



Associations between Sociodemographic Characteristics and lifestyle habits among Students in Two Egyptian Universities

Ayat F. Manzour¹, Dina N. K.Boulos¹, Sherif Ahmed Hetta², Tanmik Shah³,
Omar el Shahawy³

¹ Community medicine department, Faculty of medicine, Ain Shams University

² Community medicine department, Faculty of medicine, MUST University

³ Section on Tobacco, Alcohol and Drug Use, Department of Population Health, New York University School of Medicine.

ABSTRACT

Submission Date:

2022-05-06

Revision Date:

2022-09-20

Acceptance Date:

2022-09-20

Key Words:

Students, University, physical activity, illicit drug use, tobacco use, lifestyle habits.

Background: University students face multiple stressors while accomplishing their academic goals. University students might adopt risky or unhealthy behaviors. **Objective:** To determine the association between sociodemographic characteristics and lifestyle behaviors. **Method:** A cross-sectional study was conducted in two Egyptian Universities governmental and private. A self-administered Arabic questionnaire was used to explore students' behaviors. Response rate was 97%. **Results:** A total of 1133 students were included in the current analysis. The average age was 19.9 ± 1.6 years, with 43.3% males. Approximately 23% of the students were physically active, 42.4% had adequate water drinking, 14.3% were currently using tobacco 28.7% in males and 3.3% in females, and 8% had ever consumed alcohol and/or used illicit drugs in their lives. Multivariate regression showed that the likelihood of adequate water drinking was lower in students studying in private university as well as in females $aOR=0.51$ and $aOR=0.39$, respectively, $p<0.001$. The likelihood of regular exercise was significantly lower in females than males $aOR=0.38$ and $aOR=0.29$, respectively, $p<0.001$. The likelihood of ever smoking any form of tobacco was significantly higher in a student studying in a private university $aOR=3.01$, $p<0.001$, students aged 22 years or more $aOR=3.09$, $p<0.0001$ and in students who have a monthly expenditure >1500 LE. The likelihood of ever smoking any form of tobacco, alcohol use or illicit drug use was significantly lower in females $aOR=0.09$, $aOR=0.15$, and $aOR=0.11$, respectively, $p<0.0001$. **Conclusion:** There were high prevalence of multiple undesirable lifestyle behaviors among studied students. Educational and other preventive activities should be directed to private Universities and on male students.

INTRODUCTION

Lifestyle is defined as a way used by people, groups, or nations. It is formed in specific geographical, economic, political, cultural, and religious contexts. It includes daily behaviors and functions of individuals in work, activities, leisure time and food.¹

According to WHO, 60% of the factors affecting individual health and quality of life are related to lifestyle.² That is because millions of people follow an unhealthy lifestyle. Consequently, they encounter illness and disability which leads up to death. Health

Corresponding Author: Ayat Farouk Manzour, Department of Community, Environmental and Occupational Medicine, Faculty of Medicine, Ain Shams University, Egypt. Email: ayatfaroukm@yahoo.com

problems, like joint and skeletal problems, cardiovascular diseases, hypertension, overweight, and other malnutritional disorders, can be caused by an unhealthy lifestyle. That is why the relationship between lifestyle and health should be put into consideration. Nowadays, many changes in people's lives have occurred. Malnutrition, unhealthy dieting, smoking, alcohol consumption, drug abuse as well as stress and other factors are the causes of unhealthy lifestyles when they are used as the dominant form of lifestyle.¹

The university is a unique experience. During university, students face many social and academic challenges such as: identifying the university systems; selecting the major; and preparing for the future career, in addition to practicing more independence.^{3,4} The foundation of private higher education institutions was historically -either in Egypt or on the global context- associated with responding to higher education quality issues.⁵ In the 1980s, developing countries' governments were unable to keep the quality of public services (especially higher education services) at a suitable level, which called for an increased role of the private sector.⁶ However, private universities are gradually -but strongly- showing their print on the Egyptian higher education scene, attracting around 20% of the tertiary students from the higher and more affluent social classes. Both types of universities include students living with their parents at their usual place of residence or living in a place away from home.⁷

Recently, many studies have revealed that a great number of university students face stressful situations that are beyond their capacity to cope with, and therefore, the students may engage in some risky health behaviors, as physical inactivity, unhealthy dietary habits, tobacco and illicit drug use.⁸ University students are at a crucial stage of their lives, requiring important lifestyle modifications which may become a fixed routine shaping the students' future health.⁹

The past decades have witnessed major changes in the lifestyle of Middle East and Egyptian youth with the replacement of the traditional diet with a westernized one. Other poor habits, such as skipping breakfast, increasing the daily screen time spent on watching TV, playing on a computer and PlayStation games, and using the Internet, were also acquired.¹⁰ In a recent study of university students from 10 public universities in 10 Egyptian governorates, 15.7% of the

participants reported performing regular physical exercise, with obvious gender differences in physical inactivity being more prevalent among females.¹¹ Moreover, the use of addictive substances i.e. alcohol, tobacco, and/or illicit drugs by youth is an emerging significant health concern. A recent survey of university students in Egypt revealed an overall percentage of 16.5% in current tobacco users. Males are the main users, with a prevalence of 28.9% vs. 1.9% among females.¹² The Unit of Research in the General secretariat of Mental Health and Addiction Treatment GSMHAT in Egypt conducted "The National Addiction Survey in Egypt". The 2014 survey revealed that 15.8% of young adults, aged 16-25 years, had never used addictive substances.¹³

Research with the main objective to identify lifestyle habits among Egyptian university students are scarce. To the best of our knowledge, lifestyle habits of students from private universities especially in comparison to governmental ones- were not studied in previous research. The university type -whether governmental or private- may influence different health-related habits.

The aim of the current study was to examine the associations between socio-demographic characteristics and lifestyle behaviors among students in two Egyptian universities: one governmental and one private. Accordingly, studying the harmful lifestyle practices among university students paves the way for tailored interventions that promote healthy lifestyle in this setting.

METHOD

A cross-sectional study was conducted in two Egyptian universities. These included one of the oldest governmental universities (i.e. Ain Shams University) in Egypt, and one private university (i.e. Misr University for Science and Technology), located in 6th of October City and established in 1996.

Study Population and Eligibility: The study population included students from all years. The faculties were either practical-based faculties: Medicine, Engineering, Nursing, Pharmacy, Dentistry, and the Faculty of Science; or theoretical-based ones including the faculties: Law, Commerce, Alsun, Education, and the Faculty of Arts. Students from both universities were invited to participate.

A convenience sampling technique was adopted. Study questionnaires were distributed to students who

Table (1): Socioeconomic characteristics and lifestyle behaviors of studied population by gender

Characteristics	Total *N=1,133 N (%)	Male N=491 N (%)	Female N=642 N (%)	P-Value*
Age				
19 or less	525 (47.1)	190 (39.5)	335 (52.8)	<0.0001
20-21	433 (38.8)	198 (41.2)	235 (37.1)	
22 or more	157 (14.1)	93 (19.3)	64 (10.1)	
University Type				
Public	732 (64.61)	311 (63.3)	421 (65.6)	0.435
Private	401 (35.31)	180 (36.7)	221 (34.4)	
Father's education				
Secondary school or less	241 (21.5)	104 (21.6)	137 (21.4)	0.942
Bachelor or higher degree	879 (78.5)	377 (78.4)	502 (78.6)	
Father's Occupation[#]				
Blue Collar	32 (2.9)	18 (3.7)	14 (2.2)	0.150
White Collar	729 (65.1)	322 (66.5)	407 (64.1)	
Other	358 (32.0)	144 (29.8)	214 (33.7)	
Student's cohabitants				
Parents	838 (76.4)	658 (91.9)	180 (47.2)	<0.0001
Student housing	168 (15.3)	42 (5.9)	126 (33.1)	
Relatives or Other	91 (8.3)	16 (2.2)	75 (19.7)	
Monthly expenditure				
≤ 500	458 (41.3)	146 (30.4)	312 (49.5)	<0.0001
501- <1000	350 (31.5)	154 (32.0)	196 (31.1)	
1000-<1500	137 (12.3)	75 (15.6)	62 (9.9)	
≥1500	166 (14.9)	106 (22.0)	60 (9.5)	
Nutritional Habits				
Eat breakfast				
Rarely/Never	261 (23.2)	101 (20.7)	160 (25.12)	0.082
Most of the time/Sometimes	864 (76.8)	387 (79.3)	477 (74.88)	
Eat late at night				
Most of the time/Sometimes	857 (76.5)	384 (78.8)	473 (74.7)	0.106
Rarely/Never	263 (23.5)	103 (21.2)	160 (25.3)	
Drink water frequency				
< 8 glasses/day	646 (57.6)	222 (45.9)	424 (66.6)	<0.0001
≥ 8 glasses/day	475 (42.4)	262 (54.1)	213 (33.4)	
Physical Activity				
Past-month regular exercise				
Yes	257 (22.9)	163 (33.5)	94 (14.8)	<0.0001
No	866 (77.1)	323 (66.5)	543 (85.2)	
Frequency of weekly exercise m=23				
Never	418 (37.6)	102 (21.3)	316 (50.1)	<0.0001
1-4 times	578 (52.1)	286 (59.7)	292 (46.3)	
>4 times	114 (10.3)	91 (19.0)	23 (3.6)	
Daily media and internet use				
≤3 hours	510 (45.0)	254 (51.7)	256 (39.9)	<0.0001
>3 hours	623 (55.0)	237 (48.3)	386 (60.1)	
Substance use				
Smoking any tobacco				
Never	956 (85.7)	343 (71.3)	613 (96.7)	<0.0001
Current	159 (14.3)	138 (28.7)	21 (3.3)	
Alcohol Use				
Never	998 (92.2)	405 (86.0)	593 (97.1)	<0.0001
Ever	84 (7.8)	66 (14.0)	18 (2.9)	
Illicit Drug Use				
Never	988 (92.0)	394 (84.4)	594 (97.9)	<0.0001
Ever	86 (8.0)	73 (15.6)	13 (2.1)	

*Pearson's' chi-square test, #white-collar worker is a worker whose job is a non-manual worker: managerial, professional, associate professional and technical, sales, and clerical and secretarial occupations. The blue-collar worker is a worker whose job is manual work e.g.: personal services, craft and related, plant and machine operatives, and other semi-skilled and unskilled occupations. ³⁷ *Note: Some responses may be missing so total is not equal to 1133 in all comparisons

Table (2): Multivariate logistic regression to predict significant independent sociodemographic factors associated with nutritional habits

	Eat breakfast Most/sometimes aOR (95% CI)	Eat late at night Rarely/Never aOR (95% CI)	Drink water frequency ≥ 8 glasses/day aOR (95% CI)
University Type			
Public	Ref	Ref	Ref
Private	0.79 (0.54-1.16)	1.15 (0.77-1.69)	0.51 (0.36-0.73) **
Age			
19 or less	Ref	Ref	Ref
20-21	0.76 (0.55-1.05)	1.33 (0.96-1.83)	0.79 (0.59-1.06)
22 or more	0.83 (0.51-1.36)	1.12 (0.69-1.83)	0.67 (0.44-1.03)
Gender			
Male	Ref	Ref	Ref
Female	0.71 (0.52-0.98) +	1.38 (1.01-1.88) +	0.39 (0.29-0.52) **
Monthly expenditure			
≤ 500	Ref	Ref	Ref
501- <1000	0.94 (0.65-1.38)	0.79 (0.55-1.13)	1.01 (0.73-1.39)
1000-<1500	0.94 (0.55-1.60)	0.43 (0.23-0.77) +	1.61 (1.01-2.55) +
≥1500	0.70 (0.42-1.18)	0.85 (0.49-1.45)	1.01 (0.63-1.63)
Student's cohabitants			
Parents	Ref	Ref	Ref
Student housing	0.61 (0.38-0.97)	1.21 (0.75-1.96)	1.01 (0.65-1.55)
Relatives or Other	0.42 (0.24-0.71) *	0.97 (0.5-1.79)	1.05 (0.61-1.79)
Father's education			
Secondary school or less	Ref	Ref	Ref
Bachelor or higher degree	1.25 (0.85-1.83)	0.87 (0.59-1.27)	0.97 (0.69-1.36)
Father's Occupation			
Blue Collar	Ref	Ref	Ref
White Collar	0.43 (0.14-1.32)	1.40 (0.57-3.42)	0.31 (0.14-0.69) *
Other	0.33 (0.11-1.01)	1.01 (0.41-2.49)	0.31 (0.14-0.69) *

aOR, adjusted odds ratio; CI, confidence interval; Ref, reference category for the regression, P-values based on Bonferroni correction $\alpha=0.05/8$, †p < .05 not significant due to Bonferroni correction, *p < .001, **p < .0001

agreed to participate in lecture halls, laboratories, and faculty campuses during their spare time. All undergraduate students from the mentioned faculties who agreed to participate were included in study participants.

The sample size was calculated using Open-epi: an open-source software for epidemiological statistics, assuming the hypothesized percentage of smoking as an example of lifestyle habits under study in the population = 25% on the basis of a previous study¹⁴ and 97% confidence limits. The minimum calculated sample size to achieve study objectives was 801 students. Originally, 1168 students were invited to participate in compensating for the missing data; 1133 students agreed to participate in the study with a response rate of 97%.

Study Tool: A self-administered questionnaire, which consisted of 47 questions, was filled in Arabic. The questionnaire was adapted and modified from previous studies, and it took an average time of 25 minutes to complete it. The questionnaire included a personal and socio-demographic section, which consisted of 11 questions about age, sex, cohabitants (i.e. either staying with parents, siblings, uncles or aunts, at students' house, or with colleagues), parental education and occupation, and personal monthly expenses. The second section was about eating behaviors. It consisted of 11 questions concerning eating at night; meal-skipping; having breakfast; and drinking water. This section was adapted and modified from Ilesanmi-Oyelere, 2011.¹⁵ The third

Table (3): Multivariate Logistic Regression to Predict Significant Independent Sociodemographic Factors associated with Physical Activity

	Past-month regular exercise Yes aOR (95% CI)	Frequency of weekly physical activity 1-4 times aOR (95% CI)	Daily media and internet use <3 hours aOR (95% CI)
University Type			
Public	Ref	Ref	Ref
Private	0.99 (0.66-1.49)	0.96 (0.67-1.38)	0.78 (0.56-1.09)
Age			
19 or less	Ref	Ref	Ref
20-21	1.44 (1.03-2.03) ⁺	1.08 (0.79-1.45) ⁺	1.84 (1.39-2.43) ^{**}
22 or more	1.13 (0.69-1.85)	0.77 (0.49-1.20)	1.13 (0.74-1.70)
Gender			
Male	Ref	Ref	Ref
Female	0.38 (0.27-0.51) ^{**}	0.29 (0.22-0.40) ^{**}	0.62 (0.47-0.81) ^{**}
Monthly expenditure			
≤ 500	Ref	Ref	Ref
501- <1000	1.46 (0.99-2.14) ⁺	1.07 (0.76-1.49)	0.89 (0.65-1.21)
1000-<1500	1.01 (0.58-1.75)	1.03 (0.63-1.69)	0.77 (0.49-1.21)
≥1500	1.27 (0.74-2.19)	0.83 (0.49-1.39)	0.60 (0.38-0.97) ⁺
Student's cohabitants			
Parents	Ref	Ref	Ref
Student housing	0.74 (0.44-1.24)	0.94 (0.59-1.48)	1.15 (0.75-1.75)
Relatives or Other	1.53 (0.86-2.71)	1.21 (0.69-2.13)	1.59 (0.94-2.66)
Father's education			
Secondary school or less	Ref	Ref	Ref
Bachelor or higher degree	1.45 (0.94-2.25)	1.75 (1.22-2.50) ^{**}	1.04 (0.75-1.45)
Father's Occupation			
Blue Collar	Ref	Ref	Ref
White Collar	0.81 (0.33-1.97)	0.61 (0.26-1.41)	1.16 (0.54-2.49)
Other	0.72 (0.29-1.77)	0.64 (0.27-1.49)	1.17 (0.54-2.51)

aOR, adjusted odds ratio; CI, confidence interval; Ref, reference category for the regression, P-values based on Bonferroni correction $\alpha=0.05/8$, [†] $p < .05$ not significant due to Bonferroni correction, ^{*} $p < .001$, ^{**} $p < .0001$

section focused on physical activity. It consisted of 7 questions asking about practicing regular exercise during the last month (defined as performing physical exercise 30 minutes at least 3 times/week), the frequency of walking weekly; and the time spent using media every day (including watching TV, playing videogames, surfing the internet, in addition to using personal computers). This section was derived from Al-Hazzaa & Al-Ahmidi, 2003.¹⁶ The fourth/last section asked questions about smoking and illicit drug use. It consisted of 18 questions about cigarette and water-pipe smoking; alcohol drinking; as well as illicit drug use among the study participants. Questions were derived from the Survey of Young People in Egypt SYPE, 2014.¹⁷ Accordingly, SYPE is a survey which uses

a representative national sample done by the National Population Council in Egypt.

Data analysis: All analyses were conducted using Stata SE 16 StataCorp.¹⁸ Descriptive statistics of the overall socio-demographic and lifestyle characteristics of the sample, and the distribution of these characteristics was calculated according to gender. Numbers and proportions were identified for the categorical data. Differences between characteristics according to gender were assessed using Pearson's chi-square test. A Multivariable logistic regression analysis was conducted to calculate the adjusted odds ratios aOR and 95% confidence intervals CI to

Table (4): Multivariate Logistic Regression to Predict Significant Independent Sociodemographic Factors associated with Substance Use

	Smoking- any tobacco Ever aOR (95% CI)	Alcohol Use Ever aOR (95% CI)	Illicit Drug Use Ever aOR (95% CI)
University Type			
Public	Ref	Ref	Ref
Private	3.01 (1.74-5.20) **	5.01 (2.53-9.94) **	3.83 (1.86-7.89) **
Age			
19 or less	Ref	Ref	Ref
20-21	2.09 (1.27-3.45) *	1.72 (0.93-3.19)	9.33 (3.84-22.62) **
22 or more	3.09 (1.69-5.67) **	2.34 (1.10-4.96) +	16.03 (5.98-42.95) **
Gender			
Male	Ref	Ref	Ref
Female	0.09 (0.05-0.16) **	0.15 (0.08-0.29) **	0.11 (0.05-0.25) **
Monthly expenditure			
≤ 500	Ref	Ref	Ref
501- <1000	1.57 (0.88-2.81)	0.60 (0.28-1.29)	0.77 (0.32-1.82)
1000-<1500	1.58 (0.77-3.24)	0.74 (0.29-1.86)	1.89 (0.75-4.74)
≥1500	3.14 (1.58-6.27) **	1.18 (0.51-2.72)	2.41 (0.96-6.04)
Student's cohabitants			
Parents	Ref	Ref	Ref
Student housing	0.65 (0.35-1.21)	0.85 (0.41-1.77)	1.47 (0.68-3.21)
Relatives or Other	0.62 (0.29-1.32)	0.74 (0.31-1.80)	0.28 (0.08-0.99) +
Father's education			
Secondary school or less	Ref	Ref	Ref
Bachelor or higher degree	0.84 (0.48-1.47)	0.96 (0.47-1.95)	0.83 (0.39-1.79)
Father's Occupation			
Blue Collar	Ref	Ref	Ref
White Collar	2.01 (0.56-7.17)	1.48 (0.34-6.52)	0.35 (0.09-1.23)
Other	3.22 (0.98-11.51)	2.70 (0.62-11.82)	0.64 (0.18-2.28)

aOR, adjusted odds ratio; CI, confidence interval; Ref, reference category for the regression, P-values based on Bonferroni correction $\alpha=0.05/8$, $\dagger p < .05$ not significant due to Bonferroni correction, * $p < .001$, ** $p < .0001$

identify an association between lifestyle factors and socio-demographic characteristics. The Bonferroni correction for multiple comparisons was used to prevent Type I error. Results were considered statistically significant if P-value < 0.05.

RESULTS

This cross-sectional study included 1133 students, with the mean age being 19.9 ± 1.6 years; and with 43.3% males and 56.7% females. Almost one third 35.5% of students are from private universities while 64.6% students are from governmental universities. Academically, 60.6% of students are from faculties with practical-based studies while 39.4% are from faculties with theoretical-based studies. Most of the study participants 76.4% live with their parents; followed by 15.3% who reside in students' houses; while the remaining 8.3% stay with their relatives. In addition, the monthly expenditure of 41.2% of students is ≤ 500 LE, ranged between 500 - <1000 LE

for 31.5%, and from 1000 - < 1500 LE for 12.3% of students. The monthly expenditure exceeds 1500 LE for 14.9% of students.

When the students were asked about their nutritional habits, 76.8% said that they eat breakfast most of the time; 23.5% reported that they rarely or never eat dinner late at night; and 42.4% drink 8 glasses of water or more per day.

Based on the assessment of the students' physical activity, only 22.9% students had exercised regularly in the past month; however, approximately half of the students reported exercising 1-4 times a week. Regarding the sedentary behavior, 55% students watch TV, use internet, or play video games for more than 3 hours daily.

Moreover, smoking any form of tobacco is present in 14.3% of study participants (28.7% of males and 3.3% of females); 6.2% are former smokers; and approximately 8% of the participants had ever consumed any type of alcohol and/or used illicit drugs.

As shown in Table 1, for nutritional habits, no statistically significant differences are detected between males and females regarding eating breakfast or eating dinner late at night. However, the percentage of males who drink 8 glasses of water or more per day is significantly higher than that of females $p < 0.001$.

Performing regular physical exercise is significantly higher among males than among female students $p < 0.001$. Sedentary behavior is more prevalent in females than in males $p < 0.001$.

Additionally, substance-use is significantly higher in males than in female students $p < 0.001$.

Table 2 shows that there are significant socio-economic characteristics predicting nutritional habits. Residing with relatives is negatively associated with eating breakfast most of the time $aOR = 0.42$, $p < 0.0001$. Females are less likely to eat breakfast most of the time $aOR = 0.71$, $p < 0.05$; however, it was not significantly observed after implementing the Bonferroni correction.

The odds of rarely eating dinner late at night is higher for females than for males $aOR = 1.38$, $p < 0.05$. Students with a monthly expenditure of 1000- <1500 would rarely eat dinner late at night $aOR = 0.43$, $p < 0.05$; however, these observations were not significantly observed after implementing the Bonferroni correction.

Students studying in private universities, and females as well as students whose fathers had white-collar jobs, are less likely to drink 8 glasses of water or more per day $aOR = 0.51$, $aOR = 0.39$ and $aOR = 0.31$, $p < 0.001$, respectively.

According to table 3, the odds of practicing regular exercise are significantly lower in females than in males $aOR = 0.38$ and $aOR = 0.29$, $p < 0.0001$, respectively. Students whose fathers had bachelor or advanced degrees of education have higher odds of regular weekly physical exercise $aOR = 1.75$, $p < 0.0001$. Additionally, the odds of sedentary behavior and daily media use for more than 3 hours is significantly higher in students aged 20-21 years, but less in females than in males $aOR = 1.84$ and $aOR = 0.62$, $p < 0.0001$, respectively.

Table 4 shows that the odds of a student who ever smoked any form of tobacco in his/her life are significantly higher for a student studying in a private university $aOR = 3.01$, $p < 0.0001$, in students aged 20-21 years $aOR = 2.09$, $p < 0.001$, 22 years or more

$aOR = 3.09$, $p < 0.0001$, and in students who spend >1500 LE monthly.

The odds of alcohol use was significantly higher for students of private universities $aOR = 5.01$, $p < 0.0001$. The odds of illicit drug use are significantly higher for students of private universities $aOR = 3.83$, p -value < 0.0001 , students aged 20-21 years $aOR = 9.33$, $p < 0.001$, and 22 years or more $aOR = 16.03$, $p < 0.0001$. However, the odds of ever smoking any form of tobacco, engaging in alcohol use, or engaging in illicit drug use in their lives are significantly lower in females $aOR = 0.09$, $aOR = 0.15$, and $aOR = 0.11$, $p < 0.0001$, respectively.

DISCUSSION

Around one third of the study participants skip eating breakfast, while about half of them drink less than 8 water cups daily. It was found that female students live a sedentary life and spend more than 3 hours on social media and internet; the ratio of females was significantly more than that of males. Physical activity and healthy eating patterns were poorly adopted by study participants. Prevalence of tobacco smoking was relatively low compared to those in previous studies. Higher smoking prevalence was found among females than in previous literature and national surveys. Alcohol and illicit drug use were significantly lower in females. All types of substance use were significantly higher among private than among public university students.

Around three quarters of the sample students live with their family; this figure is similar to that of Keshk et al. study 2019 on university students in Cairo (77.5%). Residing with family members may affect students' living habits, in eating more home prepared food, for example.¹⁹

Regarding nutritional habits, one third of the students skip eating breakfast while the majority skip one or more meals during most of weekdays. This figure is like another done in a study on university students in Bangladesh by Joy, 2018 who found that 31% of students don't take their breakfast regularly. Though not investigated in this research; Joy found that the main reasons for skipping breakfast were "getting up late and not feeling hungry in the morning".²⁰

Among adolescents and young adults who eat breakfast regularly, they receive adequate daily intake of vitamin C, folic acid, niacin, phosphorus, potassium, magnesium, and fiber from food.²¹ When skipping

breakfast, other meals are often insufficient to compensate for these nutrients.²² On the same line, students who reside with their relatives are significantly more liable to skip their breakfast than those living with parents, where there might be help in preparing breakfast. Students living in student houses are more liable to skip breakfast as well, where there are fixed times that must be respected for serving meals. El Bashtawy, 2017 found a similar finding in a study done in Jordan. Regular breakfast intake was significantly higher in adolescent students who live with their parents compared to those staying with relatives.²³

Half of the studied sample eat ready-made junk food 4 to 5 times weekly which goes in-line with figures in a previous study done on university students in Cairo.¹⁹ The reasons for the preference of junk food over home-made meals might be due to attractiveness; convenience; enjoying time with their friends; and feeling of fullness.²⁴

Water drinking is significantly higher among public than among private university students, as evidenced by multivariate regression. Males are significantly more likely to drink recommended daily water intake ≥ 8 cups than females. Contrary to this, Salinas et al., 2016, found in their study on Spanish university students that the majority are compliant with the guidelines of drinking water. This discrepancy may be due to different population and different culture.²⁵ Regarding gender, women have been frequently reported to engage in far more health-promoting behaviors than men have; women also have healthier lifestyle patterns than men.²⁶ However, the eating behavior is not a constant phenomenon. The analysis of the effects of single or multiple factors is further complicated by the differing circumstances and experiences of the individual.²⁷

It was also reported that regular physical exercise is performed by less than a quarter of the study participants unlike what was reported in a previous study done in 2019 on studying university students in Cairo.¹⁹ This difference may be due to different study populations. In the current study, a wider variety of students from different faculties (with a larger sample) was interviewed.

Regarding spending time on media and sedentary behavior, around half watch TV, surf the internet, or play videogames for more than 3 hours a day. This figure is like another in a study by Al-Nakeeb et al.,

2015 who studied health-related habits in a group of young adults in Qatar.²⁸ Al-Nakeeb et al. showed that their study participants watch media and use social media for more than 280 minutes/day on average.

Females showed a significantly more evident sedentary behavior than males. Based on this, females are significantly less likely to adopt regular physical exercise during the month prior to data collection; have less frequent physical activity; and spend more time on social media and internet. This finding was also confirmed by a study done in 2018 on Spanish adolescents and young adults.²⁹ Some authors have attributed these differences to cultural stereotypes existing between both genders referring to the practice of physical activity.³⁰ In addition, males at this stage of life are preoccupied with improving their external masculine appearance.

A finding close to the results of current study was in a study done in Alexandria, Egypt, on students living in university hostels.³¹ The study's authors stated that 7.7% of studying faculty students currently smoke during survey time. Prevalence of smoking in current study is also very close to the figure (17.1%) in a study done on Assiut university students in Egypt.³²

This study's result of tobacco smoking is also close to that declared by Egyptian GATS report in 2009 (19.7%).³³ This small difference in percentage may be due to under-reporting by some students.

Ever using any form of alcohol and/or illicit drug use in their lives is significantly higher in private university students than in governmental ones. Reasons may be due to the students having a better financial status or different cultural backgrounds or both together. This explanation is supported by the significantly higher monthly expenditure among tobacco users in the current study. More studies need to be done in this regard. Bajwa et al., 2013, found the same finding among male university students in Kuwait. Bajwa et al. attributed this significant difference to the differences in the socio-demographic and socio-economic characteristics of the two groups of students.³⁴

As expected, and previously reported in different studies, the male gender is independently and significantly associated with all types of substance use: tobacco smoking, alcohol use, and illicit drugs. Other studies found a similar finding; hence, males are usually higher than females.^{14,33}

Furthermore, age significantly determined smoking status; older students are significantly more likely to smoke. The study by Al-Kubaisy et al. on tobacco-smoking among university students in Damascus, Syria, as well as the study by Ba-Break et al. on Egyptian adolescents found the same finding.^{35,36} Repeated cross-sectional studies are required to monitor the smoking behavior among student cohorts in Egyptian universities.

Study limitations

Cross-sectional studies have an inherent problem of measuring outcomes and risk factors at the same point of time without temporal relationship. Additionally, study participants were not randomly selected; students who were attending in their faculties during the survey time were included. Thus, results cannot be generalized to all Egyptian university students. This will also limit the validity of the statistical analysis, especially the multivariate analysis. Finally, this study used a self-reported survey questionnaire with all its disadvantages and advantages.

CONCLUSION

A myriad of unhealthy behaviors is adopted by university students. Males have higher levels of smoking, alcohol use, and illicit drug use. Female students live a sedentary life with special attachment to the virtual life on social media and internet than males do. Smoking prevalence among females is higher than shown in previous studies. Special attention should be directed to the private sector education. Physical activity and healthy eating patterns are poorly adopted by study participants. University group-based educational and behavioral modification programs should be done with the help of educators and community leaders. Combining female interests and preferences for development of physical exercise intervention programs and planning activities in the university stage is of utmost importance. Although prevalence of tobacco smoking is relatively low compared to that of national surveys, special control programs should still be organized. Programs in line with the Framework Convention on Tobacco Control are to be done with special focus on private university students, females, and senior year students. Successful quitting stories –of tobacco, alcohol, and illicit drugs- should be taught, with focusing on quitters as “successful models”.

Ethics Approval

This study was conducted in accordance with the Declaration of Helsinki and was approved by the ethics Committee of Faculty of Medicine, Ain Shams University. All participants provided their informed consents.

Funding Source

The authors received no financial support related to this research.

Conflict of Interest

All authors have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Author Contributions

Ayat F. Manzour: idea, literature search, and writing; Dina N. K. Boulos: idea, literature search, and writing; Sherif Ahmed Hetta: analysis, critical review, and literature search; Tanmik Shah: critical review and literature search; Omar el Shahawy: analysis, critical review, and final revision of whole manuscript.

REFERENCES

1. Farhud D, Impact of Lifestyle on Health, Iran J Public Health, 2015; 44:1442-1444
2. Ziglio E, Currie C, Rasmussen V., The WHO cross-national study of health behavior in school aged children from 35 countries: findings from 2001-2002. J School Health, 2004; 74 : 204-206.
3. Johansen A, Rasmussen S, Madsen M., Health behaviour among adolescents in Denmark: influence of school class and individual risk factors. Scand J Publ Health 2006;34:32-40.
4. Jakubiec D, Kornafel D, Cygan A, Górska-Klęk L, Chromik K. Lifestyle of students from different universities in Wrocław, Poland. Roczn Panstw Zakl Hig. 2015; 66:337-44. PubMed PMID: 26656415.
5. Barsoum G., Quality, pedagogy and governance in private higher education institutions in egypt. Africa Education Review, 2017; 1-18
6. McLaughlin K., Osborne S.& Ferlie E. 2002. New public management: Current trends and prospects. London; New York: Routledge.
7. Cross-nationally Comparative, Evidence-based Educational Policymaking and Reform. edited by Alexander W. Wiseman, Petrina M. Davidson. International Perspectives on Education and Society, 35: 47-70. Emerald Publishing Limited. ISBN:978-1-78743-767-8

8. Madureira A.S., Corseuil H.X., Pelegrini A., Petroski E.L. Association between stages of behavior change related to physical activity and nutritional status in university students. *Cad. Saude Publ.* 2009;25: 2139–2146.
9. Aounallah-Skhiri H, Traissac P, El Ati J, Eymard-Duvernay S, Landais E, Achour N, et al. Nutrition transition among adolescents of a south-Mediterranean country: dietary patterns, association with socio-economic factors, overweight and blood pressure. A cross-sectional study in Tunisia. *Nutr J.* 2011; 24: 10-38. doi: 10.1186/1475-2891-10-38.
10. El-Shaheed A, Mahfouz N, Moustafa I, Elabd A. Alarming Eating Behaviours among Adolescents in Egypt. *Open Access Maced J Med Sci.* 2019;7:2189-2193. doi: 10.3889/oamjms.2019.583.
11. Farrag A, Eraky A, Aroussy W, Sayed G, Mahrous A, Adel A et al. Obesity and Other Cardiovascular Risk Factors in Egyptian University Students: Magnitude of the Problem. *Epidemiology sunnyvale* 2015;5: 181. doi:10.4172/2161-1165.1000181
12. Arab Republic of Egypt Ministry of Health and Population, Shisha and Smokeless Tobacco Use among University Students in Egypt [MOHP report Internet] Accessed Dec 2020
13. Hamdi E, Sabry N, Sedrak A, Khowailed A, Loza N. Sociodemographic Indicators for Substance Use and Abuse in Egypt. *J Addiction Prevention.* 2016;4: 8.
14. Loffredo A, Shaker Y, Jillson I, Boulos D, Saleh D, Garas M, et al., Prevalence and correlates of substance use by Egyptian school youth, *The International Journal Of Alcohol And Drug Research*, 2017;6: 37-51.
15. Bolaji Lilian Ilesanmi-Oyelere (thesis), Influence Of Lifestyle Choices And Risk Behaviours For Obesity Among Young Adult Women In The United Arab Emirates University: A Cross-Sectional Survey, Christchurch, New Zealand, December, 2011
16. Al-Hazzaa, H. and Al-Ahmadi, M. A Self-Reported Questionnaire for the Assessment of Physical Activity in Youth 15-25 Years: Development, Reliability and Construct Validity. *Arab Journal of Food Nutrition*, 2003;4: 279-291.
17. Roushdy R and Sieverding M. "Panel survey of young people in Egypt 2014: Generating evidence for policy, programs, and research." Cairo: Population Council; 2015
18. StataCorp. 2019. Stata Statistical Software: Release 16. College Station, TX: StataCorp LLC.
19. Keshk M, Fahim H, Hassan A, Boulos D, Body Image Perception and Self-Esteem among University Students in Cairo. *The Egyptian Journal of Community Medicine*, 2019; 37:82-96.
20. Joy KH, A Survey on Breakfast Habit and Skipping Breakfast among University Going Students (MD thesis), East West University, Bangladesh, 2018.
21. Galvin, M. A., Kiely, M., & Flynn, A. Impact of ready-to-eat breakfast cereal (RTEBC) consumption on adequacy of micronutrient intakes and compliance with dietary recommendations in Irish adults. *Public health nutrition*; 2003; 6: 351-363.
22. Rampersaud G., Pereira M., Girard B., Adams J., & Metz J., Breakfast habits, nutritional status, body weight, and academic performance in children and adolescents. *Journal of the American dietetic association*; 2005;105:743-760.
23. AL Bashtawy M, Breakfast Eating Habits among School children, *Journal of Pediatric Nursing*, 2017;36:118-123
24. Sivapriya T, Saraswathy S, Study on the Consumption Pattern of Junk Food among University Students, *Global Journal of Engineering Science and Research Management*, 2014;1:743-760
25. Salinas M, Yera R, Izquierdo I, Hydration Habits of a group of University Students. In proceedings of International And Iv Spanish Hydration Congress, 2015; 32:48
26. Gough B, Conner M. Barriers to healthy eating amongst men: a qualitative analysis. *Soc Sci Med. soc scimed.* 2006; 62:387-95. doi: 10.1016/j.
27. Arganini C, Saba A, Virgili F, Comitato R, Turrini A. Gender Differences in Food Choice and Dietary Intake, National Research Institute for Food and Nutrition, Rome, Italy, 2012 (Book Chapter).
28. Al-Nakeeb Y, Lyons M, Dodd L and Al-Nuaim A, An Investigation into the Lifestyle, Health Habits and Risk Factors of Young Adults, *Int. J. Environ. Res. Public Health* 2015; 12: 4380-4394; doi:10.3390/ijerph120404380
29. Gonçalves O, Martínez P. Gender and physical exercise in adolescents and college students. *Cadernos de Pesquisa*, 2018; 48: 1114-1128. <https://dx.doi.org/10.1590/198053145588>
30. Amado D, Del Villar F, Leo FM, Sánchez-Oliva D, Sánchez-Miguel PA, García-Calvo T., Effect of a multidimensional intervention programme on the motivation of physical education students. *PLOS one.* 2014;9:e85275.
31. Abolfotouh MA, Bassiouni FA, Mounir GM, Fayyad RCh. Health-related lifestyles and risk behaviours among students living in Alexandria University Hostels. *East Mediterr Health J.* 2007 ;13:376-391.
32. Abou-Faddan HA and Ahmed SM, Smoking Habits Among Assiut University Students: Prevalence and Associated Risk Factors, *Med. J. Cairo Univ.*, 2018 ;86: 1295-1301.
33. World Health Organization. Regional Office for the Eastern Mediterranean, Global adult tobacco survey: Egypt country report 2009 / World Health Organization. Regional Office for the Eastern Mediterranean, ISBN: 978-92-9021-711-4 (online report)
34. Bajwa H, Al-Turki S, Dawas M, Behbehani M, Al-Mutairi M, Al-Mahmoud S et al., Prevalence and Factors Associated with the Use of Illicit Substances among Male University Students in Kuwait, *Med Princ Pract* 2013;22:458-463
35. Al Kubaisy W., Abdullah N., Al Nuaimy H., Halawany G. & Kurdy S., Epidemiological study on tobacco smoking among university students in Damascus, Syrian Arab

- Republic. EMHJ - Eastern Mediterranean Health Journal, 2012;18: 723-727 <https://apps.who.int/iris/handle/10665/118176>
36. Ba-Break M, Mofteh F, Annuzaili DA, Emran MY, Al-Khawlani AH, AL-Masnaah K et al., The predictors of adolescents' smoking in Egypt, the global youth tobacco survey findings, International Journal of Adolescence and Youth, 2021; 26: 460-470, DOI: 10.1080/02673843.2021.1991402
37. Heron R and Unger L, Glossary of Labour Administration and Labour terms, International Labour Office ILO , 1999 accessed at https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---lab_admin/documents/publication/wcms_111331.pdf

Cite this article as: Ayat Farouk Manzour, et al. Associations between Sociodemographic Characteristics and lifestyle habits among Students in Two Egyptian Universities *Egyptian Journal of Community Medicine*, 2023;41(2):82-92.
DOI: 10.21608/ejcm.2022.137071.1218