this study (χ^2=4.641; p=0.031).

Table 4: Association between psychosocial health related status with overweight and obesity (N=211)

Characteristics	Overweight and obesity				Total	Chi-square test		
						χ^2	*df*	*P*
	Yes		No					
	n	%	n	%				
Depression						0.696	1	0.404
Not depressed	29	19.0	124	81.0	153			
Depressed	14	24.1	44	75.9	58			
Anxiety						0.550	1	0.458
Not anxious	17	18.1	77	81.9	94			
Anxious	26	22.2	91	77.8	117			
Stress						0.989	1	0.320
Not stressed	31	18.9	133	81.1	164			
Stressed	12	25.5	35	74.5	47			
Physical activity						0.237	2	0.888
Low	4	16.7	20	83.3	24			
Moderate	20	20.6	77	79.4	97			
High	19	21.1	71	78.9	90			
Smoking						0.972	1	0.324
Yes	3	33.3	6	66.7	9			
No	40	19.8	162	80.2	202			
Alcohol consumption						4.641	1	**0.031**
Yes	2	6.2	30	93.8	32			
No	41	22.9	138	77.1	179			

4.0 Discussion

There were various inconsistencies in the literature with regards to prevalence of overweight and obesity among medical students. However, this finding was consistent with a cross sectional study conducted by Gopalakrishnan et al 2012 among medical students in Malaysia which also found the prevalence was 20.0%. Another study which was conducted in East and Peninsular Malaysia found the prevalence of overweight and obesity among their respondents aged more than 18 years old was higher (33.6%). The difference of the result could be due to the age group of the respondents involved in the study. However in Kerala, India, the prevalence of overweight and obesity among medical students were found to be 50.28% which was also higher compare to this study. The higher prevalence was due to a different cut of point in term of definition of Body Mass Index which was using a new Asia Pacific Guideline Body Mass Index (Manojan, Benny & Anil, 2014).

Majority of the overweight and obese respondents were female, aged 19 to 21 years old, Malay, Muslim and had scholarship. This result is similar with the study conducted in Malaysia by Mohamud et al (2011) in terms of gender which shown that female has higher prevalence of obesity (22.5%) as compared to male (14.1%). This result was also similar to the findings found by Rampal et al (2007) which shown that female (14.7%) and Malay (13.6%) are more obese as compared to male and other ethnicity (Ng, Yuen & Corey, 2010). However in terms of ethnicity alone, another study finding which is contrast with this study finding showed that Indians has higher prevalence of obesity (24.6%) as compared to Malay (23.2%) (Wan Muhamoud et al., 2011). As in a study reported by Gopalakrishnan et al. (2012) also found that Indian had the highest prevalence of obesity (6.5%) as compared to other ethnicity. This may be due to the high denominator of Indians respondents in his study (Gopalakrishnan et al., 2012).

Religion was also found to be significantly associated with overweight and obesity in this study. The respondents of this study mainly were Malay population whereby majority of Malays were Muslim, while the non-Malay (Indian, Chinese, others) normally being non-Muslim (Buddhist, Hindu, Christian, others). Muslim religion in this study showed higher prevalence of overweight and obesity (27.2%) compare to other religions. This is mainly due to the various religious practices that are being practiced. Non-Muslim has a lower prevalence of overweight and obesity due to some of them practiced vegan eating lifestyles which provide a good and balanced intake of essential food and less intake of fats (Wan Mohamud et al., 2011).

The findings of this study showed there was a statistically significant association between alcohol consumption with overweight and obesity. The results was similar with a research findings conducted in German, by Ruf et al. (2005) which showed that there was a significant association between alcohol and energy intake (Ruf et al., 2005). Another study in Netherlands, by Croezen et al. (2007), also showed similar findings with significant association between alcohol consumption, skipping breakfast and physical inactivity with overweight and obesity ($p < 0.05$). The reason on why there was a significant association between alcohol consumption with overweight and obesity may due to younger generations more prone to consume alcohol and to try it (Croezen et al., 2007).

Limitation of this study includes that this study was unable to examine the causal relationship since it was a cross sectional design study which only assess at the time during the study was conducted. In addition, the result of this study only reflected to this particular public university in Malaysia.

5.0 Conclusion and recommendation:

The prevalence of overweight and obesity were 16.6% and 3.8% respectively. This study also showed that there were significant associations between race, religion, alcohol consumption, and restrained eating with overweight and obesity.

Overweight and obesity can cause adverse impact on health outcome in the future which lead to increase mortality and mortality. Campaign and programme about overweight and obesity and its association with health outcome should be done more aggressively in order to increase health consciousness among medical students. In addition, the adverse effect of unhealthy lifestyle and diet such as alcohol intake should be stress on in the campaign.

Ethical

Approval for ethical review was obtained from Jawatankuasa Etika Universiti Penyelidikan Melibatkan Manusia (JKEUPM) and permission to conduct the study was obtained from the Dean of Faculty of Medicine and Health Sciences of the university.

Declaration of conflict of interest

I/we author(s) of the article declare that there is no conflict of interest regarding publication of this article.

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