Health and Lifestyle Assessment among Medical Students of El Kasr El Aini, Faculty of Medicine, Cairo University

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Abstract: Medical students represent a significant community investment and promoting their health preserves this investment. The study aim is to assess health status and detect life style risky behaviors among Egyptians' medical students in order to contribute to the development of health promotion programs designed specifically for them. A cross-sectional study was conducted among medical students at Faculty of medicine, Cairo University, from February to May, 2011. The study sample was stratified according to undergraduate grades of education a random sample of 440 students was chosen. Data was collected via a self-administered anonymous questionnaire consisted of students' demographic characteristics and three main domains used to assess health of the study participants. The index of adiposity used in the study was the body mass index (BMI). A scoring mechanism was built for every question and a mean of the total scores was calculated for each domain. The computer package SPSS version 16 was used for statistical analysis. The results indicated that, out of the 440 university students studied, 151 (34.3%) were males and 289 (65.7%) were females. The mean age of males was (19.8±1.25) years, while that of females was (19.2±1.17) years. Mean BMI for male was 25.5 kg/m2, compared with 23.8 kg/m2 for female students. Students in the fifth year were more likely to be obese than students in other years of graduation (13.3% vs 11.7%). Male were almost likely to be more obese than female students (59.5% vs 40.5%). The majority believed their activity levels were insufficient (78.6%) and (62.9%) had poor sleep behavior. Fifth year students were significantly less likely to eat meals regularly (p 0.03). Consumption of fatty food ≥ 5 times/week was significantly associated with being over weight and obese, as compared to those who consumed fatty food less than 5 times per week (p 0.007). Frequencies revealed that anxiety and depression was significantly higher among 1st year students as compared to the 3rd and 5th years (p 0.05). Most of them (68.9%) suffered from poor time management affecting their academic performance. Examination and academic related stresses constituted the highest percentage (91.8%) among the causes of stress. The over all total score of the three health domains was significantly higher among fifth year students (p<0.01). Health risk behaviors score (life style and dietary habits) and the mental social well-being mean score did not show any statistical significant difference between medical students in the three years of education. This study identified significant health promotion opportunities for these students that can be carried out during medical school in order to establish a healthier physician population. It is recommended to develop health and nutritional education, behavioral modifications and intervention studies for better health promotion of medical students.
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1. Introduction

Today, the health of young people is critically linked to the health-related behaviors they choose to adopt. Nearly one in five people living in the Middle East and North Africa (MENA) region is between the ages of 15 and 24 the age group defined as "youth." The increase in the proportion of 15 to 24 year olds in the total population, referred to as the "youth bulge"[1].

University students represent a major segment of the young adult population. Young adults aged 15–24 constituted about 21% of the Egyptian population in 2008 [2], and university students, whose health and productivity are determined by their current behavior, are the future highly educated work force.

The World Health Organization points out that 60% of the quality of an individual's health and life depends on his/her behavior and lifestyle [3]. A good health-promoting behavior depends on the living habits adopted during early years.

Although behaviors of students are considered a temporary part of college life, however, unhealthy habits picked up at this level generally persist in adult life [4]. College life is an important stage for individuals as at this time their behaviors are conducive to change.

Medical students are exposed to many risk factors that result from the peculiar ways of education and stressful environment during their courses and examinations, which may affect their psycho-social well being [5]. Many health and health

related problems may be encountered and slightly prevalent among medical students. Weight problems, lack of physical activity, lack of sleep, the acquisition of new habits; such as smoking or drug use, difficulty in stress management and unhealthy dietary pattern are some examples of such problems [6].

Healthy dietary habits among medical students are even more important as they are future physicians and the students who personally ignore adopting healthy lifestyle are more likely to fail to establish health promotion opportunities for their patients. Also, medical students have been shown to exhibit early risk factors for chronic diseases [7].

Medical education is perceived as stressful. High levels of stress have been documented in medical students in various studies [8,9]. The transition from preclinical to clinical training has been identified as a crucial stage of medical school regarding student stress [10]. All this can result in decreased life satisfaction among students [11]. Stress during medical school can lead to problems later in professional life compromising patient care [12].

Adoption of poor health behaviors during young adulthood can increase the risk of several chronic diseases, including obesity, type 2 diabetes, cardiovascular disease, and bone or joint complications [13]. This suggests that the period between the end of high school and the end of college is a critical time to intervene and educate young adults on the importance of developing and maintaining healthy behaviors [14].

The university and college arenas represent the final opportunity for the health and nutrition education of a large number of students from the educator's perspective.

A number of jurisdictions have attempted to undertake preventive programs to encourage physician health [15,16,17]. In addition, several medical schools have recognized that prevention of physician health problems should begin in the medical school and that medical students should be given information and provided with tools to maintain good health along with their clinical studies [18, 19].

The aim of this study was to assess health status and detect life style risky behaviors among Egyptians' medical students in order to contribute to the development of health promotion programs designed specifically for them.

2. Subjects and Methods

Study population and sampling technique

A cross-sectional study was conducted among medical students at Faculty of medicine, Cairo University, from February to May, 2011. The study sample was stratified according to undergraduate grades of education. The subjects were randomly chosen from a total of 4564 undergraduates in the first, third and fifth grades of education. Students who reported presence of a physical illness at the time and those who declined to take part in the study were excluded.

For calculating the sample size the frequency of being overweight, lack of physical activity and dietary habits was taken as a 50% estimated proportion of students. The level of significance (a=0.05) and bound of error was 5% (deviation from the actual value). The estimated sample size calculated for the given proportion, 50% at 95% confidence interval was 400. However, a total 440 students were surveyed, 150 from the first year with academic form of education, 140 from the third year, studying the basic academic medical sciences and 150 were from the fifth year with both academic and some clinical background knowledge.

Data collection

Data was collected via a self-administered questionnaire which was distributed among students after explaining the purpose of study. The questionnaire was handed out to students during class time in the second round academic year (2010-2011). These classes were randomly selected from different departments (First year; physiology and anatomy, Third year; pathology and pharmacology, Fifth year; obstetrics and gynecology department). During each class an average of 20 students were randomly selected on two days work each week during the study period. Permission was taken from chairman of the selected departments. Verbal consent was taken from students before distributing questionnaires and confidentiality was ensured.

Investigators were present in the classroom to assist any student and to answer questions. Questionnaires were returned anonymously at the end of the allotted class time.

The validity of the questionnaire was established by basing it on literature reviews of issues related to healthy diet, health habits and motivation for a healthy lifestyle [20].

The questionnaire was tested in a pilot study on 30 medical students. It consisted of Students' demographic characteristics and three main domains used to assess health of the study participants.

1- Demographic variables: year of graduation, sex, age, height and weight assessment, BMI calculation and family history of diabetes.

2- Life style and nutritional habits domain: including twelve elements; Students' life style and health related behaviors (tobacco consumption, exercise that includes half an hour walking daily or

moderate exercise 5 days a week, sleeping hours includes 8 hours daily, dental health, using of over the counter medication (OTC), avoid using products that have not been shown by science to be safe and effective (Non-Evidence based medications), trying to maintain recommended body weight. Students' nutritional habits; regularity of meals that include a wide variety of foods, frequency of eating fatty and junk food per week , daily intake of carbohydrates (e.g. bread, cereals, rice and loaf), fruits and vegetables. Open-ended questions were used to determine the student's consumption of fatty food (e.g. fatty meat, cheese, fried food, butter, whole milk, ice cream, or eggs) and junk food (burgers, pasta, pizza, french fires, sweets and brownies) from which the number of students per weekly frequency was recorded.

3- Mental, social and emotional domain including nine elements; students were asked how they express feeling, how often they feel anxiety and depression, mood changes, seek professional help, work out emotional problems without turning to the use of drugs or other substances, how often they can avoid wasting time and manage it properly, also they were asked if they have close friends and relatives to discuss personal problems with, recognize excessive tension and stress and their ability to perform effective stress management techniques.

4- Students' self health responsibility domain including ten elements; as regard disease prevention and some measures to minimize environmental health were used to assess knowledge of the students about main warning signs for hypertension, diabetes and cancer. And to assess their attitude toward seeking immediate evaluation when feeling not well, dental check-up at least once a year, regular medical check-ups. Also students were asked about their attitude toward community efforts to minimize environmental pollution, keeping living quarters (study and/or work environment) clean and organized and avoidance of over exposure to sun light.

The answers were scored in the three domains as follows; questions answered by yes (1 point) or no (0 point) expect for smoking (yes=0, no=1) and those answered by always/often (1 point), rarely/never (0 point), positive attitude (1 point), negative attitude (0 point). Total possible scores for the various food groups were used, weekly consumption of fatty and junk food (<5=1, ≥ 5=0), daily frequency of fruits and vegetables (≥5=1, <5=0), daily administration of carbohydrates (< 7 =1, ≥7=0). Points for all questions were summed and a mean ±SD of the total scores was calculated for each domain in each year of graduation.

Measurements

The index of adiposity used in the study was the body mass index (BMI), which is the weight in kilograms divided by the height in meters squared (kg/m2). BMI categories were classified according to the WHO as follows: healthy weight (19 to 24.9 kg/m2) overweight (BMI > 25–30 kg/m2); obese (BMI > 30 kg/m2) [21]. A digital balance scale was used to measure weight. The scale was periodically recalibrated with a known weight. Weight was measured to the nearest 0.1 kg with the subject in light indoor clothes, with emptied pockets and bare footed. A specially designed portable stadiometer was used to measure height. The stadiometer was provided with a spirit level to ensure that it is parallel to the flat hard floor during measurement. Height was taken while the subject was standing bare footed to the nearest 0.1 cm.

Data analysis

All collected questionnaires were revised for competences and logical consistency. Data was coded and entered on a data sheet prepared on Excel program, and then transposed to the Statistical Package for Social Sciences (SPSS) version 16 for analysis.

Data checking was done by simple frequencies. Quantitative data are displayed as mean ± standard deviation, while qualitative data are displayed as percentages. Comparison between the three grades of education was done using Chi Square test. Mean scores were also calculated for each domain. Comparison between the three grades was done using the ANOVA test. All statistical tests were considered significant at P-value level ≤ 0.05.

Ethical Consideration

Verbal consent was obtained from the subjects after explaining the study objectives. The subjects were free to withdraw at any time without giving any reason. Strict confidentiality was maintained throughout the process of data collection, entry and analysis. All efforts were made in this study to fulfill the ethical considerations in accordance with the 'Ethical principles for medical research involving human subjects' of Helsinki Declaration [22].

3. Results

Table (1) shows demographic characteristics of the students. Of the 440 university students studied, 151 (34.3%) were males and 289 (65.7%) were females. The mean age of the males was (19.8 ±1.25) years, while that of females was (19.2±1.17) years. A significant lower percent of the study sample (9.3%) were smoking cigarettes (p 0.01), and (22.2%) of all students had family history of diabetes.

Table (1): Demographic characteristics of the medical students, college of medicine, Cairo University

Variables	First year n= 150	Third year n=140	Fifth year n=150	Total n=440	p-value
	No. %	No. %	No. %	No. %	
Gender					
Male	40 (26.7)	42 (30.0)	69 (46)	151 (34.3)	0.01
Female	110 (73.3)	98 (70.0)	81 (54)	289 (65.7)	
Age (years)*					
Male mean(SD)	17.6±0.62	19.5±0.6	21.4±0.6	19.8±1.25	<0.01
Female mean(SD)	17.4±0.82	19.4±0.6	21.2±0.5	19.17±1.17	
BMI•					
Normal	109 (72.3)	88 (62.9)	89 (59.3)	286 (65)	
Overweight	31 (20.3)	45 (32.1)	41 (27.4)	117 (26.7)	0.02
Obese	10 (6.4)	7 (5.0)	20 (13.3)	37 (8.3)	
Currently smoking					
Yes	10 (6.7)	9 (6.4)	22 (14.7)	41 (9.3)	0.01
No	140 (93.3)	131 (93.6)	128 (85.3)	399 (89.7)	
Family history of diabetes					
Yes	20 (13.4)	30 (21.4)	39 (26)	89 (22.2)	0.07
No	130 (86.6)	110 (78.6)	111 (74)	351 (77.8)	

*mean ±SD • Body mass index

The mean BMI for male was 25.5 kg/m^2, compared with 23.8 kg/m2 for female students. Approximately 27% of the students (n = 117) were overweight, 8% (n = 37) were obese and the remainder 65% of them (n = 286) were of healthy weight. Students in the fifth year were more likely to be obese than students in other years of graduation (13.3 % vs 11.7%). Table (2) contains the distribution of BMI categories on the basis of sex and years of graduation. The distribution of BMI categories were significantly different among male and female students in the third (p 0.03) and fifth year (p 0.05). Male were almost likely to be more obese than female students (59.5% vs 40.5%).

Table (2): Assessment of medical students' weight status according to years of graduation and sex

Years of graduation	Healthy weight	Overweight	Obese	P-value
First year				
Male no (%)	26 (65.0)	11 (27.5)	3 (7.5)	0.007
Female no (%)	83 (75.4)	20 (18.2)	7 (6.4)	
Third year				
Male no (%)	26 (61.9)	11 (26.2)	5 (11.9)	0.03
Female no (%)	62 (63.3)	34 (34.7)	2 (2.0)	
Fifth year				
Male no (%)	36 (5.2)	19 (27.5)	14 (20.3)	0.05
Female no (%)	53 (65.4)	22 (27.2)	6 (7.4)	
Total				
Male no (%)	88 (58.2)	41 (27.3)	22 (14.5)	0.02
Female no (%)	198 (68.5)	76 (26.3)	15 (5.2)	
P-value	0.01			

Table (3) describes health related risk behavior (life style and dietary habits) of medical students by years of graduation. Only (10%) perceived their health as good where as the majority (90%) perceived their health status to be bad in terms of poor self-rated health. lack of knowledge about various important personal health parameters such as lipid profile and blood pressure was predominant among students in the first year. Most of them (60.4%) were trying to maintain their recommended body weight included avoidance of excessive body fat, excessive thinness, or frequent fluctuations in body weight. Eighty students reported increase in their weight in the preceding year while 55 students noted decrease in their weights during the same duration (mean increase was 6.96±3.1kg and mean decrease was 7.49±4.32kg). Fifth year students were significantly less likely to eat meals regularly (p 0.03). Of the whole study sample, only (21.4%) practiced half an hour walking daily or moderate exercise 5 days a week, lack of time and motivation are the main causes of insufficient physical activity, (62.4%) slept less than 8 hours per day and (70%) care about their teeth twice daily, no significant relation could be detected between students in the three years as regard these habits. Most of them (62.3%) reported using over the counter medication (OTC) (e.g. analgesics and multivitamin preparations) only when needed and by following all directions for proper use. Where as the majority (79.5%) avoid using products that

have not been shown by science to be safe and effective (Non-Evidence based medications) for example e.g. anabolic steroids, unproven nutrient or weight loss formulae. But no significant difference could be detected by comparing between users and non-users through out their years of graduation.

Table (3): Health related risk behaviors (life style and dietary habits) of the medical students by years of graduation

Variables	First year n=150		Third year n=140		Fifth year n=150		Total no=440		p-value
	No.	%	No.	%	No.	%	No.	%	
Perceived Health status									
Good	16	(10.7)	15	(10.6)	9	(6.0)	40	(10.0)	0.2
Bad	134	(89.3)	125	(89.4)	141	(94.0)	400	(90.0)	
BW maintenance•									
Yes	84	(56.0)	90	(64.7)	92	(61.1)	266	(60.4)	0.3
No	66	(44.0)	50	(35.3)	58	(38.9)	174	(39.6)	
Regularity of meals									
Yes	56	(37.3)	55	(39.3)	39	(26.0)	150	(34.1)	0.03
No	94	(62.7)	85	(60.7)	111	(74.0)	290	(65.9)	
Exercise engagement									
Yes	35	(23.3)	21	(15.0)	38	(25.3)	94	(21.4)	0.07
No	115	(76.7)	119	(85.0)	112	(74.7)	346	(78.6)	
Sleeping hours (8 hours)									
Yes	66	(44.3)	45	(32.1)	54	(36.0)	165	(37.6)	0.09
No	83	(55.7)	95	(67.9)	96	(64.0)	274	(62.4)	
Brush teeth twice/day									
Yes	114	(76.0)	84	(60.0)	110	(73.3)	308	(70.0)	0.07
No	36	(24.0)	56	(40.0)	40	(26.7)	132	(30.0)	
Using OTC medication									
Yes	100	(66.7)	92	(65.5)	86	(57.7)	277	(63.2)	0.2
No	50	(33.3)	48	(34.5)	64	(42.3)	161	(36.8)	
Avoid using medications									
Yes	125	(83.2)	110	(79.0)	114	(76.0)	348	(79.5)	0.3
No	25	(16.8)	30	(21.0)	36	(24.0)	90	(20.5)	

•Body weight maintenance

Various dietary habits were displayed in table (4) in association with students' BMI. No association was observed when dietary intake of junk food, carbohydrate, fruit and vegetables were compared with students' BMI. But it was observed that more than half (57%) of the obese students consumed junk food (e.g. burgers, pasta, pizza, french fires, sweets and brownies) $\geq$ 5 times/week and (73%) consumed carbohydrates (bread, cereals, rice, or loaf) $\geq$ 7 times/day, where as (62.2%) of them reported consuming fruits and vegetables < 5 times/day. Consumption of fatty food (e.g. fatty meat, cheese, fried food, butter, whole milk, ice cream, or egg) $\geq$ 5 times/week was significantly associated with being over weight and obese as compared to those who consumed fatty food less than 5 times per week (p 0.007).

Table (4): Dietary variety of medical students by weight categories

Food groups	Healthy weight n=286		Over weight n =117		Obese n=37		Total n=440		p-value
	No.	%	No.	%	No.	%	No.	%	
Fatty diet									
<5 times/week	204	(71.3)	20	(17.1)	4	(10.8)	112	(25.4)	0.007
≥5 times /week	82	(28.7)	97	(82.9)	33	(89.2)	228	(74.6)	
Junk food									
<5 times /week	193	(67.5)	80	(68.4)	25	(67.6)	298	(67.7)	0.9
≥5 times /week	93	(32.5)	37	(31.6)	12	(32.4)	142	(32.3)	
CHO•									
< 7 times /day	97	(33.9)	40	(34.2)	10	(27.0)	147	(33.4)	0.69
≥ 7 times /day	189	(66.1)	77	(65.8)	27	(73.0)	293	(66.6)	
Fruit and vegetables									
<5 times /day	201	(70.3)	82	(70.1)	23	(62.2)	306	(69.5)	0.6
≥5 times /day	85	(29.7)	35	(29.9)	14	(37.8)	134	(30.5)	

•Carbohydrates

Table (5) shows some mental and emotional characteristics of the interviewed students by years of graduation. Frequencies revealed that anxiety and depression was significantly higher among 1st year students as compared to the 3rd and 5th years (p 0.05).

However no significant relationship could be detected between other variables studied and students through out their years of graduation. But it was observed that nearly one-quarter (27.5%) of all students always express their feelings freely, most of them (71.4%) complained of mood changes. About three-quarters of the students (78.4%) seek professional help frequently in case of facing psychological and emotional problems and can work out these problems without turning to the use of drugs or other substances. But most of them (68.9%) suffered from poor time management affecting their academic performance.

As regard to social well being the majority (90.7%) of the interviewed students reported that they readily recognize when they are under excessive tension and stress. But not all of them could perform effective management techniques of stress. Close friends approach and their role in discussing faced problems was reported by 366 (83.2%) of all students.

Reasons of stress quoted by the interviewed medical students were displayed in table (6). Examination and academic related stresses constituted the highest percentage (91.8%) among the causes of stress. With respect to sex male students have reported spending time with friends and sports more frequently as coping strategies for stress than their female colleagues who reported music and studying more frequently. The stated health effects of these stresses and pressures ranged from weight problems in the term of loss or gain to precipitation of bronchial asthma or car accidents.

Figure (1) displays knowledge of medical students as regard warning signs of some medical disorders. Percentages of students reported warning signs of diabetes and cancer tended to increase by years of graduation.

Table (5): Mental, social and emotional characteristics of the medical students by years of graduation

Variables	First year n=150		Third year n=140		Fifth year n=150		Total n=440		P-value
	No.	%	No.	%	No.	%	No.	%	
Express feeling freely									
Always/often	41	(26.7)	44	(31.4)	36	(24.0)	121	(27.5)	0.36
Rarely/never	109	(73.3)	96	(68.6)	114	(76.0)	319	(72.5)	
Anxiety and depression									
Always/often	83	(55.3)	60	(43.2)	57	(38.0)	236	(53.8)	0.05
Rarely/never	67	(44.7)	79	(56.8)	93	(62.0)	203	(46.2)	
Mood changes									
Always/often	110	(73.3)	93	(66.4)	111	(74.0)	314	(71.4)	0.29
Rarely /never	40	(26.7)	74	(33.6)	39	(26.0)	126	(28.6)	
Seeking others help									
Always/often	23	(82.0)	105	(75.0)	117	(78.0)	345	(78.4)	0.33
Rarely /never	27	(18.0)	35	(25.0)	33	(22.0)	95	(21.6)	
Poor time management									
Always/often	107	(71.3)	97	(69.3)	99	(66.0)	303	(68.9)	0.6
Rarely /never	43	(28.7)	43	(30.7)	51	(34.0)	137	(31.1)	

Table (6): Various reasons of stress and coping strategies quoted by male and female medical students (%)

Variable	Males no= 151		Females no= 289		Total no=440	
	No.	%	No.	%	No.	%
Reasons of stress						
Exams & academic	141	(93.4)	263	(91.0)	404	(91.8)
Relation -ship problems	7	(4.6)	10	(3.5)	17	(3.8)
Family problems	3	(2.0)	16	(5.5)	19	(4.3)
Coping strategies						
Sleeping	4	(2.6)	41	(14.3)	45	(10.4)
Spending time with friends	80	(52.9)	57	(42.9)	137	(31.2)
Music	7	(4.6)	40	(13.7)	47	(10.7)
Sports	43	(28.4)	66	(22.8)	109	(24.8)
Studying	17	(11.5)	70	(24.3)	87	(19.8)

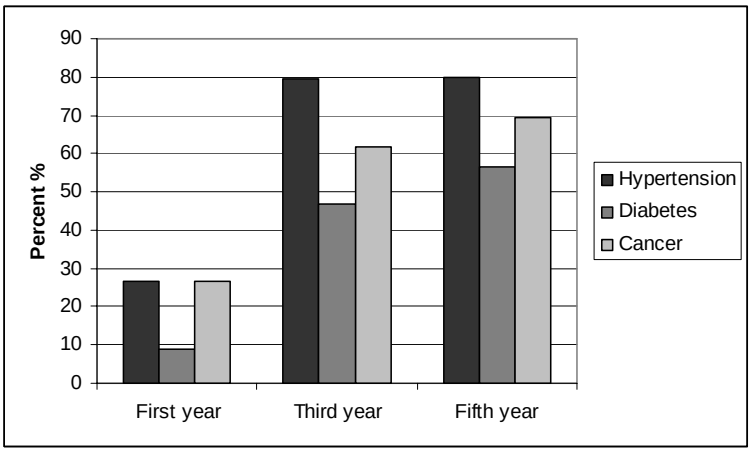

Figure (1): knowledge of medical students as regard warning signs of some medical disorders

Figure (2) displays attitude of medical students toward some environmental healthy behaviors. All students recorded high positive attitude. But it was observed that students in the first year had more positive attitude toward minimization of environmental pollution and support community efforts to minimize these pollution. While those in the fifth year had more positive attitude to ward environmental cleans (home and work) and avoid exposure to sunlight by using sunscreen and appropriate clothing when they are out in the sun for extended periods of time.

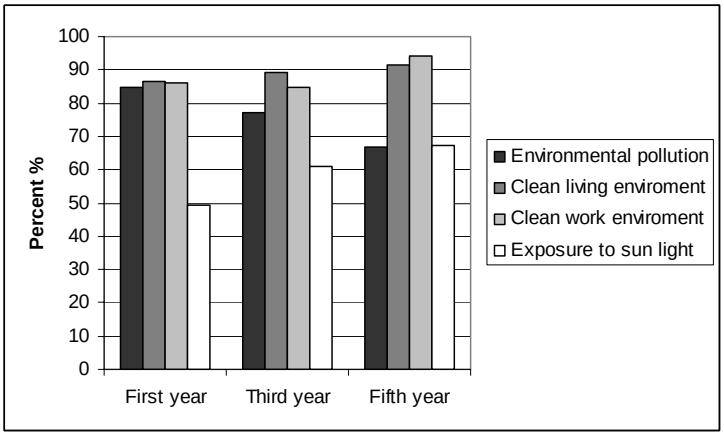

Figure (2): Attitude of medical students toward some environmental hazards

Table (7) shows total mean scores recorded by the participating students in the main three health domains. The over all score was significantly higher among fifth year students (p <0.01). Health risk behaviors score (life style and dietary habits) and the mental social well-being mean score did not show any statistical significant difference between the students in the three years of education. Only self health responsibility score showed statistical significant difference between students through out the three years (p <0.01).

Table (7): statistical comparison of health domains' scores by the three grades of education

Health domains	First year	Third year	Fifth year	p-value
	Mean ± SD	Mean ± SD	Mean ± SD	
Life style and dietary habits	6.9±1.6	6.7±1.4	6.9±1.7	0.54
Mental social and emotional	6.7±1.5	6.4±1.5	6.6±1.6	0.3
Self health responsibility	4.5±1.1	6.3±1.8	6.3±1.9	<0.01
Total score	18.1±3.5	19.5±3.4	19.8±3.5	<0.01

4. Discussion

Health-promoting lifestyle among adolescents has become a research focus worldwide. Life in college is a transitional period, offering good opportunities for establishing health-promoting lifestyles.

This study assessed life style, dietary, mental and emotional habits of medical students, who represent a significant community of future practitioners. Improvement in life style if made in early years and during medical schooling would produce physicians practicing and promoting healthy diet and active life style. A need for improvement is required in health seeking behavior of medical students.

Our study population mean age was (19.43±1.68SD) years. Approximately 27% (*n*=117) were overweight, and 8% (*n* = 37) were obese. These percentages were similar to those found in the 1995 National College Health Risk Behavior Survey [23] and other studies [4, 24]. Our respondents' demographics (sex) were similar to those of other universities in the United States (US) [25]. Approximately 10% of students in our study were smokers, which coincides with similar percentages (10% to 31%) in other studies [26]. On the contrary similar studies worldwide have reported higher prevalence of smoking among university students ranging from 23.4% to 44.0% for males and from 19.0% to 46.0% for females [27]. One possible explanation for this finding is cultural variation between countries.

Family history of diabetes, physical inactivity and inappropriate dietary habits (e.g. lacking regularity of meals and failure to maintain recommended body weight) along with overweight and obese students among medical students were alarming signs reported in our study. Similar findings have been reported in a United Arab Emirates (UAE) study where 24% of the medical students were overweight or obese with 77% having insufficient physical activity levels and 50% unhealthy dietary habits [6]. The close proximity between these rates and ours may be explained by similarity in the nutritional pattern with the Gulf region.

Desiring a higher degree in education may be a risk factor for physical inactivity because of the amount of sedentary behavior (studying, writing, etc.) required to achieve high academic performance. Once students become overweight, they are less likely to participate in physical activity. Evidence suggesting an association between improved academic performance and physical activity for children and adolescents is emerging [28].

Another study conducted at Aga Khan University on medical students, reported that 33% had family history of chronic heart disease, 28% exercised regularly, 9% were overweight and 8% reported smoking. The physical activity guidelines recommended moderate physical activity for at least 30 minutes preferably daily [29].

Two American studies have reported much more regular exercise and a higher prevalence of smoking among students as compared to our study [30, 31].

In the present study female students enrolled in the third and fifth year had a significant lower rate of overweight/obesity as compared to males, which is likely to be related to more healthy nutrition. These gender differences have been reported by others as well [32, 33]. Similarly a few studies have reported that females' students were more conscious to their weight status as compared to males [34].

Consumption of fatty, junk food and carbohydrates were identified as the main cause of obesity in the whole study population, were higher percent of the students with BMI > 30 Kg/m2 consumed fatty and junk food ≥ 5 times/week, CHO ≥ 7 times daily. Where as the most limited food group consumed were fruits and vegetables with 37.8% reporting ≥5 times per day. ***Togo et al. 2001*** found that a varied diet high in fruits and vegetables and low in meat and fat was associated with lower BMI and that these patterns develop before adulthood at least by late adolescence [35].

This finding coincides with ***Silliman et al. 2004*** [4] who also found that 95% of their participants consumed snacks at least once daily, as snacking was coupled with low consumption of nutrient-dense foods, two trends that increase the risk for developing chronic disease and obesity. Studies in other Middle Eastern countries have consistently found similar relationships between obesity and social, dietary, and health factors [36].

During adolescence, significant psychological development and changes in personal relationships and physical maturation can affect one's perception of health [37]. The findings of our study and another one done in the UAE [6] revealed that the majority of the students reported bad perceived health status. Another health issues that are of concern among students include; lack of knowledge about various important personal health parameters such as lipid profile and blood pressure but this was predominant among students in the first year. Students at New Jersey Medical School had higher rates of reported knowledge of their blood pressure and cholesterol levels (46% and 99%) respectively than the students in this study [30].

Results of the present study support the assertion that a considerable percentage of college students use OTC medication (74.1%) and dietary

supplements, including vitamins and minerals and avoid using products that have not been shown by science to be safe & effective (e.g. anabolic steroids, unproven nutrient or weight loss formulae) similar to that reported by ***Stasio etal. 2008*** [38]. One possible explanation may be related to the increased academic demands related to the final years of graduation. Higher levels of academic demand may have led to more students experiencing stress and ultimately using more OTC medication and dietary supplements as a method of coping.

Students' self-reported problems related to anxiety and depression (53.8%), mood changes (71.4%), and sleeping disorders (62.9%) were more frequently than in other studies. For example, Dusselier et al. 2005 [39] found that most college students experienced "depression, anxiety and sleep affective disorder" either never or rarely. It is comparable to the prevalence of depression reported in US (49%) [40]. And in agreement with ***Mehanna and Richa 2006*** [41] reporting lower levels of depression in 4th Year education (27.63%) shows that students adapt to stress of clinical training after spending a year in it. However, depression again increases in last year of study (5th year) to be (69%) because of increased workload similar to that reported in the present study as depression was more predominant among students in the first year as compared to third and fifth years. Anxiety and depression can lead to negative outcomes including medical school dropout, impaired ability to work efficiently, deterioration in relationships, burnout, increased suicidal tendency and compound existing problems of health care provision. There is need for greater attention to the psychological well being of medical students [42].

The young student population has always been vulnerable to stressful life conditions especially in pursuit of higher professional education in a highly competitive environment [43, 44]. A large majority perceives itself stressed in the college at one time or another, but boys show more inclination towards stress.

In the present study frequency of stress seems considerable with little difference between males and females. The most common reasons highlighted were exams and academics, followed by relationship problems in the college or family. Similar to that reported by ***Steenberger et al.1993*** [45] and ***Shaikh etal.2004*** [46].

The finding that there is a large proportion of university students who perceive their lifestyles to be moderately or highly stressful might be linked to lack of proper time management and difficult in expression of feelings as observed more among students in the first year of education. Similar to that reported by ***Sajwan etal. 2009*** [47]. This highlights the importance of developing interventions that focus on improving time management skills in students. Several unhealthy lifestyle choices including lack of sleep may be linked to this high level of perceived stress. A study done in Pakistan 2009 supports this hypothesis [48].

By and large, most of the medical students were satisfied with their individual coping mechanisms. The most frequently reported were spending time with friends, followed by sports, sleep, music and studying. It was observed that females preferred to study and listen to music while their male counterparts were inclined to hang out with their friends or play sports similar to that reported by ***Shaikh etal.2004*** [46].

Results of this study showed that total mean scores of the three health domains were almost half of the total score. The overall mean score for health related risk behavior (life style and nutritional habits) was medium but no significant difference could be detected between the three grades of education. It may be concluded that they are not putting knowledge into practice due to certain barriers. The two main barriers identified by the participants of this study were lack of time and stress. Most medical students do not get time to exercise and eat healthier meals due to the demands of their studies and clinical rotations in the respective wards. Hence medical students are unable to translate knowledge into better practices due to the above mentioned barriers.

This was consistent with ***Silliman et al. 2004*** [4] with lack of time seen as the most important reason for not having healthy eating habits, skipping meals and exercising irregularly. Culturally appropriate and sensitive solutions need to be implemented in order to combat this worsening issue, especially in college students who often find balancing academic commitments and lifestyle factors difficult.

Conclusions

Weight problems especially obesity, lack of physical exercises, excessive consumption of fatty and fast foods, and academic stress were the problems prevalent among medical students at the College of Medicines, Faculty of medicine, Cairo University. Health promotion efforts should be targeted toward first-year college students because many are leading independent life choices for the first time.

Recommendations

- Health and nutrition education messages for college students should be disseminated through formal or informal programmes to bring about behavioural

changes in terms of physical activity, healthy dietary habits, and sleep behaviour.
- Focus group interviews with students should be conducted to elicit in-depth information about students' problems as well as their suggestions.
- Health behavior change can be challenging; therefore, they also need social support and skill-building programs to assist with their behavior change.

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1/2/2012