



Percentage of Smoking and Attitude towards Smoking Cessation Interventions Among Medical and Non-Medical Male Students of Zagazig University

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ABSTRACT

Background: Worldwide, smoking is a serious threat to public health. Since university students make up a significant portion of the community, research on their smoking habits, knowledge and attitude would be interesting. The unique nature of being a medical student, who is expected to know enough, can alter the smoking percentage and attitude. **Objective:** To compare the percentage of smoking among medical to non-medical students and to assess the difference in their knowledge and attitude towards smoking and smoking cessation methods. **Method:** A comparative cross-sectional study was conducted at four faculties: two faculties of the medical sector and two of the nonmedical. There were 182 students in each group. A semi-structured questionnaire was designed, and participants were asked about their current smoking state, knowledge about smoking and smoking cessation, attitude towards smoking and intention to quit smoking. **Results:** There was a statistically significant difference between medical and non-medical students regarding the percentage of smoking, with 24.7 percent of non-medical students being smokers versus only 9.9% of medical students. When compared to non-medical students, medical students had significantly higher knowledge about possibility of smoking cessation and nicotine replacement therapy. However, the intention to stop smoking was higher among non-medical smokers (86.8%) than among medical smokers (70.5%). **Conclusions:** A higher percentage of smoking was reported among the non-medical students. This can be attributed to poorer knowledge about the available interventions to help quit smoking. This emphasizes the importance of sponsoring educational anti-smoking activities for university students.

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INTRODUCTION

In the next 40 years, tobacco use is predicted to be a major preventable cause of disease and mortality worldwide, accounting for 450 million fatalities.¹ Lung, pancreatic, kidney, bladder, and esophageal cancers are all known to be caused by smoking. Smoking also increases the risk of cardiovascular illness, which includes stroke and cerebral hemor-

rhage.² Smoking has been shown to hasten menopause in women and is a separate risk factor for cervical cancer.³ In addition to its negative effects on health, smoking costs people and communities' money. The Egyptian Central Agency for Public Mobilisation and Statistics (CAPMAS) estimates that approximately 18 million persons, or 17.7% of the population, smoke, with an annual cost of nearly 6,000

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Table 1: socio-economic characteristic of medical and non-medical university students

	Medical (n=182)	Non-medical (n=182)	X ²	P value
Academic Level				
Pre final	63 (34.6%)	107 (58.8%)	21.3	<0.001*
Final	119 (65.4%)	75 (41.2%)		
Father education				
Basic education	3 (1.6%)	6 (3.3%)	32.9	<0.001*
Illiterate	3 (1.6%)	8 (4.4%)		
Literacy certificate	0 (0.0%)	8 (4.4%)		
Preparatory	6 (3.3%)	14 (7.7%)		
Secondary	28 (15.4%)	46 (25.3%)		
University	113 (62.1%)	92 (50.5%)		
Post-graduation	29 (15.9%)	8 (4.4%)		
Father's job				
Not working	16 (8.8%)	21 (11.5%)	2.07	0.349
Working	166 (91.2%)	161 (88.5%)		
Mother's job				
Not working	78 (42.9%)	111 (61.0%)	11.9	0.001*
Working	104 (57.1%)	71 (39.0%)		
Income				
Not enough	12 (6.6%)	37 (20.3%)	15.5	<0.001*
Nearly enough	104 (57.1%)	96 (52.7%)		
More than enough	66 (36.3%)	49 (26.9%)		
Family size				
5 members or less	65 (58.0%)	66 (57.4%)	0.01	0.922
6 members or more	47 (42.0%)	49 (42.6%)		
Social class				
Low	6 (3.3%)	22 (12.1%)	24.5	<0.001*
Moderate	33 (18.1%)	60 (33.0%)		
High	143 (78.6%)	100 (54.9%)		

LE per smoker. The annual cost of smoking is estimated to be around 1.4 trillion US dollars worldwide.⁴

Young adults and youths are the vulnerable group on which the smoking companies focus their marketing. University students are more likely to develop a smoking habit because they begin to exhibit independence, peers have a significant influence on their behaviour, and they are subjected to significant social and emotional pressures.⁵

The Regional Report, Economics of Tobacco for the Middle East and North Africa Region (MNA), states that whereas 23% of adults in the region smoke, the rate of youth smoking varied greatly throughout Arab countries, ranging from 7% in Oman to 53% in Lebanon.⁶ A survey in Saudi Arabia showed that the overall prevalence rate of tobacco smoking was 12.2% for those aged 15 years or older, with 4.3% of those who smoke waterpipes every day and 1.4% of those who currently smoke cigarettes and waterpipe users.⁷

In Egypt, WHO reported a smoking prevalence of 24.4%.⁸ A study conducted among university students in Cairo showed that the prevalence of smoking among students was 24.2%.⁹

Nonetheless, smoking is underreported. Several factors contribute to this underreporting in the Middle East, such as a lack of data from some countries, underreporting by females, and the presence of unreported methods of tobacco consumption like waterpipe.¹⁰

To discourage smoking, the Egyptian government has enacted several laws and programs in accordance with global tobacco control rules. However, even with Egypt's 2% annual population growth, the number of smokers in the nation is expected to increase by 8% annually. Egypt's smoking rate is rising dramatically, indicating a need for increased public education about the dangers of smoking.^{11,12}

The objective of the current study was to estimate the smoking percentage among university students, comparing students of the medical sector to students

Table 2: Percentage of smoking and Smoking behaviour among medical and non-medical university students

	Medical (n=182)	Non-medical (n=182)	X ²	P value
Do you have any smoker at home (are you passive smoker)?				
No	114 (62.6%)	115 (63.2%)	0.012	0.914
Yes	68 (37.4%)	67 (36.8%)		
Have you ever smoked?				
No	164 (90.1%)	137 (75.3%)	13.9	<0.001*
Yes	18 (9.9%)	45 (24.7%)		
Both	12 (6.5%)	24 (13.2%)		
Type of smoking				
Cigarette	4 (2.2%)	13 (7.1%)	15.9	0.003*
Other	0 (0.0%)	1 (0.5%)		
Shisha	2 (1.1%)	7 (3.8%)		
Reasons for starting smoking				
Curiosity	6 (3.3%)	12 (6.6%)	19.9	0.002*
Life stress	3 (1.6%)	19 (10.4%)		
Other causes	4 (2.2%)	9 (4.9%)		
Peers	1 (0.5%)	0 (0.0%)		
Study pressure	4 (2.2%)	5 (2.7%)		
Current smoking state				
Non-smoker	164 (90.1%)	137 (75.3%)	16.9	0.001*
Smoker	17 (9.4%)	38 (20.9%)		
Ex-smoker	1 (50.0%)	7 (380.0%)		
Succeeded in stopping smoking at any time				
No	8 (44.5%)	15 (33.3%)	0.68	0.407
Yes	10 (55.5%)	30 (66.6%)		

of the non-medical sector. The study targets students in the final two academic years who have received adequate knowledge on the health impact of smoking. Moreover, the current study compares knowledge among medical students to that among non-medical students and assesses the students' attitudes towards smoking, pharmacological and non-pharmacological approaches to smoking cessation.

METHODS

A comparative cross-sectional study was conducted at four faculties of Zagazig University: Two faculties of the medical sector (Faculty of Medicine and Faculty of Pharmacy) in addition to two faculties of the nonmedical sector (Faculty of Education, Faculty of computer and informatics).

The study included male students in the final 2 years of each faculty. We chose students in final year to assess the effect of medical knowledge on smoking rate, this knowledge was expected to be present in the final years. We excluded females because our culture may prevent girls from confessing that they are smokers.

Assuming the prevalence of smoking among medical students (25.6%) and (39.9 %) among non-medical students according to Ajam et al., 2017 study,¹³ the sample was (182) in each group at 95% confidence level, 5% margin of error, using open Epi software. Simple random sampling technique was used, the student lists were our frame and computerized random sampling was done.

Data collection tools: A semi-structured questionnaire was designed and distributed to the target students. The questions are divided into four main parts: Questions about sociodemographic data. Social class was calculated by the Fahmy et al. questionnaire¹⁴ and included education (for both fathers and mothers), Occupation (of both fathers and mothers), income, Family size, Crowding index; Questions about smoking habit: current smoking state, type, passive smoker or not, reason for smoking, any previous attempts to stop smoking; Questions about knowledge; hazards of smoking; possibility of smoking cessation and smoking cessation methods (nicotin replacement therapy and non-

Table 3: knowledge about smoking and smoking cessation among medical and non-medical university students

	Medical (n=182)	Non-medical (n=182)	X ²	P value
Is Passive smoking is hazardous?				
No	3 (1.6%)	7 (3.8%)	1.6	0.200
Yes	179 (98.4%)	175 (96.2%)		
Is smoking is a type of addiction?				
No	13 (3.3%)	12 (3.3%)	2.11	0.347
Yes	169 (93.4%)	165 (90.7%)		
Don't know	6 (3.3%)	11 (6.0%)		
Is it possible to quit smoking?				
No	43 (23.6%)	77 (42.3%)	19.5	<0.001*
Yes	132 (72.5%)	91 (50.0%)		
Don't know	7 (3.8%)	14 (7.7%)		
Do you know centres to help quit smoking?				
No	152 (83.5%)	153 (84.1%)	0.02	0.887
Yes	30 (16.5%)	29 (15.9%)		
Have you ever heard about NRT (Nicotin Replacement Therapy)?				
No	15 (8.2%)	105 (57.7%)	100	<0.001*
Yes	167 (91.8%)	77 (42.3%)		
Have you ever heard about pharmacotherapy for smoking cessation?				
No	37 (20.3%)	122 (67.0%)	80.6	<0.001*
Yes	145 (79.7%)	60 (33.0%)		

pharmacologic); Questions about attitude towards smoking and the intention to quit smoking.

A pilot study was carried out on 10% of the sample of students to test the questionnaire's reliability (Cronbach alpha 0.834), and ensure questions have clarity, understanding, consistency, and the time needed to fill them out. As no modifications were deemed necessary following the pilot, that sample was incorporated into the main sample.

Statistical analysis: SPSS 26.0 for Windows was used to gather, tabulate, and statistically analyze all of the data (SPSS Inc., Chicago, IL, USA). Absolute frequencies (numbers) and relative frequencies (percentages) were used to express the qualitative data. The Chi-square test was utilized to compare the percentage of categorical variables. Every test had two sides. P values less than 0.05 were regarded as statistically significant (S), whereas those greater than 0.05 were regarded as statistically insignificant (NS).

RESULTS

As shown in Table 1, there was a statistically significant difference between medical and non-medical students regarding academic years, with more medical students in the final years. There was a statistically significant difference between medical and

non-medical students regarding father education, occupation, and mother's job, where most of the medical and non-medical students father education was university education (62.1%) for medical and (50.5%) for non-medical. More than half of medical students' mothers were workers (57.1%), versus only 39 percent of non-medical students' mothers. Significantly higher social class was reported in medical students.

As shown in Table 2, there was a statistically significant difference between medical and non-medical students regarding the prevalence of smoking, with 24.7 percent of smokers being non-medical students and only 9.9% of medical students being smokers. There was a statistically significant difference between medical and non-medical students regarding type of smoking, with 6.5% of medical students and 13.2% of non-medical students smoking both cigarettes and shisha. There was a statistically significant difference between medical and non-medical students regarding reasons for starting smoking, as medical students' causes were curiosity (3.3%), (2.2%) for each of study pressure and other causes, while non-medical students' causes were life stress (10.4%), curiosity (6.6%), (4.9%) for other causes, and (2.7%) for study pressure. When compared to

Table 4: Attitude toward smoking and intension to quit smoking among medical and non-medical univer- sity students:

	Medical (n=182)	Non-medical (n=182)	X ²	P value
What’s your attitude towards smoking?				
Hazardous	112 (61.5%)	117 (64.4%)	8.6	0.125
Increase concentration	11 (6.0%)	3 (1.6%)		
Relief stress	55 (30.3%)	59 (32.4%)		
Social confidence	4 (2.2%)	3 (1.6%)		
Intention to quit smoking				
No	5 (29.5%)	5 (13.2%)	2.08	0.148
Yes	12 (70.5%)	33 (86.8%)		

medical students, non-medical students had a significantly higher percentage of current smokers (20.9%) and ex-smokers (3.8%) versus (9.4%) smokers and (0.5%) ex-smokers for medical students. Regarding success in stopping smoking at any time, non-medical students had a higher a higher percentage (55.5%) compared to medical students (66.6%).

Table 3 shows that there was no statistically significant difference between medical and non-medical students regarding knowledge about smoking (1st two questions); there was a statistically significant difference between medical and non-medical students regarding possibility of smoking cessation; a highly significant percentage of medical students (72.5%) and half of non-medical students thought that smoking cessation is possible.

When compared to non-medical students, medical students had significantly higher knowledge about NRT (Nicotine Replacement Therapy) (91.8%) versus non-medical students (42.3%).

As shown in Table 4, there was a non-statistically significant difference between medical and non-medical students regarding reasons for smoking. Regarding intention to quit, non-medical students who smoke had a higher percentage (86.8%) than medical students (70.5%).

DISCUSSION

According to a review by Nasser et al., Egypt has one of the highest rates of smoking among university students in all Arab countries, with rates both high and rising.¹⁵ The current cross-sectional study was carried out to present and compare the contemporary status of smoking among university students of the medical and nonmedical sectors in Zagazig university in Egypt in the academic year 2022-2023. The study focused on male students because previous data about smoking prevalence among females showed very low values, which is explained by the

Egyptian cultural background against female smoking. The study also unveils and compares their knowledge about available smoking cessation interventions in Egypt.

The overall prevalence of smoking in the study sample was 15.1%, which was very close to that of the general population, estimated at 18.9%,¹⁶ and that of a previous study that reported 17.5% smoking prevalence among Alexandria University students.¹⁷ Our results showed a greater prevalence of tobacco smoking compared to the 8.9% prevalence among Kafr El-Sheikh University,¹⁸ but a lower value than that reported among students of the American University in Cairo, which found a 32% tobacco smoking prevalence.¹⁹ The higher value in the later study was explained by the higher socioeconomic status and the greater exposure to Western culture among students of the American University in Cairo. The major motives behind smoking were investigated in previous studies, and it was found that smoking is motivated mainly by curiosity, social peer pressure, and stress relief.¹⁷ The major motive reported by the current study was stress relief.

The current study revealed a significantly higher prevalence of tobacco smoking among non-medical sector (NMS) students compared to medical sector (MS) students (20.9% vs. 9.4%, respectively), which can be attributed to life stress due to socioeconomic factors such as poor income, as reported by the participants. This can be further attributed to the education levels and higher illiteracy among the parents of the NMS students compared to those of the MS students.

About half to two-thirds of the students in MS and NMS smoked both shisha and cigarettes. Shisha is readily available in cafés near the university campus, where colleges meet. This probably encourages them to smoke shisha as an affordable form of entertainment. In 2021, the Egyptian government enacted a law that bans smoking in health, educational,

and governmental facilities, as well as in sports clubs and youth centres. According to this law, managers who fail to apply smoke-free rules will be subjected to a fine ranging from LE 1000 to LE 20,000.²⁰ In addition, cigarette prices are steadily increasing for all local and international brands in Egypt, an intervention that was expected to hamper smoking. However, our results demonstrate that law enforcement should be considered, and more efforts should be made to ban smoking in public places too.

Most of both MS and NMS students believed that smoking was hazardous and a type of addiction. However, knowledge about smoking cessation interventions was significantly lower among NMS students. Despite a better medical background in MS students, a greater percentage of MS students have tried smoking previously. This can be attributed to the stressful nature of studying bio-medical specialties compared to non-medical specialties, in addition to the relatively higher income in the families of MS. As expected, MS students had better knowledge about smoking cessation programs and supportive pharmacotherapy that helps quit smoking. Compared to NMS students, a great percentage of MS students believed that smoking cessation may need pharmacotherapy (72.5% vs. 50.0% in NMS students) and knew about nicotine replacement therapy (91.8% vs. 42.3% in NMS students) and other pharmacotherapeutic interventions (79.7% vs. 33.0% in NMS students). These are notable findings that can explain the higher prevalence of smoking among NMS students, despite the significantly higher percentage of them who succeeded in quitting smoking.

Previous studies have shown that pharmacological and psychological interventions have proved effective in helping smokers stop smoking. A study by Bolliger et al. reported that the continuous abstinence rate (CAR) for 3 weeks (from the 9th to the 12th week) was markedly higher with varenicline as compared to placebo (53.59% vs. 18.69%, $P < 0.0001$).²¹ In another Egyptian study, using nicotine patches yielded higher abstinence rates.²² A third study proved that 47% of the Egyptian smokers in the study quit smoking for 3 months following adequate counseling.²³

Today's medical students are tomorrow's doctors. This emphasizes why it is a must to raise MS students' awareness about their prominent role in helping others quit smoking. A physician is a role model for his patients, so a smoking physician is very unacceptable in the health system. Our results revealed

that MS as well as NMS students are unaware of the available centers and cost-free services empowered by the Egyptian government to help in smoking cessation. We highly recommend providing awareness campaigns for university students in general and for MS students in particular to raise their health awareness regarding all possible aids to smoking cessation. Besides the available nicotine replacement pharmaceuticals, varenicline, and the antidepressant bupropion, in Egyptian community pharmacies, many quit-smoking clinics are founded by all governments to provide cost-free services and protect smokers' privacy and confidentiality. Further, free hotlines are provided by the Egyptian Ministry of Health.

CONCLUSIONS

The current study compared the percentage of tobacco smoking among medical and non-medical male students and found a higher percentage in the non-medical students. This can be attributed to poor knowledge about the proper and available medical, pharmacological, and psychological interventions provided by the Egyptian government to help quit smoking. Because knowledge not always followed by positive attitude, medical students had lower intention to quit smoking. The results of the present study recommend calling for incorporating smoking cessation curricula in medical education to improve knowledge and attitude of future doctors. Also, educational campaigns are highly recommended to raise health awareness among university students in general and medical students in particular.

Ethical Approval

The protocol of the study was approved by Institutional Review Board (IRB) of Zagazig University through letter number 10668 dated 16/4/2023. The necessary official permission to carry out the study was obtained. An informed consent was obtained from every student before participation. They were reassured about the strict confidentiality of any obtained information, and that the study results would be used only for the purpose of research.

Study limitations: we could not calculate prevalence because students were not selected randomly from all Medical and Non-Medical Students of all Egyptian universities. Therefore, a multicentre study involving various Egyptian universities is recommended to reproduce and confirm our findings.

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