RESEARCH ARTICLE

Lifestyle Practice among Malaysian University Students

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Abstract

Background: It is well established that a healthy lifestyle is of benefit in the prevention of diseases such as cancer and promotion of well-being. Therefore, the objective of this study was to determine lifestyle practice and associated factors among university students in Malaysia. Materials and Methods: A cross sectional study was conducted over six months from November 2011 until May 2012 among the students from the Management and Science University. This study was approved by its ethical committee , the students being explained the objective and invited to participate. A consent form was signed by all study participants. Questionnaire was distributed randomly to the students of the five faculties through their lecturers in different faculty. For univariate analysis t-test and ANOVA test were performed. Multiple linear regression used for multivariate analysis using SPSS 13.0. Results: A total number of 1100 students participated with a mean age of 22.1±2.21 (SD) years. The majority were 22 years or younger (56.3%), female (54%), Malay (61.5%), single (92.3%), with family monthly income ≥5000 Ringgit Malaysia (41.2%). Regarding lifestyle, about were 31.6% smokers, 75.6% never drank alcohol and 53.7% never exercised. Multivariate analysis showed that age, sex, race, parent marital status, participant marital status, type of faculty, living status, smoking status, exercise, residency, brushing teeth, fiber intake and avoid fatty food significantly influenced the practice of drinking alcohol among university students (p=0.006, p=0.042, p<0.001, p=0.003, p=0.002, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p=0.003, p<0.001; respectively). It similarly showed that sex, race, parent marital status, participant marital status, monthly family income, exercise, residency, brushing teeth and fiber intake significantly influenced the practice of sun protection (p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p=0.017, p<0.001, p<0.001, p<0.001; respectively) and that age, sex, parent marital status, participant marital status, type of faculty, living status, exercise, taking non-prescribed medication, brushing the teeth, coffee consumption and fiber intake were significantly influenced the practice of fruits consumption (p=0.008, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p=0.002, p<0.001, P<0.001; respectively). Conclusions: This study showed a poor practice of healthy lifestyle among university students. Therefore universities should emphasize a healthy lifestyle in all faculties as a required subject. Socio-demographic characteristics significantly influenced practice and thus should be considered when planning preventive measures among university students. Frequent campaigns and educational seminars are to be encouraged.

Keywords: Lifestyle - practice - University students - Malaysia

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Introduction

A significant amount of the mortality and morbidity experienced worldwide today is preventable (Eyre et al., 2004). Lifestyle-related risk factors that were acknowledged in included unhealthy nutrition, physical inactivity, tobacco use and the use of alcohol and illicit drugs (The European health report, 2002). It is well established that a healthy lifestyle is of benefit in the prevention of disease and promotion of well-being (WHO 1990). Unhealthy lifestyle behaviours particularly poor dietary practices, physical inactivity and smoking are major risk factors for conditions like overweight, obesity and chronic non-communicable diseases (Chitson, 1994; Kruger et al. 2005; Steyn and Damasceno 2006).

Unhealthy practices, such as poor diet and smoking, are major causes of both cardiovascular diseases and cancer. Healthy practices, such as weight management, physical recreational activity and sleeping habits, have an impact on health status (Bellow and Breslow, 1972). Several studies show sex differences in health behaviour. Among university students, women were found to demonstrate more positive health behaviour, higher awareness and stronger beliefs concerning the importance of positive health habits (Wardle and Steptoe, 1991). Women are characterised by more minor morbidity and visits to health centre more than men (Popay et al., 1993). Information concerning health behaviour is needed for

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the development of effective health promotion programs for university students.

Urbanisation, globalisation and nutritional transition are major drivers of unhealthy lifestyle behaviours in developing countries (Popkin, 1997; Popkin and Gordon-Larsen, 2004; Candib, 2007). Rapid urbanisation and globalization is accompanied by behavioural change which exposes many individuals to the risk of chronic non-communicable diseases and mortality. Fast paced economic transition has also resulted in reduced physical activity levels, decreased hours of rest and increasing levels of stress (Popkin, 1997; Popkin and Gordon-Larsen, 2004). Furthermore, tobacco use, physical inactivity and diets high in saturated fat and salts constitute risk for conditions such as cardiovascular diseases, high blood pressure and elevated serum cholesterol levels (Howson et al., 1998; Reddy and Yusuf, 1998; Reddy, 2002). While factors such as age, sex and genetic susceptibility are non-modifiable many of the risks associated with chronic diseases are modifiable. Such modifiable risks include behavioural factors (e.g. diet, physical inactivity, tobacco use, alcohol consumption), medical conditions (e.g. dyslipidemia, hypertension, overweight, hyperinsulinaemia) and societal factors including include a complex mixture of interacting socioeconomic, cultural and environmental factors (WHO, 2003; Grundy et al., 2005).

Over the past decade, it has become apparent that chronic physical activity in the form of exercise training has the ability to prevent or delay the onset of illness and disease (Sesso et al., 2000; Haskell et al., 2007; Sofi et al., 2008). Lifestyle choices with respect to diet are important in both primary and secondary prevention of chronic disease (Krauss et al., 2000; Kushi et al., 2006). Studies suggests that several dietary patterns are favorably associated with the prevention of type 2 diabetes. A common characteristic of these dietary patterns is their abundant plant food content. Moreover, intake of whole grains and fiber, fruits, vegetables, nuts, monounsaturated fatty acids, magnesium and moderate intake of alcohol may reduce risk, while intake of red and processed meats and saturated fat may increase risk for type 2 diabetes (Heidemann et al., 2005; Montonen et al., 2005; Giugliano and Esposito, 2008). Furthermore, the economic cost of diseases, for instance, direct health care costs of T2D in the USA in 2007 were estimated at $116 billion (Economic costs of diabetes, 2008).

Several studies reported that low levels of physical activity, low levels of physical fitness and obesity are prominent, independent and modifiable risk factors for the development of insulin resistance, metabolic syndrome, and T2D (Laaksonen et al., 2005). Other research suggesting that physical activity can reduce the risk and progression of several cancers (Friedenreich, 2001; World Cancer Research Fund, 2007; Irwin and Mayne, 2008). The magnitude of the impact of diet on disease risk and the potential for prevention have been highlighted by several studies (McCullough et al., 2000; Hu et al., 2001; Tuomilehto et al., 2001).

Although universities and colleges are potentially important targets for the promotion of healthy lifestyles of the adult population, only a few studies have been conducted in Malaysia examining the dietary and health habits of university students. Studies about lifestyle among university students in Malaysia are lacking. Therefore, the objective of this study was to determine the practice of lifestyle and associated factors among university students, Malaysia.

Materials and Methods

A cross sectional study was conducted over six months from November 2011 until May 2012 among the students from Management and Science University. This study was carried out among five faculties, namely: International Medical School (IMS), Faculty of Health and Life Sciences (FHLS), School of Pharmacy (SOP), Faculty of Information Sciences and Engineering (FISE), Faculty of Business Management and Professional Studies (FBMP). This study was approved by ethical committee of Management and Science University. Students were explained the objective of this study and invited to participate. Consent form was obtained from the study participants. Questionnaire was distributed randomly to the students of the five faculties through their lecturers in different faculty. The questionnaire consists of two parts: socio-demographic characteristics such as (sex, age, marital status, monthly income). The second part consists of lifestyle questions such as (smoking status, exercise, fruits intake, sun protection practice, using seatbelt while driving). For univariate analysis t-test and ANOVA test were performed. Multiple linear regression used for multivariate analysis using SPSS 13.0.

Results

A total number of 1100 students participated in this study. The mean age of the study participants was 22.14±2.21 (SD) years. The majority of them were 22 years or younger, female, Malay, single, with family monthly income ≥5000 Ringgit Malaysia (56.3%, 54%, 61.5%, 92.3%, 41.2%; respectively) (Table 1). Regarding the lifestyle among university students, 31.6% smoker and 75.6% never drink alcohol. The majority of them never exercise (53.7%) (Table 2).

Univariate analysis showed that the factors that associated with smoking among university students were sex, BMI, age and monthly income ($p<0.001$, $p<0.001$, $p<0.001$, $p=0.022$; respectively). Regarding the factors associated with drinking alcohol were sex, type of faculty, BMI, age, monthly income, and race ($p<0.001$, $P<0.001$, $p=0.014$, $p<0.001$, $p<0.001$, $p<0.001$; respectively). Regarding the factors associated with exercise were sex, type of faculty, BMI, age, monthly income, and race ($p<0.001$, $P<0.001$, $p<0.001$, $p<0.001$, $p<0.001$, $p<0.001$; respectively). Regarding the factors associated with non-prescribed medication were sex, type of faculty, monthly income and race ($p<0.001$, $p<0.001$, $p<0.001$, $p<0.001$; respectively) (Table 3).

Multivariate analysis showed that age, sex, race, parent marital status, participant marital status, type of faculty, living status, smoking status, exercise, residency,

brushing the teeth, fiber intake and avoid fatty food were significantly influence the practice of drinking alcohol among university students (p=0.006, p=0.042, p<0.001, p=0.003, p=0.002, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p=0.003, p<0.001; respectively). All variables entered and backward method was used. Family income; coffee consumption; taking non-prescribed medications were excluded from the model (Table 4).

Multivariate analysis showed that sex, race, parent marital status, participant marital status, monthly family income, exercise, residency, brushing the teeth and fiber intake were significantly influence the practice of sun protection among university students (p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p=0.017, p<0.001, p<0.001, p<0.001, P; respectively). All variables entered and backward method was used. Smoking status; avoid fatty

Table 1. Socio-demographic Characteristics of the Study Participants (n=1100)

Variable	Categories	No.	%
Age	≤22	619	56.3
	>22	481	43.7
Gender	Male	506	46.0
	Female	594	54.0
Race	Malay	677	61.5
	Chinese	225	20.5
	Indian	147	13.4
	Others	51	4.6
Marital status	Single	1015	92.3
	Married	82	7.5
	Divorced	3	0.3
Parent marital status	Married	956	86.9
	Divorced	144	13.1
Family monthly income (RM)*			
	<5000	647	58.8
	≥5000	453	41.2
Faculty**	IMS	296	26.9
	FHLS	185	16.8
	SOP	127	11.5
	FISE	182	16.5
	FBMP	310	28.2
Living status	With parents	317	28.8
	With roommate	783	71.2
Residency	Urban	976	88.7
	Rural	115	10.5

*1USD=3.1, **IMS=International Medical School, FHLS=Faculty of Health and Life Sciences, SOP=School of Pharmacy, FISE=Faculty of information sciences and Engineering, FBMP=Faculty of Business management and professional studies

Table 2. Lifestyle Practice among University Students (n=1100)

Variable	Categories	No.	%
Health status	Good	822	74.7
	Moderate	251	22.8
	Sick	27	2.5
Smoking status	Smokers	348	31.6
	Non-smokers	752	68.4
Drinking Alcohol	Regularly	62	5.6
	Occasionally	206	18.7
	Never	832	75.6
Exercise	Yes	509	46.3
	No	591	53.7
Taking non-prescribed medication			
	Yes	233	21.2
	No	867	78.8
Sleep time (hours/day)			
	4 hours	130	11.8
	5hours	255	23.2
	6hours	321	29.2
	7hours	394	35.8
Sun protection	Yes	472	42.9
	No	572	52.0
	Never sunbath	56	5.1
Tooth brush	Once/day	354	32.2
	Twice or more/day	746	67.8
Meat consumption	Once a day	277	25.2
	Every 2-3 days	374	34.0
	Once a week	320	29.1
	Never	129	11.7
Fruits consumption	Once a day	317	28.8
	Every 2-3 days	378	34.4
	Once a week	164	14.9
	<Once a week	241	21.9
Coffee consumption			
	Yes	535	48.6
	No	565	51.4
Breakfast	Almost every day	373	33.9
	Sometimes	450	40.9
	Rarely/never	277	25.2
Fiber intake	Yes	614	55.8
	No	486	44.2
Avoid fatty food	Yes	650	59.1
	No	450	40.9
Seat belt use	Always	361	32.8
	Sometimes	382	34.7
	Rarely/never	266	24.2
	Do not ride a car	91	8.3

Table 3. Socio-demographic and Factors Associated with University Students Lifestyle (n=1100)

Variable	Sex	Faculty	BMI	Age	Income	Race
Smoking status*	P<0.001	P=0.531	P<0.001	P<0.001	P=0.022	P=0.703
Drinking Alcohol**	P<0.001	P<0.001	P=0.014	P<0.001	P<0.001	P<0.001
Exercise*	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001
Taking non-prescribed medication*	P<0.001	P<0.001	P=0.097	P=0.239	P<0.001	P<0.001
Sun protection**	P<0.001	P<0.001	P= 0.291	P=0.018	P<0.001	P<0.001
Tooth brush*	P<0.001	P<0.001	P=0.130	P<0.001	P<0.001	P=0.012
Meat consumption***	P<0.001	P<0.001	P=0.087	P<0.001	P<0.001	P<0.001
Fruits consumption***	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001
Coffee consumption*	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001
Breakfast**	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001
Fiber intake*	P<0.001	P<0.001	P=0.190	P<0.001	P<0.001	P<0.001
Avoid fatty food*	P<0.001	P<0.001	P=0.412	P<0.001	P<0.001	P<0.001
Seat belt use**	P<0.001	P<0.001	P<0.001	P=0.001	P<0.001	P<0.001

*T-test; **ANOVA test

Table 4. Factors Influence Drinking Alcohol among the Study Participants using Multiple Linear Regression (n=1100)

Variable	Categories	B	SE	Beta	p-value
Age	≤22	Ref.	Ref.	Ref.	
	>22	0.059	0.021	0.051	0.006
Sex	Male	Ref.	Ref.	Ref.	0.042
	Female	-0.101	0.05	0.088	
Race	Malay	Ref.	Ref.	Ref.	<0.001
	Non-Malay	-0.384	0.079	0.325	
Parent marital status					
Single		Ref.	Ref.	Ref.	0.003
Ever married		0.181	0.06	0.104	
Marital status					
Single		Ref.	Ref.	Ref.	0.002
Ever married		-0.218	0.07	0.102	
Faculty					
Medical and Health		Ref.	Ref.	Ref.	<0.001
Non-Medical and Health		0.508	0.062	0.438	
Living status					
With parents		Ref.	Ref.	Ref.	
With friends		0.694	0.063	0.543	<0.001
Smoking status					
Smoker		Ref.	Ref.	Ref.	
Non-smokers		-0.094	0.023	0.076	<0.001
exercise	Yes	Ref.	Ref.	Ref.	
	No	0.578	0.063	0.501	<0.001
Residency	Urban	Ref.	Ref.	Ref.	<0.001
	Rural	-0.197	0.047	0.105	
Tooth brushing					
Once a day		Ref.	Ref.	Ref.	
Twice or more/day		-0.198	0.052	0.16	<0.001
Fiber intake	Yes	Ref.	Ref.	Ref.	0.003
	No	0.221	0.074	0.191	
Avoid fatty food					
	Yes	Ref.	Ref.	Ref.	<0.001
	No	-0.303	0.076	0.259	

*P<0.001 R^2=0.065

Table 5. Factors Influence using Sun Protection among the Study Participants using Multiple Linear Regression (n=1100)

Variable	Categories	B	SE	Beta	p-value
Sex	Male	Ref.	Ref.	Ref.	
	Female	0.492	0.028	0.421	<0.001
Race	Malay	Ref.	Ref.	Ref.	
	Non-Malay	0.129	0.034	0.108	<0.001
Parent marital status					
	Single	Ref.	Ref.	Ref.	
	Ever married	0.297	0.029	0.168	<0.001
Marital status					
	Single	Ref.	Ref.	Ref.	
	Ever married	0.337	0.034	0.155	<0.001
Monthly family income (RM)					
	<5000	Ref.	Ref.	Ref.	
	≥5000	-0.491	0.039	0.415	<0.001
Living status					
	With parents	Ref.	Ref.	Ref.	0.05
	With friends	0.044	0.023	0.034	
Exercise	Yes	Ref.	Ref.	Ref.	0.017
	No	-0.082	0.034	0.07	
Residency	Urban	Ref.	Ref.	Ref.	
	Rural	-0.325	0.023	0.172	<0.001
Tooth brushing					
	Once a day	Ref.	Ref.	Ref.	
	Twice or more/day	-0.112	0.022	0.089	<0.001
Coffee consumption					
	Yes	Ref.	Ref.	Ref.	0.061
	No	0.069	0.037	0.059	
Fiber intake	Yes	Ref.	Ref.	Ref.	<0.001
	No	-0.091	0.025	0.077	

*P<0.001 R^2=0.915

Table 6. Factors Influence using Seat Belt Use among the Study Participants using Multiple Linear Regression (n=1100)

Variable	Categories	B	SE	Beta	p-value
Sex	Male	Ref.	Ref.	Ref.	<0.001
	Female	0.602	0.082	0.318	
Race	Malay	Ref.	Ref.	Ref.	0.024
	Non-Malay	0.31	0.137	0.16	
Marital status					
	Single	Ref.	Ref.	Ref.	<0.001
	Ever married	-0.252	0.07	-0.071	
Family monthly income (RM)					
	< 5000	Ref.	Ref.	Ref.	<0.001
	≥5000	-0.402	0.111	-0.21	
Faculty					
	Medical and Health	Ref.	Ref.	Ref.	<0.001
	Non-Medical and Health	0.419	0.096	0.22	
Living status					
	With parents	Ref.	Ref.	Ref.	<0.001
	With friends	2.178	0.092	1.038	
Smoking status					
	Smoker	Ref.	Ref.	Ref.	0.084
	Non-smokers	-0.056	0.032	-0.028	
Exercise	Yes	Ref.	Ref.	Ref.	0.001
	No	0.337	0.104	0.178	
Residency					
	Urban	Ref.	Ref.	Ref.	0.002
	Rural	-0.196	0.064	-0.064	
Tooth brushing					
	Once a day	Ref.	Ref.	Ref.	<0.001
	Twice or more/day	-0.484	0.072	-0.238	
Coffee consumption					
	Yes	Ref.	Ref.	Ref.	<0.001
	No	0.586	0.113	0.31	
Fiber intake					
	Yes	Ref.	Ref.	Ref.	<0.001
	No	-0.426	0.117	-0.224	
Avoid fatty food					
	Yes	Ref.	Ref.	Ref.	<0.001
	No	-0.387	0.104	-0.201	

*P<0.001; R^2=0.741

food; age, faculty, and taking non-prescribed medication were excluded (Table 5).

Multivariate analysis showed that sex, race, marital status, family monthly income, type of faculty, living status, exercise, residency, brushing the teeth, coffee consumption, fiber intake, and avoiding fatty foods were significantly influence the practice of seatbelt use among university students (p<0.001, p=0.024, p<0.001, p<0.001, p<0.001, p<0.001, p=0.001, p=0.002, p<0.001, p<0.001, p<0.001, p<0.001; respectively). All variables entered and backward method was used. The following variables were excluded: Semester; Taking non-prescribed medicine; age and parents marital status (Table 6).

Multivariate analysis showed that age, sex, parent marital status, participant marital status, type of faculty, living status, exercise, taking non-prescribed medication, sleep time, brushing the teeth, coffee consumption and fiber intake were significantly influence the practice of fruits consumption among university students (p=0.008, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p=0.002, p<0.001, P<0.001; respectively). All variables entered and backward method was used. Family income; smoking status, race and avoid fatty food were excluded (Table 7).

Table 7. Factors Influence using Fruits Consumption among the Study Participants using Multiple Linear Regression (n=1100)

Variable	Categories	B	SE	Beta	P-value
Age	≤22	Ref.	Ref.	Ref.	0.008
	>22	-0.094	0.036	0.042	
Sex	Male	Ref.	Ref.	Ref.	
	Female	0.659	0.074	0.296	<0.001
Parent marital status					
	Single	Ref.	Ref.	Ref.	
	Ever married	0.353	0.098	0.105	<0.001
Marital status					
	Single	Ref.	Ref.	Ref.	
	Ever married	-0.434	0.114	0.105	<0.001
Faculty	Medical and Health	Ref.	Ref.	Ref.	
	Non-Medical and Health	-0.270	0.063	0.121	<0.001
Living status					
	With parents	Ref.	Ref.	Ref.	
	With friends	0.634	0.083	0.257	<0.001
Exercise	Yes	Ref.	Ref.	Ref.	
	No	0.786	0.119	0.353	<0.001
Residency					
	Urban	Ref.	Ref.	Ref.	0.088
	Rural	-0.133	0.078	0.037	
Taking non-prescribed medication					
	Yes	Ref.	Ref.	Ref.	<0.001
	No	-1.604	0.060	0.592	
Tooth brushing					
	Once a day	Ref.	Ref.	Ref.	0.002
	Twice or more/day	-0.241	0.077	0.101	
Coffee consumption					
	Yes	Ref.	Ref.	Ref.	
	No	1.320	0.126	0.594	<0.001
Fiber intake					
	Yes	Ref.	Ref.	Ref.	
	No	-1.155	0.083	0.516	<0.001

*P<0.001 R^2=0.740

Discussion

In this study more than half of the participants were physically inactive (53.7%). This reflects the insufficient healthy lifestyle practice among university students. More education courses about healthy lifestyle is urgently needed to promote primary prevention of the diseases among university students. Lower prevalence was reported among college students in a Saudi Arabian study (45.8%) (Irwin, 2004). Only 26.4% of university students in a Lebanese study were engaged in physical exercise (Musharrafieh et al., 2008). About one-third of Chinese and Brazilian university students were physically inactive (Abdullah et al., 2005; Fontes and Vianna, 2009). Makrides et al. (1998) reported that fewer than half of university students in Canada participated in exercise three or more times per week. A previous study in the USA found that only 39% of students exercised three or more times per week (Haberman and Luffe, 1998). Another American study reported that 47% of college students did not engage in vigorous physical activity and 17% were physically inactive (Suminski et al., 2002). The National College Health Risk Behavior Survey in the USA reported that 42% of college students participated in vigorous activity at least three times a week, while an additional 20% participated in moderate activity (CDC, 1997). Staten et al. (2005) reported that 39% and 41% of university students were vigorously and moderately physically active. National statistics also showed that in many countries at least one-quarter of all young people are deemed physically inactive (National Youth Risk Behavior Survey, 2006). Among university students of 23 countries the prevalence of inactivity in leisure time varied with cultural and economic development factors, averaging 23% (Northwestern Europe and USA), 30% (Central and Eastern Europe), 39% (Mediterranean), 42% (Pacific Asia), and 44% (developing countries) (Haase et al., 2004). This variation in the level of physical inactivity between different countries is a reflection of socioeconomic development, technology and urbanization. Females were about two times more likely to be physically inactive than males. The same finding has been reported by many studies in different cultures and different age groups (Abdel-Aty et al., 1999; Haase et al., 2004; Irwin, 2004; Abdullah et al., 2005; Edwards and Tsouros, 2006). In traditional communities, females face social pressures that have historically linked physical power and athleticism to maleness: femininity is not consistent with vigorous activity and sport play. Cultural norms and values in Egypt are more permissive for boys and restrict females to the domestic domain (Shafy et al., 1998).

Regarding smoking habits, the prevalence of smoking among university students in this study was 31.6% comparable to that found in Jordan (28.6%) (Linda et al., 2002), Malaysia (29%) (Al-Naggar et al., 2011). Lower prevalence reported in Finland (15%) (Adetunji et al., 2008). A Turkish study found that the first three years of medical education had the highest risk for initiation of smoking because up to 30% of those who were non-smokers at the time of registration became smokers within the first three years of starting medical school (Senol et al., 2006). A Malaysian study found that the prevalence of shisha smoking among university students was 30% (Al-Naggar and Saghir, 2011). This finding could be explained by the fact that stress of study in university could be a contributing factor. This explanation could be supported by the finding of previous studies that found a relationship between initiation of smoking and high anxiety scores suggesting that medical education may possibly have an indirect negative effect on smoking (Senol et al., 2006).

Regarding eating habits, the results of our study show that the majority of students regularly eat three times per day, and almost 80% of students eat vegetables and fruit twice per day. These eating habits ought to be encouraged. The traditional Chinese diet contains plenty of vegetables and is rice-based. In contrast, a dietary survey of young Japanese subjects revealed a low rate of individuals engaged in regular eating patterns (Ministry of Health: Labour and Welfare Japan, 2004). The skipping of breakfast has been associated with lower nutritional status and the risk of cardiovascular diseases (Sakata et al., 2001). It has also been reported that less adequate breakfast habits may contribute to the appearance and further development of obesity (Ortega et al., 1996). Therefore the importance of regular eating patterns cannot be overemphasized in nutritional education.

As for fruits intake, in this study 28.8% reported that they consume fruits daily. These results similar to a study conducted by Lee and Loke (2005) reported that less than half of the university students ate fruits and vegetables

every day. Although, in some studies, female students were reported to have healthier habits related to nutrition, male students were found to be more likely to exercise regularly (Steptoe and Wardle, 2001; Von Bothmer and Fridlund, 2005). Yet, other studies reflected that students' scores on nutritional habits did not differ significantly by gender, and that male students scored better than female students on physical exercise (Aarnio et al., 2002).

In this study 42.9% of the study participants mentioned that they practice sun protection. Similar study by Saridi et al. (2009) reported that 50% of the participants using a hat and stayed in the shade, and the use of hat and sunglasses (39%, 25.5%; respectively). Lower percentage reported by Gillani et al. (2001) that less than 11.5% respondents reported that they always used sunglasses, sunscreen, protective clothes and hat against sun exposure. Furthermore, the use of hats, shirts, shade and other sun protection aids was less common in most studies (Robinson et al., 2000; Stanton et al., 2000; O'Riordan et al., 2003). Another studies reported that most participants neither used sunscreens nor wore any protective clothes (Miller, 1995; Robinson et al., 1997). Multivariate analysis showed that sex, race, parent marital status, participant marital status, monthly family income, exercise, residency, brushing the teeth and fiber intake were significantly influence the practice of sun protection among university students. Previous study showed that gender significantly influenced the practice of staying in shade, wearing clothes covering most of the body and sunscreen used. Race was also significantly influence the practice of staying in shade and clothes covering most of the body. Age significantly influenced the practice of wearing hat and staying in shade (Al-Naggar and Bobryshev, 2012). Similar studies reported that the use of hats, protective clothes and seeking shade as measure of sun protection increased with adults' age (Berwick et al., 1992; Pruim et al., 1999).

In this study 5.6% of the study participates were drink alcohol. This low percentage may due to that the majority of the study participants were Malay because all Malay are Muslims and alcohol is forbidden in Islam. Multivariate analysis showed that age, sex, race, parent marital status, participant marital status, type of faculty, living status, smoking status, exercise, residency, brushing the teeth, fiber intake and avoid fatty food were significantly influence the practice of drinking alcohol among university students. Although studies reported that the trend data from large-scale studies indicate that there has been a slight improvement in heavy drinking among college students (Wechsler et al., 1998; O'Malley and Johnston, 2002), the problem still warrants serious concern. According to the Monitoring the Future project, most students have consumed alcohol within the last year (over 80% throughout the 1990s) (Johnston et al., 2000). As many as 84.2% of college students reported a heavy drinking within the previous 90 days (Vik et al., 2000) and 44% reported binge drinking in the previous 2 weeks (Wechsler et al., 1994; 2000). Similar studies found that male students tend to drink alcohol more frequently and in larger quantities than female students (Valliant and Scanlan, 1996; Clements, 1999; O'Malley and Johnston, 2002; Read, et al., 2002). Additionally, male students are more likely to engage in binge drinking (Wechsler et al., 1994; 1998), risky drinking (Hill and Chow, 2002) and to meet criteria for an alcohol use disorder (Clements, 1999; Hill and Chow, 2002) than female students. In this study, living status is significantly influence the practice of drinking alcohol among university students. Similar study showed that students living in on-campus residences, such as fraternities, sororities, or residence halls, tend to drink more, more often engage in "binge drinking," and report more alcohol-related negative consequences than those living with their parents (Martin and Hoffman, 1993; Montgomery and Hammerlie, 1993; Valliant and Scanlan, 1996). Wechsler et al. (2002) presented data from multiple Harvard School of Public Health College alcohol studies including over 53,000 participants and 140 colleges that provided compelling evidence for the impact of living environment on problem drinking.

Seatbelt use has been shown to reduce motor vehicle occupant fatalities by 45%, and reduce the serious injury to the head, chest, and extremities by over 50% (Evans 1986). A number of known behavioral risk factors for road traffic accident have been identified including drinking alcohol while driving, speeding, substance abuse and failure to use seatbelts (Suriyawongpaisal and Kanchanasut, 2003; Woratanarat et al., 2009). In this study 32.8% of the study participants reported that they always wear seatbelt when driving or riding. A previous Malaysian study by Al-Naggar and Al-Jashamy (2010) reported that 45% of the study participants mentioned that always wear seatbelt. Multivariate analysis showed that sex, race, marital status, family monthly income, type of faculty, living status, exercise, residency, brushing the teeth, coffee consumption, fiber intake, and avoiding fatty foods were significantly influence the practice of seatbelt use among university students. Several studies reported that non-seatbelt user were male (Beltramino and Carrera, 2007; Boontob et al., 2008; Qin et al., 2009), younger age (Beltramino and Carrera, 2007). Several studies reported that males report lower seat belt use (Shinar, 1993; Liang et al., 1999; Shinar et al., 2001).

In conclusion, this study showed a poor practice of healthy lifestyle among university students. Therefore universities should emphasize on healthy lifestyle in all faculties as a required subject. Frequent campaign and educational seminars are encouraged. Socio-demographic characteristics showed significant influence of the practice of healthy lifestyle among university students. Therefore, socio-demographic characteristics should be considered when planning preventive measures among university students. A detailed knowledge of lifestyles and health needs in students is essential and may help to plan more effective interventions in this setting

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