Perception and Practices of Healthy Lifestyle in Late Adolescence and its Impact on BMI: a Survey Study in Medical and Nursing Students at Tanta University, Egypt.

Hala M Elsabagh* Fatma El-Sayed Soliman**, LulahAbd El-wahab Hassan**

* Public Health and Community Medicine Department, Faculty of Medicine, Tanta University, Egypt.
**Community Health Nursing Department, Faculty of Nursing, Tanta University, Egypt.

Abstract: Background: Adolescence coincides with major changes that affect the determinants of adult health. Many adult health conditions are related to factors that develop during adolescence . **Aim:** Investigate the impact of dietary habits and physical activity on BMI of late adolescent college students. **Methodology:** Cross sectional study was conducted in the first three years of   medical and nursing students, Tanta University. A self-administered questionnaire was used. It included questions on socio-demographic, dietary habit, physical activity and perception of healthy lifestyle . **Results:** Out of 524 student (55.5%) were rural residents and (67.9%) were females. 60.7% of the students were normal weight and 31.3% were overweight. Drinking soda /sugared beverages (juices) is significantly high in obese students. More than half (53.1%) of OB students and (44.5%) of OW students usually eat snacks between meals. Physical activity is low among studied students (45%) of them did not have routine exercise. Obese and overweight students had significant negative attitude towards healthy lifestyle. Lack of time is the main barrier to adopt healthy lifestyle.

Introduction

Nowadays, international organizations and researchers have paid increased attention to adolescents health. Adolescence coincides with major changes that affect the determinants of adult health, and many adult health conditions are related to factors that develop during adolescence**.** The World Health Organization (WHO) estimates that nearly two-thirds of premature deaths, and one-third of the burden of disease in adulthood, are associated with inadequate behaviors or lifestyles that began in youth. Moreover 27–39% of cancers can be prevented by improving dietary habits and physical activity[1-3].

Adolescents age group nowadays show many faulty dietary habits as consumption of sugar-sweetened beverages which replace milk and water. They consume fast foods, with high caloric and fat content. It is also common for adolescents to skip meals and snack frequently. They do not eat adequate amounts of fruit, vegetables, and grains**.** Many factors share these faulty habits as fast food taste and interactions with peers [4-6].

Health hazard associated with this faulty dietary habits and high caloric intake. Increase the risk and/or incidence of chronic disease as overweight, obesity, dental caries and obesity-related health risks as diabetes and cardiovascular disease [7,8].

Physical activity is also one of the most factors that can affect the adolescents' health. Physical activity during adolescence is crucial for bone, muscle development and for healthy adulthood. WHO recommended 150 minutes of moderate physical activity each week. On the other hand, sedentary activity among adolescents has increased nowadays because they spend so much time using communications and entertainment media-such as television, computers, and hand-held devices [9-11].

Insufficient physical activity is the fourth leading risk factor for mortality. With 20 –30 % increased risk of all-causes of mortality in insufficiently physically active persons. Physical activity is estimated to reduce the risk of ischemic heart disease by approximately 30%, the risk of diabetes by 27%, and the risk of breast and colon cancer by 21–25%. Also it lowers the risk of stroke, hypertension and depression [10,12]. It is a key determinant of energy expenditure and thus fundamental to energy balance and weight control [10].

In Egypt, the age group 15-25 years constituted (22.55%) of the Egyptian population in 2008 population figure. To the best of the authors' knowledge, there is very little information about

dietary habits and physical activity among adolescents in Egypt [13].

Therefore, the objective of this study is to describe the dietary and physical activity habits in the first three years of medical and nursing college students as an example of late adolescents' population in Egypt and to explore its association with the BMI.

Methods:
- **Study design:** The current study was a cross-sectional survey study carried out in Tanta Faculty of medicine and nursing.
- **Sample of the study**: First, second and third year medical and nursing students as an example of Egyptian late adolescence population (18-21 years) [14] were included in the study with a total number of 524 students.
- **Sample size and sampling technique**

The minimal sample size was calculated using the Epi-Info, version7. The least sample accepted in medical and nursing students with 5% confidence limits at 95% confidence level and prevalence value (50%) was 333 students. For better accuracy and validity and to cover any losses due to incomplete questionnaires, 600 students were included in the study, only 550 returned the questionnaire with a response rate 91.6%. A number of 26 of the returned questionnaires had missed data and excluded (4.7%)**.**

Stratified random sample technique was used in the selection of this study population as each grade from the two faculties is classified by college schedule into 6 or more groups. Three groups (strata) were chosen randomly from each grade of the two faculties with a median number is 100 students for each group. The total number became 600 students who were included in the study.

The researcher excused lecturers at the end of the randomly selected sections to meet the students explaining to them the aim of the study, then distribute the questionnaire. The duration of data collection was about 3 months. It extended from the 1st of March to the end of May 2015.

- **Inclusion criteria**
  - First, second, and third year medical and nursing students of Tanta faculty of medicine and nursing.
  - Age less than or equal 21 years

- **Exclusion Criteria:**
  - Age more than 21 years.
  - Not willing to participates in the study & completes the questionnaire.

- **Data collection and measurements:**
  The study tools for data collection consisted of a self- administered semi structured questionnaire designed to assess the dietary and exercise habits and perceived barriers to a healthy lifestyle. The current survey was adapted from a survey by the University of North Florida on diet and exercise of freshman [15].

The questionnaire contains socio-demographic characteristics of the studied students as: (age-sex-residence-family income….). Dietary habits as frequency of eating fruits, vegetables, sweets (chocolates and candy), and sweetened soft drinks. Meal frequency, regular timing of meal, taking snake and smoking. Drinking water, milk, tea, coffee and soda/ sugared beverages.

Physical Activity questions includes exercise practice, sedentary activity practice as TV, Playing Video Games, and Computer use.Taking nutritional or hormonal supplements

Student perception of healthy lifestyle as student attitude towards having healthy diet and taking care of his body. Student attitude towards exercising regularly. Reason for exercise.

Anthropometric measurements:

After the interview, the participant's body weight and height was assessed in light clothes and no shoes. Body mass index (BMI), which is the ratio of weight in kilogram to height in square meter, was used to assess body weight status. Body mass index categories were used to diagnose weight status.

According to the National Institute of Health, adolescent BMI was classified as: - less than 18 was considered underweight normal (BMI = 18.5-24.9), overweight (BMI = 25-29.9), or obese (BMI > 30) [19].

Statistical Analysis

The questionnaire was coded and entered into an electronic database. Data analysis was carried out using statistical package for social sciences, version 20 (IBM, USA). Qualitative data was expressed as numbers and percentages, and the Chi-square test was applied to test the relationship between variables.

Significance level was set at $P < 0.05$

Ethical considerations

Medical and Nursing college ethical committee approval was obtained. Verbal consent was obtained from all participants in line with the Ethics protocol of medical research. Raw data were treated with strict confidentiality and used only for research purposes.

Result:

The study included 524 medical and nursing students (in grade 1, 2 and 3), their mean age was 19.26 ± 1.17 years. More than one half of students were rural residents (55.5%). About two thirds were females (67.9%). More than half of the students were normal weight (60.7%), minority was obese (6.1%) and underweight (1.9%) table (1).

More than half of the students ate three meals / day and at regular timing (57.3%, 57.8% respectively). Eating lean meat, was significantly more frequent among OW, NW followed by UW then OB with frequency 2 to more than 4 times/ week (92.7%, 90.5%, 80% and 75% respectively) (P= 0.004) table (2).

More than one fourth of the student (26.1%) ate vegetables daily with the least frequency recorded among OB (12.5%), on the other hand fruit consumption was more frequent as (47.3%) of the student ate it daily with no significant difference table(2).

The milk / milk product consumption was low 0-1 times/week in (37%) of the student and only one fourth ate it daily (25.2%), also water consumption is low as only (14.7%) drank more than 8 glasses/day and more than one fourth (27.9%) drank only 2-4 glasses daily. With no significant difference between groups table (2).

Drinking soda / sugared beverages (juices) is significantly high in obese students as (31.3%) of them consume it more than 4 times daily compared to only (4.4%) of NW student with statistically significant difference (P= 0.000). On the other hand drinking coffee/ tea was higher in UW student (30%) drank it more than 4 times daily compared to only (12.5%) of the OB students with no significant difference, table (2).

Regarding having snacks, more than half (53.1%) of OB students and (44.5%) of OW usually eat snacks between meals compared to only 20.8% of NW students with significant difference (P= 0.000), but the type of snack shows no significant difference as more than half of the students snack on Chips (58.2%). Smoking habit is not prevalent among the studied group (1.1%) and recorded only in the OW group (3.7%) with significant difference (P=0.013) table (2).

Physical activity is low among studied students as 45% of them did not have routine exercise versus only (17%) had routine exercise also more than half (55.2%) of students had short exercise sessions 15 minutes or less with no significant difference between groups. Also frequency of exercise is low (59.2%) of all students practice it 0-1time/ week, it is significantly higher in OB group (81.3%) versus

(61%) of NW group (P= 0.002). On the other hand the primary mode of exercise in all groups was walking (63.5%) which is significantly higher in UW & NW groups as (70% and 67.3% of them respectively practice walking) compared to (50%) of OB group (P=0.010) table (3).

More than half of students practice exercise by their own (56.1%), only (3.1%) practice in Team, Coach / personal trainer. With significant difference (P= 0.047). Sport practice was also low as (60.5%) never practice any sport, the most common type of sport practiced was football with higher frequency in UW group (60%) of them versus (31.3%) of OB group with significant difference (P=0.034), table (3).

Sedentary activities as computer/ video games and television were reported by more than half of the student to spent 1-2 hours / day (59.2%- 57.8% respectively). Longer duration was more obvious among OB group as (18.8%) of them compared to (8.2%) of NW group spent more than 6 hours/week on computer or video games with significant difference (P=0.021), also 6.3% of OB spent more than 6 hours on television versus 1.9% of NW group with significant difference (P=0.019) table (3).

Students showed significant negative attitude towards healthy lifestyle in the OB and OW groups as (52.4% of OW and 50.0%of OB group) reported that having healthy diet is not at all important compared to (23, 9%) of NW, also (18.8% of OB and 14.6% of OW group) mentioned that taking care of their body is not important versus (3.8%) of NW group with significant difference (P= 0.000) table (4).

More than one third (34%) of the students reported exercising regularly as very important but more than two thirds reported that they get too little exercise (68.7%), with significantly higher frequency in OB group (81.3%) (P= 0.024). More than one half of OB and OW students group (50.0% and 52.4% respectively) mentioned that they exercise for weight loss/ maintain weight while more than one third of NW (38.1%) reported it for gain muscle /strength/fitness with significant difference (P= 0.000). the main barrier for exercise was lack of time, table (4).

Table (1): Distribution of the studied students according to their socio-demographic characteristics

Students' Characteristics		Studied students (n= 524) No (%)
Age	<19 years 19- 21 years Mean ± SD	178 (34.0) 346 (66.0) 19.26 ± 1.17
Gender	Males Females	168 (32.1) 356 (67.9)
Residence	Urban Rural	233(44.5) 291 (55.5)
Parent marital status	Married Divorced	510(97.3) 14 (2.7)
BMI	Underweight UW Normal weight NW Over weight OW Obese OB	10 (1.9) 318 (60.7) 154 (31.3) 32 (6.1)
Family income	Not enough Enough Enough & saving	10 (1.9) 224 (42.7) 290 (55.3)

Table (2): The   relationship between students'dietary and smoking habit and their classification of weight according to BMI

Dietary habit	Studied students (n= 524)					
	UW	NW	OW	OB	Total	X^2 P
	No %	No %	No %	No %	No %	

Number of   meals / day
  One
  Two
  Three
  Four or more
	1 (10.0)
	3 (30.0)
	5 (50.0)
	1 (10.0)
		6 (1.9%)
		88 (27.7)
		194
		(61.0)
			2 (1.2)
			60 (36.6)
			84 (51.2)
			18 (11.0)
				1 (3.1)
				12
				(37.5)
				17
					10 (1.9)
					163
					300
						10.0
						
						0.350

Eating at a regular timing / day
  Always
  Sometimes
  Rarely
  Never
	1 (10.0)
	5 (50.0)
	3 (30.0)
	1 (10.0)
		28 (8.8)
		184
		(57.9)
		80 (25.2)
			16 (9.8)
			100
			(61.0)
			28 (17.1)
				4 (12.5)
				14
				(43.8)
				10
					49 (9.4)
					303
					(57.8)
					121
						8.31
						
						0.503

Frequency of eating lean meat(Beef – Chicken – Turkey – fish)
  Never
  ≤ Once / week
  2 - 4 times / week
	1 (10.0)
	1 (10.0)
	2 (20.0)
		4 (1.3)
		26 (8.2)
		182
			2 (1.2)
			10 (6.1)
			78 (47.6)
				1 (3.1)
				7 (21.9)
				12
					8 (1.5)
					44 (8.4)
					274
						24.32
						
						0.004

Frequency of eating fatty   meals
  Never
  ≤ Once / week
  2 - 4 times / week
  ≥ 4 times / week
	1 (10.0)
	5 (50.0)
	2 (20.0)
	2 (20.0)
		46 (14.5)
		136
		(42.8)
		110
			12 (7.3)
			74 (45.1)
			58 (35.4)
			20 (12.2)
				2 (6.3)
				18
				(56.3)
				6 (18.8)
					61 (11.6)
					233
					(44.5)
					176
						14.91
						
						0.093

	UW	NW	OW	OB	Total	χ² / p
Frequency of eating vegetables (½ cup cooked / 1 cup raw)						
Daily	3 (30.0)	94 (29.6)	36 (22.0)	4 (12.5)	137 (26.1)	10.89
4 - 6 times/ week	1 (10.0)	68 (21.4)	32 (19.5)	6 (18.8)	107	
2 - 3 times/ week	4 (40.0)	108	72 (43.9)	14	107	0.283
Frequency of eating fruits						
Daily	5 (50.0)	154	70 (42.7)	19	248	11.49
4 - 6 times/ week	1 (10.0)	(48.4)	50 (30.5)	(59.4)	(47.3)	
2 - 3 times/ week	2 (20.0)	68 (21.4)	34 (20.7)	6 (18.8)	125	0.243
0 - 1 times / week	2 (20.0)	64 (20.1)	10 (6.1)	6 (5.7)	(23.9)	
Frequency of consuming milk /milk product	4 (40.0)	74 (23.3)	48 (29.3)	6 (18.8)	132	11.34
Daily	2 (20.0)	52 (16.4)	28 (17.1)	8 (25.0)	(25.2)	
4 - 6 times/ week	2 (20.0)	74 (23.3)	30 (18.3)	2 (6.3)	90 (17.2)	0.253
2 - 3 times/ week	2 (20.0)	118	58 (35.4)	16	108	
Snacks between meals						
Never	2 (20.0)	30 (9.4)	12 (7.3)	2 (6.3)	46 (8.8)	39.33
Sometimes	6 (60.0)	222	79 (48.2)	13	320	
Usually	2 (20.0)	(69.8)	73 (44.5)	(40.6)	(61.1)	0.000 *
		66 (20.8)		17	158	
Typeyou snack on (if you)						
Chips	5	186	94 (57.3)	20	305	5.82
Nuts	(50.0)	(58.5)	14 (8.5)	(62.5)	(58.2)	
Cookies or candy	1 (10.0)	34 (10.7)	40 (24.4)	2 (6.3)	51 (9.7)	0.758
Others	3 (30.0)	83 (26.1)	16 (9.8)	8 (25.0)	134	
Sugary food (candy – chocolate – deserts)	1 (10.0)	8 (2.5)	8 (4.9)	0 (0.0)	17 (3.2)	10.10
Never	4 (40.0)	220	98 (59.8)	20	342	
Sometimes	5 (50.0	(69.2)	58 (35.4)	(62.5)	(65.3)	0.120
Usually		90 (28.3)		12	165	
Drinking water						
1 - 3 glasses /day	2 (20.0)	96 (30.2)	44 (26.8)	4 (12.5)	146	21.23
4 - 6 glasses /day	3(30.0)	120	56 (34.1)	6 (18.8)	(27.9)	
6 - 8 glasses /day	4 (40.0)	(37.7)	34 (20.7)	14(43.8)	185	0.012 *
> 8 glasses /day	1 (1.0)	64 (20.1)	30 (18.3)	)	(35.3)	
Drinking soda / sugared beverages						
Never	1 (10.0)	12 (3.8)	16 (9.8)	2 (6.3)	31 (5.9)	
Occasionally	4 (40.0)	180	65 (39.6)	12	261	50.96
1 - 2 times /day	2 (20.0)	(56.6)	46 (28.0)	(37.5)	(49.8)	
3 - 4 times/ day	1 (10.0)	82 (25.8)	10 (6.1)	4 (12.5)	134	0.000
Drink tea / coffee						
Never	1 (10.0)	38 (11.9)	20 (12.2)	6 (18.8)	65 (12.4)	
Occasionally	2 (20.0)	74 (23.3)	44 (26.8)	6 (18.8)	126	10.91
1 - 2 times/day	2 (20.0)	130	52 (31.7)	12	(24.0)	
3 - 4 times/ day	2 (20.0)	(40.9)	30 (18.3)	(37.5)	196(37.4	0.536
Cigarette smoking						
Never	10(100)	312 (98.1)	154 (93.9)	30 (93.8)	506 (96.6)	16.07
Quit	0 (0.0)	6 (1.9)	4 (2.4)	2 (6.3)	12 (2.3)	
Smoker	0 (0.0)	0 (0.0)	6 (3.7)	0 (0.0)	6 (1.1)	0.013 *

*UW (BMI less than 18), NW (BMI = 18.5-24.9), OW (BMI = 25-29.9), or OB (BMI > 30)

Table (3): Association between BMI categories and physical activity practice.

Physical activity	Studied students (n= 524)					
	UW	NW	OW	OB	Total	X^2
	N %	N %	N %	N %	N %	P
Following a routine exercise • Yes , I do • Not all the time • No , I don`t	1 (50.0) 5	52 (16.4) 122	34 (20.7) 58	2 (6.3) 14 (43.8)	88(17.0) 199(38.0)	5.14 0.526
The average length of your exercise sessions • 15 minutes or less • 15 to 30 minutes • 30 to 60 minutes	4 (40.0) 4	186 (58.9) 84	88 (53.7) 52	10 (31.3) 16(50.0)	288(55.2) 156(29.	15.17 0.086
Frequency of exercise • Daily • 4 - 6 times/ week • 2 - 3 times/ week	4 (40.0) 1	42 (13.2) 22 (6.9)	16 (9.8) 20 (12.2)	4 (12.5) 2 (6.3) 0 (0.0)	66 (12.6) 45(8.6)	25.91
Primary mode(s) of exercise • Walking • Running • Aerobics	7 (70.0) 2	214 (67.3) 45	96 (58.5) 28	16 (50.0) 6 (18.8)	333(63.5) 81(15.5)	38.89
You mainly exercise with • On my own • Family • Friends	2 (20.0) 4	174 (54.7) 32	96 (58.5) 18	22 (68.8) 0 (0.0)	294 (56.1) 54	21.24 0.047
Type of sports you practice • Football • Basketball • Tennis	6 (60.0) 0 (0.0)	64 (20.3) 12 (3.8)	28 (17.1) 10 (6.1)	10 (31.3) 2 (6.3)	108(20.7) 24(4.6)	26.41
Having a college gym membership • Yes • No	1 (10.0) 9	42 (13.2) 276	26 (15.9) 138	4 (12.5) 28 (87.5)	73 (13.9) 451	0.82 0.843
Taking nutritional supplements (tonics) • Yes • No	1 (10.0) 9	106 (33.3) 212	46 (28.0) 118	10 (31.3) 22	163 (31.1) 361	3.53 0.317
Taking hormonal supplements (Testosterone) • Yes • No	0 (0.0) 10 (100)	2 (0.6) 316 (99.4)	8 (4.9) 156 (95.1)	2 (6.3) 30 (93.8)	12 (2.3) 512 (97.7)	11.30 0.010 *
Time spent/ day on computer /or video games • That`s a waste of time • 1 -2 hours/ day • 3 - 6 hours /day	4 (40.0) 4	34 (10.7) 200	30 (18.3) 92	4 (12.5) 14 (43.8)	72 (13.7) 310(59.	19.48 0.021
Time spent/ day watching television • That`s a waste of time • 1 - 2 hours/ day • 3 - 6 hours /day	5 (50.0) 3	74 (23.3) 206	58 (35.4) 78	10 (31.3) 16	147 (28.1) 303	19.76 0.019

Table (4): The relationship between students' perception of healthy lifestyle and their BMI categories.

Perception of healthy lifestyle	Studied students (n= 524)					
	UW	NW	OW	OB	Total	X^2
	N %	N %	N %	N %	N %	P
Having a Healthy Diet						
• Not at all important	2 (20.0)	76 (23.9)	86 (52.4)	16	180(34.4)	49.58
• Somewhat important	3 (30.0)	60 (18.9)	20 (12.2)	(50.0)	90 (17.2)	
• Neutral important	2 (20.0)	116 (36.5)	32 (19.5)	7 (21.9)	156(29.8)	0.000*
• Very important	1 (10.0)	34 (10.7)	12 (7.3)	6 (18.8)	48 (9.2)	
• Not sure	2 (20.0)	32 (10.1)	14 (8.5)	1 (3.1)	50 (9.5)	
Taking Care of my Body						
• Not at all important	2 (20.0)	12 (3.8)	24 (14.6)	6 (18.8)	44 (8.4)	
• Somewhat important	2 (20.0)	52 (16.4)	32 (19.5)	11	97 (18.5)	37.55
• Neutral important	2 (20.0)	84 (26.4)	44 (26.8)	(34.4)	133 (25.4)	
• Very important	3 (30.0)	158 (49.7)	60 (36.6)	3 (9.3)	232 (44.3)	0.000*
• Not sure	1 (10.0)	12 (3.8)	4 (2.4)	11	18 (3.4)	
Exercising Regularly						
• Not at all important	1 (10.0)	34 (10.7)	12 (7.3)	2 (6.3)	49 (9.4)	
• Somewhat important	2 (20.0)	82 (25.8)	42 (25.6)	14	140 (26.7)	15.99
• Neutral important	4 (40.0)	84 (26.4)	36 (22.0)	(43.8)	126 (24.0)	
• Very important	2 (20.0)	98 (30.8)	66 (40.2)	2 (6.3)	178 (34.0)	0.192
• Not sure	1 (10.0)	20 (6.3)	8 (4.9)	12	31 (5.9)	
Feeling about amount of exercise you got						
• Too much exercise	2 (20.0)	22 (6.9)	10 (6.1)	2 (6.3)	36 (6.9)	14.58
• Too little exercise	2 (20.0)	222 (69.8)	110	26	360 (68.7)	
• Right amount of exercise	6 (60.0)	74 (23.3)	(67.1)	(81.3)	128 (24.4)	0.024*
			44 (26.8)	4 (12.5)		
Reason for Exercising						
• Weight Loss/ Maintain Weight	3 (30.0)	81 (25.5)	86 (52.4)	16	186 (35.5)	49.68
• Stress Relief	2 (20.0)	43 (13.5)	20 (12.2)	(50.0)	73(13.9)	0.000*
• Enjoyment	2 (20.0)	35 (11.0)	32 (19.5)	8 (25.0)	75 (14.3)	
• Gain Muscle /Strength/Fitness	1 (10.0)	121 (38.1)	10 (6.1)	6 (18.8)	132 (25.1)	
• Others	2 (20.0)	38 (11.9)	16 (9.8)	0 (0.0)	58 (11.1)	
Barrier for not exercising regularly						
• No access to equipment	6 (60.0)	74 (23.3)	44 (26.8)	4 (12.5)	128 (24.4)	
• No time	2 (20.0)	222 (69.8)	110	26	360 (68.7)	14.58
• Others	2 (20.0)	22 (6.9)	(67.1)	(81.3)	36 (6.9)	0.024*
			10 (6.1)	2 (6.3)		

Discussion

Lifestyle diseases in adults have been related to the prevalence of risk factors in childhood and adolescents. Identifying inadequate lifestyles such as dietary habit, obesity, smoking and sedentary life can be of great importance for the survey of a community's health needs and priorities [17].

The current survey study revealed that 60.7%, of the students were normal weight, 31.3% were overweight, a minority were obese 6.1% and 1.9% were underweight. This results are in agreements with Majeed F.(2015) findings in Saudi female medical students as the majority of students 63.7% had normal weight , obese subjects represent 6% [18]. Also **El Ansari** et al., (2015) reported that 25% of male and 32% of female were overweight in a study at 11 faculties at Assiut University, Egypt [19]. Same figure was reported by Silliman et al (2004) 69% were normal weight, 25% overweight and 6% obese in college students at California State University [20]. Near results were reported by Yahiaetal, (2008) in Lebnan as underweight constituted 4.1%, normal weight constituted 64.7%, overweight constituted 24% and obese constituted 7.2% of university students [21].

On the other hand our findings disagree with Al-Rethaiaa et al. (2010) findings in Saudia Arabia KSA male students aged 18-24 years as 21.8% of the students were overweight and 15.7% were obese [22]. And with Alenazi A (2015) in male students aged 15-19 years as 30.4% of those students were obese and 17.2% were overweight[23]. This difference may be due to different age groups included in this studies and different culture which resulted in different eating habits.

More than half of the students ate three meals /day at regular timing (57.3% and 57.8% respectively), nearly one third ate two meals /day (31.1%) and nearly one fourth ate at irregular timing (23.1%). This results disagree with Al-Rethaiaa et al (2010) as irregular meals consumption was reported in 63.3% of students, most of the participants (55.7%) ate two meals per day, while 31.4% of them ate three meals [22].

The present study shows that lean meat consumption more than four times weekly is 37.8% and 98.5 % ate it with different rates, this agree with the findings of Silliman K. et al. 2004, as 99% of male and 95% of female student consume lean meat of them 22% male and 16% female consumed it more than 4 times/week [20]. On the other hand, Majeed F (2015) found that,95.8% of students ate meat and fish, of them 17.2% ate it more than 4 times/week[18].

More than one fourth of our students (26.1%) ate vegetables daily, while Silliman K. et al 2004 reported 47% of students ate it daily [20]. On the other

hand, Majeed F (2015) found that 7.9% of students ate vegetables 4+ times /week [18].

Al-Rethaiaa et al. (2010) reported in KSA male students 11.2% ate vegetable daily[22]. Epuru S (2014) in Saudi female college students 14.7% ate fresh vegetable daily and 13% ate it 5-6 days/week [24].

On the other hand, fruit consumption was more frequent about half of the students eat it daily (47.3%). Similar figures were reported by Silliman. K et al (2004) as they found 29% of male and 42% of female ate fruit daily [20]. But this disagree with Epuru S (2014) finding in Saudi female college students as only 8.6% ate fresh fruit daily and 10.3% eat it 5-6 days/week [24].

The milk and water consumption is poor as only one fourth of students drank milk or ate cheese daily. Also less than one fourth of students drank 8 glasses water / day this result agree with many previous studies [22,24,25].

Concerning drinking soda / sugared beverages (juices), it was high especially in obese students. This high consumption is reported by many other studies, daily consumption was 19. 7% among Egyptian adolescent in Mansoura [26], 23% among Saudi adolescents [27], 35.8 among Saudi female college student [24] , and 44% among Sudanese adolescent[28].

According to the WHO HBCS forum, In the European cross-national study, overall 32% of boys and 25% of girls drank sugared drinks daily. Daily consumption of sugared soft drinks was high up to 40% in Israel, Malta, Netherland, Slovenia, Scotland and the United states [29].

Regarding having snacks; it was high especially in the overweight and obese students. Around half of them snack daily and mostly on chips, similar figure was reported in Saudi female students as 62.5% of obese students ate chips daily [24]. Near figure reported also in California as 54% of student snack on chips [20].

Also eating sugary foods is high as about two thirds of students (65.3%) sometimes and (31.5%) usually ate it. This is in the same line with Abdel-Hady D (2014) who reported that a consumption of excess sugar/sweet was reported by 54% of adolescents in Egypt [26]. On the other hand, an Italian study reported consumption of cakes and sweets is too high among 25% of the sample as dessert or cake is always consumed at each meal [30]. This differences may be attributed to cultural differences of studied students.

Studies show that lack of physical activity is currently categorized as one of the major public health problems worldwide [31]. Physical activity is low among our students as nearly half of them (45%) did not have routine exercise. Also frequency, duration and intensity of physical activity were found low. More than half of all students practiced it 0-1time/week, with higher figure among OB group.

This findings agree with many studies findings in college students, as it was reported that only 10-45% of student had adequate physical activity [25,33,34].

Higher figure reported by Majeed F (2015), as 75% of college students in his sample did not exercise regularly and 58% of them did it less than one time / week with more reluctance in overweight and obese students[18].

In contrast, Silliman K.et al. reported that 84% of college students stated that they currently practice exercise. However, it should be noted that exercise (frequency or intensity) was not defined. Despite this high reported rate of activity, 42% stated they exercise less since attending college [20].

The primary mode of exercise in our student was walking (63.5%), the main reason for exercise in OB and OW student group was for weight loss/ maintain weight, while the NW reported it was for gain muscle /strength/fitness. This finding is in consistence with Majeed F (2015) who reported that (73%) of the students preferred aerobic exercise like walking and their main reason for exercise was for general health(40.7%) followed by the desire to maintain or lose weight and enjoy themselves (33% and 18% respectively) [18].

Also Khalaf A (2013) reported in a study carried out on college students that the main reason participants exercised was for "health" reasons [34]. In another study, most participants reported that the main reason for performing physical activity was that it was part of their routine, while only 14% reported using physical activity to cope with stress. A small proportion also reported using physical activity for weight control (12%) [35].

The main barrier for exercise was lack of time as (81.3% of OB group and 69.8% of NW group) reported it. This agree with many other studies as the most commonly cited barriers to exercise are "lack of time", "lack of motivation" and "lack of willpower" [18,20].

Regarding sedentary activities as computer/ video games and television the present study revealed significant higher practice among OB group with longer duration also. This result agrees with many studies among adolescents which reported that sedentary lifestyle pattern among adolescents is associated with obesity. It is suggested that the increased use of information and communication technology, especially watching television, playing digital games, and using computers are critical sedentary factors affecting adolescence obesity prevalence [36-38].

Several cross-sectional studies suggested a strong relationship between the time length of television watching and obesity [37]. It is also suggested that sedentary behavior may displace physical activity [38].

The limitation of this study is: the instruments used to assess dietary intake and PA were self-reporting questionnaires. That may cause inaccuracy in the time spent in PA and food intake assessed. Also this study did not take into account the different socio economical levels that might have impacted participant motivation to exercise and dietary habit.

Conclusion

This study revealed considerable effects of dietary habit, sedentary activities and negative perception of healthy lifestyle upon the BMI category of late adolescents' medical and nursing students. It also revealed that excessive consumption of soda, sugared beverages, frequent snaking, lower exercise practice and more frequent use of sedentary activity practice in overweight and obese students. Most of OW and OB students feel that they practice too little exercise and the main barrier to do it is lack of time.

Recommendations

1- Health education messages for adolescent should be disseminated through formal and informal programs to bring about life style behavior changes in terms of physical activity and dietary habits.
2- Comprehensive intervention program which should focus on various health promoting issues such as access of healthy food, the availability of safe playing courts and ground should be assured for adolescent.
4- Conducting further researches on a larger scale to identify the magnitude and management of assessed problem.

Conflict of interest
The author has no conflict of interest to declare.

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