

Changes in Eating Pattern and Lifestyle of Undergraduate Students in University of Benghazi

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Abstract

Introduction: University students are more affected by environmental circumference due to higher levels of independency and contacting with new people. While during the pre-university life, eating habits of students are mostly dependent on their family's lifestyle and choices. This transition period of students' life is considered as a risky phase because their physical and social status changing as well as lifestyle changing that will affect the eating habits of students. The present study aimed to determine the changes in eating pattern and lifestyle of undergraduate students after starting university.

Methodology: A cross sectional study was conducted between the period of January to May 2019 in Benghazi University. Samples of 300 students were recruited to complete a questionnaire. SPSS program was used to analyze the data.

Results: More than half of students (64%) stated that they had a change in eating behavior after starting university and (59%) of them followed unhealthy eating pattern. Most of students (67%) had a sedentary lifestyle and the majority of them were having unhealthy eating patterns (p-value = 0.000). Regarding to the BMI, more than half of students had normal weight (62.6%). Half of students (50.3%) skipped breakfast, the majority of students reported that they eat less than 3 main meals (81.7%), and (81.3%) eat unhealthy frequent snacks that include (sweets and biscuits, fast foods, caffeine and soft drinks). Fast food daily consumption was higher among female students than male (p = 0.030).

Conclusion: This study highlights one of the most important period of students' life, which indicates that student's eating habits and their life style changed and become unhealthy. Almost all of students have unhealthy lifestyle; sleeping disorder, sedentary lifestyle, and unhealthy eating patterns; half of students skipped breakfast and most of them tend to eat less than 3 meals and snacks per day with the most frequent consumed snacks were sweets and biscuits, fast foods, caffeine and soft drinks.

Recommendations: Educational programs should be established to help university students raise awareness on healthy eating behavior and regular physical activity.

Keywords: University Students; BMI; Diet Change; Eating Behavior; Factors Influencing Eating Behavior

Introduction

University students are considered as the most important groups of society because they are the future so the maintenance of physical, physiological and psychological health of students is recommended to develop a healthy future [1]. Health promotion of healthy eating habits is essential and should be established at this period of life [2].

Moreover, university students are more affected by environmental circumference due to higher levels of independency, contacting with new people. While during pre-university life, eating habits of students are mostly dependent on their family's lifestyle and choices [3]. This transition is considered as a risky life phase because it's characterized by changing in physical and social status [4,5]. Additionally, students become more stressed at this period due to academic responsibilities that lead to changes in eating habits and most of them are often developed unhealthy eating behaviour [6-8]. Data of previous studies indicated that university is a critical period where students experience changes in their diet. A study in Ankara university (n = 330) stated that the majority of the students (64.8%) had changed their eating behavior and the majority of them (77.6%) were experiencing negative changes [9]. Develop unhealthy eating behavior that could cause obesity and increase risk of chronic diseases in later life [10,11]. Moreover, studies from different places indicated that above half of university students had normal body weight [11-14]. A number of studies also showed that there is variation in BMI between male and female students. Turkish study found that (69.5%) of male and (77.7%) of female students were normal weight, and the overweight was higher in male students (25.1%) as compared with female students (5.6%) [15]. The same results were demonstrated by other studies conducted in Kuwait, USA and Malaysia [11,14,20].

In addition to student's BMI, most of the researches showed that university students tend to adopt a sedentary life style. According to studies were conducted in Kuwait University (n = 615), Bahrain University (n = 642), FGC University (n = 106) and a qualitative study in Cornell University (n = 35) [11,17-19], all indicated that students practiced exercise three times or less a week by (64.5%, 63.3%, 86.6% and 63.6%), respectively, which is less than the adult recommended guidelines for physical activity (30 minutes 5 or more times a week). Student lifestyle could be changed among university students as sleeping pattern. A previous study was conducted in Saudi Arabia, 2018, found that sleep duration among 147 medical students (51% males) was 7.5 ± 2.17 hours and a significant negative statistical difference was evident between sleep duration and BMI ($P = 0.025$) [20]. Also, in the same year, a Chinese study of 2422 students (males 1433) revealed that the prevalence of sleep disturbance among university students was (42.6%) [21].

Eating behavior among university students

The previous evidences from different countries worldwide indicated that most of students had changes in eating habits during university including eat unhealthy food choices, skipping meals, and consumption of unhealthy snacks. All these unhealthy habits have negative impact on students' health as well as on their academic achievement during the study period.

Data from a cross sectional study in Brazil found that (69.6%) of students consumed foods with rich in fat and sugar, and few of them consumed fruits and vegetables [22]. These facts are confirmed by other studies were conducted in USA, Egypt, Maltase, Cameron, Malaysian universities, those studies demonstrated that more than half of students chose less healthy food [23-27]. Furthermore, results from previous study conducted in Kuwait university (KU) (n = 615) showed that both genders equally have unhealthy dietary habits [11]. In regarding to food consumption, Turkish study reported that the most frequent skipped meals were breakfast and lunch, (47.7% and 25.5%, respectively). Additional results, dinner was the main meal consumed and considered as the main sources of energy and other nutrients for both genders of students [15]. As well as Malaysian study showed that male students were more skipped their breakfast as compared with females students (65.6% and 52.8%, respectively) [16].

Most of literatures which found that the most of university students consumed unhealthy snack foods [11,28]. In Newcastle, Australia University in a semi-structured interview (2004), indicated that students generally were classified as having unhealthy snacking behavior [29]. Likewise, study in Coastal south India University (2018) stated that more than half of students (54.3%) consumed snacks between

the regular meals. (51.1%) of them were eating snacks while watching TV and (31.9%) of them while studying, and in general the majority of them had poor snacking behavior [28].

Methods

Across sectional study of university students was conducted between the periods of January to May 2019 in Benghazi University, Benghazi, Libya. A total of N = 300 university students aged 18 to 32 years were recruited to participated in this study (n = 96 male and n = 204 female were included). After obtaining a written consent, participants were requested to complete a questionnaire and asked them to measure their weight and height. The current study included a number of students from different faculties at Benghazi University, and the total completed questionnaires in hand were 300 with the overall response rate was 100%.

Questionnaire: the pretested questionnaire was used to collected data and that is designed based on 47 items which are divided into three sections. The first section was asked about demographical characteristics of students which include socioeconomic status (less than 1000 ld/month = low, between 1000 and 1500 ld/month = medium, more than 1500 ld/month = high), name of faculty and year of study, and weight and height measurements. The next section was asked about diet and weight changes of the students after starting university and about their eating and life style patterns during the study period. The third section included information about students' eating behaviours during the study period.

Measurements

After completion of the questionnaire, participants were asked to measure their weight and height. Height was recorded to the nearest 0.1 cm using calibrated tape. By using weighing scale, Weight of the students was measured to the nearest 0.2 kg. The procedure of the weight measurement included that the participants were either wearing thin socks or bare feet and with little clothing items, then WHO classification was used to classified the calculated body mass index.

Statistical analysis: Data analysis was done by the statistical package for the social sciences (spss) version 21.0. Descriptive statistical tests were used to make comparison including frequencies and chi square test with (95%) confidence intervals. Chi square test was used to determine the statistical difference between student's BMI and gender and to determine the statistical difference between student's eating patterns, habits and the individual, environmental and life style factors. All p values < 0.05 were indicated to statistically significant.

Ethics

The present study was approved by Benghazi University, informed written consent was obtained from the students, and all questioners were anonymous and unidentified to ensure the confidentiality of collected information.

Analysis and Results

Demographic characteristics of participants

The total number of students who participated in this current study was 300 students; (68% female students and 32% male) aged 23 - 27 years. The majority of students were single and with the medium socioeconomic status (93%, 94.3%) respectively. The most of students were from medicine, Public health, and Law faculties, (21.3%, 18.7% and 18.3% respectively), whereas the least of them were from economics (0.3%) and Arts faculties (2.3%). Most of students were studying at the second and third year of their study (23.3% and 24%, respectively). See table 1.

Changes in eating pattern and weight status of students after starting university

The table 2 shows that more than half of students (64%) reported that they had changed in their eating behaviour while the minority (36%) of them indicated that their diet doesn't change. Around half of participants stated that they followed unhealthy diet and their body weight decreased after starting university, 59% and 49% respectively.

Characteristics		N = 300	%
Sex	Male	96	32
	Female	204	86
Age	18 - 22	139	46.30
	23 - 27	150	50
	28 - 32	11	3.70
Economic status	Low	7	2.30
	Medium	279	93
	High	14	4.70
Marital status	Single	283	94.3
	Married	17	5.7
Faculty	Medicine	65	21.70
	Pharmacy	31	10.30
	Dentistry	22	7.30
	Public health	56	18.70
	Law	55	18.30
	Science	19	6.30
	Economics	1	0.30
	Arts	7	2.30
	Engineering	44	14.70
Year of study	First year	56	18.70
	Second year	70	23.30
	Third year	72	24
	Fourth year	66	22
	Fifth year	36	12

Table 1: Demographic characteristics of students in Benghazi University.

Eating pattern and weight status		No	%
Diet change	Changed	191	64
	Doesn't change	109	36
Eating pattern	Healthy	124	41.30
	Unhealthy	176	58.70
Weight Change	Increased	93	31
	Decreased	146	48.67
	Not change	61	20.33

Table 2: Changes in eating pattern and weight status of students after starting university.

The figure 1 shows the body mass index of the students associated with difference in gender. The most of participants had normal body weight (62.6%) and the normal body weight was higher among female students (45.33%) than male students (17.3%). While (23%) of students who had overweight and the most of them were female students (13.3%).

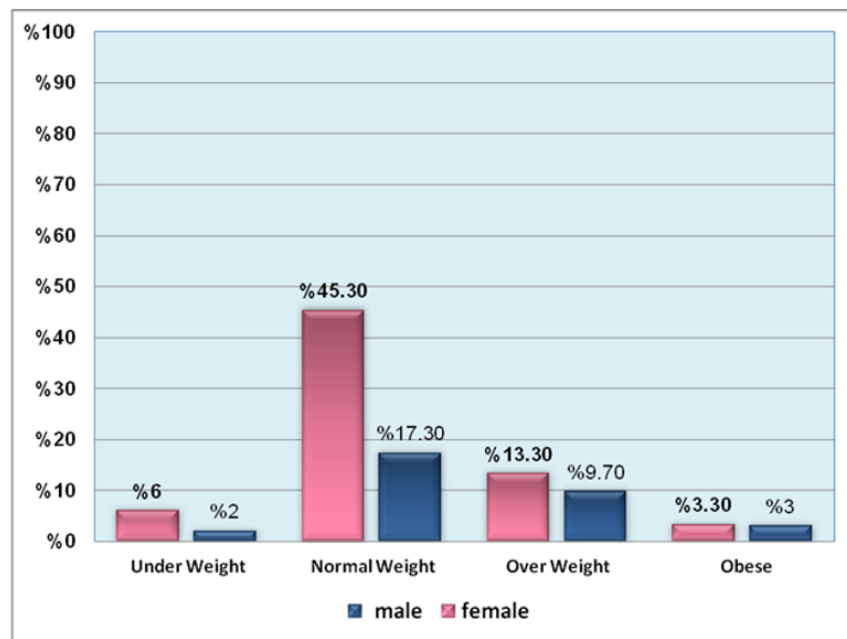


Figure 1: The body mass index of Benghazi University students.

Physical activity level (PA) and life style of university students in Benghazi

Regarding the PA, the majority of students was sedentary (66.7%) and most of them had unhealthy eating habits (44% vs. 22.7%) (healthy p-value = 0.000). While only (33.3%) of students were active and most of them had healthy eating patterns (18.7% vs. 14.7%un-healthy P-value = 0.000). Regarding sleeping disorders, more than half of the students (73%) had irregular sleeping and most of them had unhealthy eating patterns (46.3% vs. 26.7% healthy). In contrast, students that reported having no sleeping disorders had healthy eating patterns (14.7% vs 12.3%) unhealthy, P-value = 0.005), see table 3.

Eating behavior among university students

Eating behavior of students in this study was poor. Table 4 shows the greater number of participants tended to eat anything from cafeteria when they were at university (58.9%) and about half of students (50.3%) skipped breakfast during study period. Additionally, the majority of participants stated that they consume less than 3 main meals and snacks per day (81.7% and 87.3% respectively) and most of them (81.3%) ate unhealthy frequent snacks that include (e.g. sweets and biscuits, fast foods and caffeine and soft drinks).

In regarding to food consumption, food frequency questionnaire (FFQ) clarify that more than half of students consumed caffeine drinks, fast food and sweets daily (68.6%, 64%, and 53.4%, respectively) while the less than half of them (48%) daily consume of fruits. See table 5.

Student's life style		N	%	Student's eating pattern (Chi- square test)				
				Healthy		Unhealthy		
				N	%	N	%	
Physical Activity level*	Sedentary	200	66.7	68	22.7	132	44.0	
	Active	100	33.3	56	18.7	44	14.7	
Total		300	100	124	41.3	176	58.7	
Sleeping Disorders*	Yes	219	73	80	26.7	139	46.3	
	No	81	27	44	14.7	37	12.3	
Total		300	100	124	41.3	176	58.7	

Table 3: The physical activity and sleeping disorders status of Benghazi university students.

(*): Significant association p. value < 0.05 by chi-square test.

There was association between eating behavior and gender, notably those female students had poor eating habit than male. The majority of female students were tending to eat anything from the cafeteria (46.8% vs12.0%, P-value = 0.000), and more than half of female participants they tend to eat unhealthy frequent snacks (58% vs 23.3%, P-value = 0.036). Along with the majority, female students consumed more fast food daily than male students (46.3% vs. 17.7% P = 0.030). See table 4 and 5.

		Sex				Total	
		Male		Female			
		N	%	N	%	N	%
Eating food at collage *	Eating healthy food	14	4.7	37	12.7	51	17.1
	Any food from cafeteria	36	12.0	140	46.8	176	58.9
	I don't eat any food in collage	45	15.1	27	9	72	24.1
Total		95	31.8	204	68.2	299	100
The most skipped meal during the study period	Breakfast	50	16.7	101	33.7	151	50.3
	Lunch	32	10.7	60	20	92	30.7
	Dinner	13	4.3	39	13	52	17.3
	Never	1	0.3	4	1.3	5	1.7
Total		96	32	204	68	300	100
Number of main meals per day	Less than 3 meals	77	25.7	168	56	245	81.7
	3 or more main meals	19	6.3	36	12	55	18.3
Total		96	32	204	68	300	100
Number of snacks per day	Less than 3 snacks	86	28.7	176	58.7	262	87.3
	3 or more snacks	10	3.3	28	9.3	38	12.7
Total		96	32	204	68	300	100
The most frequent snacks *	Healthy snacks	15	5	18	6	33	11.0
	Unhealthy snacks	70	23.3	174	58	244	81.3
	No snacks	11	3.7	12	4	23	7.7
Total		96	32	204	68	300	100

Table 4: Eating behavior of Benghazi university students.

(*): Significant association p. value < 0.05 by chi-square test.

			Sex			Total	
	Male		Female				
	No	%	No	%	No	%	
Daily vegetables consumed	Daily consumed	68	22.7	154	51.5	222	74.2
	Not Daily consumed	27	9	50	16.7	77	25.8
Total		95	31.8	204	68.2	299	100.0
Daily fruits consumed	Daily consumed	41	13.7	103	34.3	144	48.0
	Not Daily consumed	55	18.3	101	33.7	156	52.0
Total		96	32	204	68	300	100.0
Daily sweets consumed	Daily consumed	45	15.1	114	38.3	159	53.4
	Not Daily consumed	49	16.4	90	30.2	139	46.6
Total		94	31.5	204	68.5	298	100.0
Daily fast food consumed *	Daily consumed	53	17.7	139	46.3	192	64.0
	Not Daily consumed	43	14.3	65	21.7	108	36.0
Total		96	32	204	68	300	100.0
Daily caffeine consumed	Daily consumed	66	22.1	139	46.5	205	68.6
	Not Daily consumed	29	9.7	65	21.7	94	31.4
Total		95	31.8	204	68.2	299	100.0

Table 5: Food consumption of university students.

(*): Significant association *p. value* < 0.05 by chi-square test.

Discussion

The results of the current study demonstrated that the eating behaviour of students changed to unhealthier after starting university. This was demonstrated by another study conducted in Ankara [9]. Therefore, interventions program, should be conducting to enhance the healthy eating behaviour among university students [9].

Furthermore, as revealed by the this study there was a dramatic weight change among students after starting university, as most of them reported that they had decrease in their body weight. However, according to the BMI of participants in the current study found that most of students had normal body weight. This result may indicate that the students were suffering from overweight before starting university and then their body weight decreased and become normal. Similar findings were reported by a number of the previous studies [30-32]. In contrast, high prevalence of underweight was reported among students in Malaysian University [24].

Data from previous studies indicate the gender variations in prevalence of obesity among university students [11,15,16]. This study found that a low prevalence of overweight and obesity among students. However, the prevalence of overweight and obesity were higher among female than male students. In contrast, in Kuwait University the overweight and obesity prevalence was greater in men compared to women. This recommends the need for specific strategies targeting both gender to reduce the number of overweight and obese college students and encourage healthy eating habits and attitudes among students [11].

According to student’s PA, the results of the present study showed that the majority of the students had sedentary life style. These results were consistent to other previous studies [18,33]. In addition, the findings of this study indicate that there was statistical sig-

nificance between being physically inactive and having unhealthy eating patterns among students. Intervention programs that focus on promoting healthy eating habits and physical activity should be conducted to promote student's PA at an early stage [30,33].

In the present study the majority of participants were tend to develop unhealthy eating behaviour. This finding was consistent with results from Malta University which demonstrated that more than half of student chose less healthy food [31]. Furthermore, in 2017 in urban Cameroon and also in 2011 in Malaysian Universities showed the presence of unhealthy eating behaviors among students [23,24]. Likewise, a study in Northeastern Brazil University revealed that low frequency of healthy eating habits among students, most of them consumed food rich in fat and sugar and less consumed fruits and vegetables [22]. A previous study in Kuwait University found that both genders showed equally unhealthy dietary habits [11].

Data from previous studies showed that the most skipped meal among university students was breakfast [23,34,36] which were conducted in many universities worldwide (Saudi Arabia, urban Cameroon, Malaysian, Croatian, Portuguese, Nigeria and coastal south India) [20,23,24,28,30,34,35]. As well as a study in Maltese University also demonstrated that less than half of students had a regular healthy breakfast [27]. Likewise, the most frequent skipped meal among Turkish university students was breakfast followed by lunch [15]. All these previous literatures confirmed the findings of the current study. Furthermore, while the current study showed that female tend to skip breakfast more than male students, a study in Selangor, Malaysia showed the opposite [16]. Additionally, to studies which reported skipping breakfast by majority of students, another study in Bihać University revealed more than half of students had regular breakfast [36].

Unhealthy eating behavior also includes the consumption of low number of daily meals which was reported by the majority of students from different universities [24,30,34]. Likewise, a study in 2017 in Cameroon University found that a greater number of participants had less than 3 meals a day [23].

Studies were conducted in coastal south India University and also in Newcastle, Australia University classified students generally as having unhealthy snacking behavior [28,29]. The current study, also, showed that the majority of participants tend to eat unhealthy snacks and the most common choices were sweets and biscuits followed by fast food, then caffeine and soft drinks. This was similar to a study in Malaysian university which found that biscuits were one of the most frequent snacks additionally to tea [24]. Another studies counteract the results of the current study which indicated that fruits were the most frequent snacks consumed among students in Turkish and also in Croatian Universities [15,34].

University in Zimbabwe demonstrated that most of students who lack nutritional knowledge, were not meeting the recommended daily intake of nutrients [37]. According to (FFQ) in this study, vegetables were one of the highest daily consumed items by students which was also confirmed by another study in Chinese University [31]. However, according to studies conducted in Maltase, Brazilian, Portuguese, Hong Kong and Polish Universities, students had vegetables lower than the recommended daily intake [22,27,30,38,39]. In addition, less than half of students in the current study consumed fruits daily which was also revealed by another studies [27,30,38,39].

In addition, to vegetables and fruits consumption, this study also reported that more than half of the students consumed sweets, caffeine, and soft drinks daily. These finding were also confirmed by findings from other previous literatures [22,41,42]. Furthermore, the majority of students in the current study reported high daily consumption of fast food which was also indicated by other previous studies [38-40]. Moreover, studies in 2003 and 2012 reported gender differences regarding fast food consumption, higher fast food consumption was among males than females [34,41]. These results counteracted the finding of this study where female students tend to eat fast food more than male students during the study period. Therefore, it's recommended to providing healthy food on camps that will help university students to make healthy food choices [27]. Furthermore, nutrition education programs to promote healthy dietary habits and make healthy choices is also recommended [27,28].

Conclusion

This study highlights one of the most important period of students' life, which indicates that student's eating habits and their life style changed and become unhealthy. Almost all of students have unhealthy lifestyle; sleeping disorder, sedentary lifestyle, and unhealthy eating patterns; half of students skipped breakfast and most of them tend to eat less than 3 meals and snacks per day with the most frequent consumed snacks were sweets and biscuits, fast foods, caffeine and soft drinks.

Recommendation

- Further studies targeting University Students in different regions in Libya to determine the eating behaviour.
- Conducting educational programs to improve and raise awareness on healthy eating behaviour among students.
- Physical activity or exercise program should be planned in university to ensure increase daily activity of students.
- Providing healthful food choices in university cafeterias as well as in restaurants.

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None.

Conflicts of Interest

None.

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