

## Smoking Habits Among Assiut University Students: Prevalence and Associated Risk Factors

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### Abstract

*Aim of Study:* To study the prevalence and socio-demographic associated factors of smoking among Assiut university students.

*Patients and Methods:* A cross-sectional study design was carried out. Data were collected by using anonymous self-administered questionnaire. The questionnaire covered the socio-demographic characteristics of the students in addition to questions about smoking history of students and their family members and friends. Bivariate and multivariate logistic regression analyses were performed to assess correlates of tobacco use.

*Results:* Among 1095 students participated in the study 18.9% have ever used cigarette in their life time and 17.1% are using tobacco currently. Smoking was significantly related to male gender (OR=13.2), students with drug abuse (OR=12.1), smoker friend (OR=11.5), smoker father and/or brother (OR=10.8), pocket money >150 pounds per month (OR=4.5) and students who live away from their families (OR=3.7).

*Conclusion and Recommendations:* Smoking is prevalent among Assiut University Students. An integrated smoking prevention program in the university students was recommended.

**Key Words:** *Smoking prevalence – Correlates – Assiut University students.*

### Introduction

**TOBACCO** use is considered nowadays the single greatest preventable cause of death in the world. Smoking kills about half of the people who are using it. Quite one quarter of adult population worldwide (>1 billion people), are currently using tobacco. Smoking currently kills about 5.2 million individuals all over the world every year, a number which is expected to reach more than eight million per year by the year 2030 [1]. Most of these deaths are expected to occur in developing countries if no change in the current trend occurred [2].

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Smoking in Egypt constitutes a public health problem. One fifth (19.7%) of the Egyptian population are currently using some form of tobacco product. Men are more likely (38.1%) to use tobacco than women (0.6%) according to global adult tobacco survey (GATS) [3].

All countries everywhere in the globe attempt to stimulate and start efforts to face smoking, particularly among youth [4].

University students are at higher risk of smoking since they are more likely to accept cigarettes smoking and close association with smoking peers. Simultaneously, they face added social, emotional and educational challenges when they enter the university [5,6].

Researchers reported that university students believe that they can easily stop smoking. They forgot the addictive nature of nicotine and the long term health hazards of smoking [7].

To our knowledge, there is lack of recent studies about prevalence and determinants of smoking among Assiut university students. Therefore, this study was conducted to estimate the prevalence and risk factors of smoking among Assiut University students.

*General objective:* To promote proper health behaviors among Assiut University students including smoking cessation.

*Specific objectives:*

- 1- To estimate the prevalence of smoking among Assiut University students.
- 2- To study the socio-demographic and familial factors associated with smoking among Assiut University students.

## Subjects and Methods

**Study setting:** The study was done in Assiut University which includes 18 faculties.

**Target population:** Under graduate students of Assiut University.

**Study design:** A cross-sectional study design.

**Sample size:** Sample size was computed utilizing EPI INFO version 3.5.1 (2008). The sample size calculation depended on an estimated prevalence of smoking of 19.7% (according to global adult tobacco survey in Egypt, 2009) [5]. With a power of 80% and confidence level of 95% and a design effect of 1.5. The sample required for the study was 1024 students. The sample was expanded to 1095 to compensate for dropouts.

**Sampling technique:** A stratified proportionate random sampling technique was utilized. Faculties were grouped into two strata; practical and theoretical and two faculties were selected randomly from each stratum. Finally, a cluster sample (practical sections or small classes) was selected randomly from each selected faculty. The clusters were choosing according to the proportionate allocation of students in each stratum. The sample was allocated proportionately between the two strata as shown in Table (1).

Table (1): Distribution of students under study according to academic year and type of college.

Academic year	Frequency
<i>Academic year:</i>	
- 1 st year	266 (24.3)
- 2nd year	239 (21.8)
- 3rd year	209 (19.1)
- 4th year	191 (17.4)
- 5th year	190 (17.3)
<i>Type of college:</i>	
• Practical:	462 (42.3)
- Faculty of medicine	231 (21.1)
- Faculty of engineering	232 (21.2)
• Theoretical:	630 (57.7)
- Faculty of education	216 (19.7)
- Faculty of commerce	415 (38.0)
Total	1095 (100.0)

**Pilot study:** For evaluation the clarity of the questions and identifying any logistic problem, the questionnaire was pretested on 15 students from Assiut faculty of medicine; those were not included in study. Necessary modification was carried out before starting final data collection.

**Duration of data collection:** Data collection was conducted between beginnings of February to end of March, 2017.

**Target population:** Under-graduate Assiut University students.

**Data collection:** Data was collected by using anonymous self-administered questionnaire. The researchers distributed the questionnaires to the students. The aim of the study and any students' questions were clarified by the researchers. After filling the questionnaires (which was taking about 15 minutes of time) by the students, they were collected by the researchers. Out of 1150 questionnaires distributed to students, the returned complete questionnaires were 1095 with a response rate of 95%.

**The questionnaire used in this study was divided into two modules:**

- 1- The first module included the socio-demographic information about students (age, gender, family residence, education and occupation of the parents, perceived health status, ..... etc).
- 2- The second module was about smoking history of the of the students (whether the student is smoker or not, type of smoking, age at start of smoking, smoking among friends and other family members).

**Operational definitions:** According to another study [8] the following operational definitions was used:

- Non-smokers are the individual's who never smoked any kind of tobacco throughout their life.
- Current smokers are students who are regular or occasional tobacco smoke at least once per day now.
- Ever smokers include both current and ex-smoking students.

**Statistical analysis:** SPSS program, version 20 was used for data entry and analysis. Frequencies were reported as percentages;  $\chi^2$ -test was used for comparisons between frequency-based data. Continuous variables were compared using two-tailed independent-sample *t*-tests. For all comparisons, the statistical level of significance was set at  $p < 0.05$ . Multivariate logistic regression analysis was carried out for significant variables.

**Ethical consideration:** Before starting data collection proposal was reviewed and approved via the Ethical Review via the Ethical Review Committee of Assiut Faculty of Medicine. Moreo-

ver, Permission was taken from dean of the faculties under study. The aim of the study was explained to participants and informed consent was obtained before filling the questionnaire. Confidentiality of the data was kept all over the study.

**Results**

Table (2) shows smoking profile of studied students in Assiut university. Ever smoker students constituted 18, 9%. Cigarette smoking was present among 91.8% of smokers and water pipe smoking was present among 8.2% of them. More than half of smokers (53%) started smoking before the age of 15 years.

Table (2): Smoking pattern among studied students in Assiut University, 2017.

Characteristics	Frequency (%)
<i>Smoking:</i>	
- Current smokers	187 (17.1)
- Ever smokers	207 (18.9)
- Non-smokers	888 (81.1)
<i>Type of smoking:</i>	
- Cigarette smoking	190 (91.8)
- Water pipe smoking	17 (8.2)
<i>Number of cigarette smoked (n=190):</i>	
- <10/day	48 (25.3)
- 10-20/day	98 (51.5)
- >20/day	44 (23.2)
- Mean ± SD	10.2±3.4
<i>Age at start of smoking:</i>	
- <15 years	110 (53.1)
- ≥ 15 years	97 (46.9)
- Mean ± SD	16.2±2.3
<b>Total</b>	<b>207 (100.0)</b>

Table (3) shows the socio-demographic characteristics of studied students. This study included 1095 students, of them one half (50.6%) were males, and 54.5% were from urban areas. The mean age of students was 20.6 years. Regarding education of parents, 15.9% of fathers were illiterate or only can read and write whereas one half (50.4%) of them had university or higher education, one quarter (25.3%) of mothers were illiterate or only read and write and 39.4% had university or higher education. Regarding occupation of parents, 68.1 and 35.1% of fathers and mothers were employees. Most of students (72.2%) live with their families. The majority of students (93%) were single. The perceived health status of the students was excellent or very good in 46% of them.

Table (3): Socio-demographic characteristics of studied students in Assiut University, 2017.

Characteristics	No. of students (%)
<i>Gender:</i>	
- Males	541 (49.4)
- Females	20.6±1.3
<i>Age (Mean ± SD):</i>	
<i>Residence of students' family:</i>	
- Urban	597 (54.5)
- Rural	498 (45.5)
<i>Education of the father:</i>	
- Illiterate/read & write	174 (15.9)
- Basic/secondary	369 (33.7)
- University/higher education	552 (50.4)
<i>Education of the mother:</i>	
- Illiterate/read & write	277 (25.3)
- Basic/secondary	387 (35.3)
- University/higher education	431 (39.4)
<i>Occupation of the father:</i>	
- Employee	746 (68.1)
- Worker	201 (18.4)
- Farmer	85 (7.8)
- Died	63 (5.8)
<i>Occupation of the mother:</i>	
- Housewife	702 (64.1)
- Employee	393 (35.9)
<i>Student live with:</i>	
- The family	791 (72.2)
- Away from his/her family	304 (27.8)
<i>Marriage:</i>	
- Single	1018 (93.0)
- Engaged	63 (5.8)
- Married	14 (1.2)
<i>Perceived health status of the student:</i>	
- Excellent/very good	504 (46.0)
- Good	415 (37.9)
- Average (fair)/bad	176 (16.1)
<b>Total</b>	<b>1095 (100.0)</b>

Table (4) shows distribution of smoking among students by socio-demographic characteristics. Male gender had significantly higher prevalence of smoking (36.8%) ( $p<0.001$ ). Students whose fathers had university or higher education had significantly higher prevalence (21.2%) of smoking ( $p=0.036$ ). Students who live away from their families and those with only one parent present had significantly higher smoking prevalence (26% and 25.6%) ( $p<0.001$  for each). Also, studying in a theoretical faculty and failed students had significantly higher prevalence of smoking (21.7 and 40.9%) ( $p=0.005$  and  $<0.001$ ) respectively.

Table (4): Distribution of smoking among studied students by socio-demographic characteristics, (Assiut University, 2017).

Characteristics	Smokers	Non-smokers	p-value
<i>Gender:</i>			
- Males	204 (36.8)	350 (63.2)	<0.001
- Females	3 (0.6)	538 (99.4)	
Age (Mean $\pm$ SD):	20.9 $\pm$ 1.2	20.5 $\pm$ 1.3	<0.001
<i>Family residence:</i>			
- Urban	109 (18.3)	488 (81.7)	0.550
- Rural	98 (19.7)	400 (80.3)	
<i>Education of the father:</i>			
- Illiterate/Read & write	36 (20.7)	138 (79.3)	0.036
- Basic/Secondary	54 (14.6)	315 (85.4)	
- University/Higher	117 (21.2)	435 (78.8)	
<i>Education of the mother:</i>			
- Illiterate/Read & write	58 (20.9)	219 (79.1)	0.050
- Basic/Secondary	83 (21.4)	304 (78.6)	
- University/Higher	66 (15.3)	365 (84.7)	
<i>Occupation of the father:</i>			
- Employee	132 (17.7)	614 (82.3)	0.129
- Worker	38 (18.9)	163 (81.1)	
- Farmer	24 (28.2)	61 (71.8)	
- Died	13 (20.6)	50 (79.4)	
<i>Occupation of the mother:</i>			
- Housewife	66 (16.8)	327 (83.2)	0.182
- Employee	141 (20.1)	561 (79.9)	
<i>Faculty:</i>			
- Theoretical	138 (21.7)	498 (78.3)	0.005
- Practical	69 (15.0)	390 (85.0)	
<i>Academic year:</i>			
- 1 <sup>st</sup> year	27 (14.1)	164 (85.9)	0.251
- 2 <sup>nd</sup> year	41 (17.2)	198 (82.8)	
- 3 <sup>rd</sup> year	41 (19.6)	168 (80.4)	
- 4 <sup>th</sup> year	57 (21.4)	209 (78.6)	
- 5 <sup>th</sup> year	41 (21.6)	149 (78.4)	
<i>Grades of past year:</i>			
- Excellent/Very Good	30 (11.0)	242 (89.0)	<0.001
- Good/Pass	168 (21.0)	633 (79.0)	
- Failed (Repeat the grade)	9 (40.9)	13 (59.1)	
Total	207 (100.0)	888 (100.0)	

Table (5) shows that students with better perceived health status (excellent or very good) had significantly lower (16.7%) prevalence of smoking than those with bad health status (25.6%) ( $p < 0.001$ ). Students with drug abuse and those with previous exposure to violence had significantly higher prevalence of smoking (85.7% and 31.8%) respectively

( $p < 0.001$ ). Students with smoker father or brother or friend and those with pocket money more than 150 Egyptian pounds per month had significantly higher prevalence of smoking (52%, 4.3% and 43.1 %) ( $p < 0.001$ ).

Table (5): Distribution of smoking among studied students by familial characteristics, (Assiut University, 2017).

Characteristics	Smokers	Non-smokers	p-value
<i>Student live with:</i>			
- The family	128 (16.2)	663 (83.8)	<0.001
- Away from the family	79 (26.0)	225 (74.0)	
<i>Family condition:</i>			
- Both parent together	152 (17.3)	728 (82.7)	<0.001
- Only one parent is present	55 (25.6)	160 (74.4)	
<i>Presence of sibling:</i>			
- Yes	195 (18.5)	859 (81.5)	0.084
- No	12 (29.3)	29 (70.7)	0.848
Mean no. of sibling ( $\pm$ SD)	3.5 ( $\pm$ 2.3)	3.5 ( $\pm$ 2.1)	0.028
<i>Marriage:</i>			
- Single	185 (18.2)	833 (81.8)	0.034
- Engaged	20 (31.7)	43 (68.3)	
- Married	2 (14.3)	12 (85.7)	
<i>Perceived health status:</i>			
- Excellent/Very good	84 (16.7)	420 (83.3)	<0.001
- Good	78 (18.8)	337 (81.2)	
- Average (fair)/Bad	45 (25.6)	131 (74.4)	
<i>Drug abuse:</i>			
- Yes	18 (85.7)	3 (14.3)	<0.001
- No	189 (17.6)	885 (82.4)	
<i>Exposure to violence:</i>			
- Yes	54 (31.8)	116 (68.2)	0.134
- No	153 (16.5)	772 (83.5)	
<i>Presence of hobbies:</i>			
- Yes	12 (13.0)	80 (87.0)	<0.001
- No	195 (19.4)	808 (80.6)	
<i>Smoker father/brother:</i>			
- Yes	133 (52.0)	123 (48.0)	<0.001
- No	74 (8.8)	765 (91.2)	
<i>Smoker friend:</i>			
- Yes	76 (41.3)	108 (58.7)	<0.001
- No	131 (14.4)	780 (85.6)	
<i>Pocket money/month:</i>			
- $\leq$ 150 pounds	69 (8.9)	706 (91.1)	<0.001
- $>$ 150 pounds	138 (43.1)	182 (56.9)	
- Mean $\pm$ SD	117.3 $\pm$ 16.0	108.8 $\pm$ 18.2	
Total	207 (100.0)	888 (100.0)	

Table (6) shows that by logistic regression analysis, the following were associated with smoking among Assiut university students: Male gender (OR=13.2), students with drug abuse (OR=12.1), smoker friend (OR=11.5), smoker father and/or brother (OR=10.8), pocket money >150 pounds per month (OR=4.5), students who live away from their families (OR=3.7), and those who were exposed to violence in the past (OR=1.6) and bad perceived health status (OR=1.5).

Table (6): Logistic regression analysis for variables related to smoking among studied students, (Assiut University, 2017).

Variables	Odds ratio (95% CI)	p-value
Gender (male)	13.23 (6.90-85.52)	0.000
Drug abuse (yes)	12.11 (4.64-73.04)	0.000
Smoker friend (yes)	11.52 (6.34-24.93)	0.000
Smoker father or brother (yes)	10.81 (5.50-22.34)	0.000
Pocket money/month (>150)	4.52 (2.51-9.14)	0.000
Live away from the family	3.71 (1.54-5.54)	0.010
Exposure to violence (yes)	1.60 (1.40-2.34)	0.011
Perceived health status (bad)	1.53 (1.10-2.22)	0.038
Constant	0.000	0.000

R square: 56.2

### Discussion

This study showed that prevalence of smoking among students was 17.1% and 18.9% for current and ever smoker. This is consistent with many studies were done in Egypt [3,9,10]. However, our result was higher than reported prevalence by other studies [11-15]. This difference could be denoting that the smoking increases on entering the university with decreased control over youth. On the other hand, our result reported that prevalence of smoking was less than that found some studies [5,8,16-19]. This variation was due to different place and different socio-cultural factors and type of college.

Our result revealed that mean age of initiating cigarette smoking was 16.2 years, this finding is consistent with other studies in other parts of the world [12,16,18,19].

This study shows factors associated with smoking among Assiut university students.

Our result showed that smoking was generally more prevalent among males, a finding that agrees with a large number of studies [3,6,8,16,18,20,21,22]. This is not surprising since males spend more of their free time with their friends and are not supervised by their parents as females [23]. Females

certainly smoke less in our society due to familial, social and cultural restrictions, which may accept smoking habit among men.

This study reported that smoker friends was important associated factor of smoking. Nearly all studies documented the same findings [8,14,15,16,18,23,24,25]. This finding showed the strongest influence of peers' smoking on adolescents' vulnerability and experimentation of smoking. Friends were the main source of the first cigarette revealing the effect of close friends on the behavior of each other.

Our result revealed that father or brothers smoking was associated with adolescents' smoking, this finding was consistent with many studies in other parts of the world [8,14,15,16,23,25]. Father or brothers Smoking was an important model in promoting and learning smoking behavior.

This result revealed that students who lived away from their families had more prevalence of smoking. This finding agreed with other studies [18,26]. Familial care and supervision of adolescents may protect them from smoking [27].

This study result revealed that significantly higher percent of smoking among theoretical faculties' students than practical faculties' students this finding is consistent with other studies [5,6]. Theoretical faculties Students may be less aware of smoking dangers or risks, have more time which expose them more to peers' pressure and may be dissatisfied with their study, these factors may lead them to smoking [18].

In this study as in other studies [6,16,18,25], there was a significant association between smoking and increasing pocket money of students.

The finding of this research also showed that significant association between smoking and drug abuse. This agrees with different studies which reported an association between smoking and drug abuse [5,12,18]. That's because smoking is constantly the gateway to drug abuse. So, anti-smoking program prevent smoking and drug abuse at the same time.

Also, our result revealed significant relation between smoking and exposure to violence as reported by many studies [28,29]. Moreover, bad perceived health status of the student was significantly associated with smoking. A finding which is reported by other studies [30,31].

*Conclusion and recommendations:*

Smoking is prevalent among Assiut university students. Male students, Drug abuse, smoker friends, father or brothers smoking, Pocket money/month >150 pounds, living away from the family, exposure to violence and bad Perceived health status were significant associated factors of increased prevalence of smoking. Integrated anti-smoking programs among students in secondary schools and universities are recommended to discourage smoking and raise knowledge of the harmful health impacts of smoking. Supervision of the behavior of student's peers and friends and institutional care for students living away from family is important to prevent smoking. In addition to strategies recommended by WHO to control smoking (MPOWER package) [32].

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## التدخين بين طلاب جامعة أسيوط : معدل الأنتشار وعوامل الخطورة

هدفت هذه الدراسة إلى معرفة معدل إنتشار وعوامل الخطورة الاقتصادية والإجتماعية للتدخين بين طلاب جامعة أسيوط. وقد كان نوع الدراسة المستخدم دراسة مقطعية على طلاب جامعة أسيوط. وكانت أداة جمع البيانات عبارة عن أستبيان لا يحتوى على أسم المبحوث. وقد أحتوى الاستبيان على البيانات الاقتصادية والاجتماعية للطلاب تحت الدراسة بالإضافة إلى بيانات عن التدخين لدى هؤلاء الطلاب وذويهم. تم تحليل هذه البيانات للوصول إلى نتائج هذا البحث. وقد أظهرت نتائج هذه الدراسة أن ١٨.٩٪ من الطلاب تحت الدراسة كانوا مدخنين حاليين أو سابقين وأن ١٧.١٪ من هؤلاء الطلاب مدخنين حاليين. وقد وجد أن التدخين له علاقة بنوع الطالب حيث أن الذكور هم أعلى في إنتشار التدخين عن الإناث، كما أن وجود صديق مدخن أو أحد أفراد الأسرة مدخن أو زيادة مصروف الطالب وسكن الطالب بعيداً عن الأسرة كان من العوامل المصاحبة لأنتشار التدخين بين طلاب جامعة أسيوط. وقد أوصت الدراسة بضرورة عمل برنامج متكامل لمنع التدخين بين طلب جامعة أسيوط.