

KNOWLEDGE'S, ATTITUDES AND PRACTICES OF TOBACCO SMOKING HABIT
AMONG MEDICAL STUDENTS AT COLLEGE OF MEDICINE BAGHDAD
UNIVERSITY

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ABSTRACT

Background: Smoking is a major cause of preventable death worldwide, with a negative impact on health. Smoking among medical students is a significant health issue, as understanding their behaviors is vital for reducing future smoking-related disease burdens. **Objective:** To measure the frequency of smoking and assess the knowledge, attitudes, and practices of medical students at the College of Medicine, Baghdad University, regarding smoking. **Subjects and Methods:** A descriptive cross-sectional study was conducted from January 15 to June 15, 2020, using online interviews with 300 students from different academic years. **Results:** Among the 300 participants, 72% were male and 28% female. Third-year students were the largest group (24%), and "good" academic achievement was the most common category (31%). Daily smoking prevalence was 26%, with peer influence being the primary cause (28.6%). Most smokers (61.9%) started smoking before age 19, and 59.3% smoked fewer than 11 cigarettes per day. The overall smoking prevalence was 46.7%. About 48% did not recognize smoking as a risk factor for bladder cancer, 70% were unaware of cessation programs, and 89% supported health education strategies. While 66.7% of smokers believed smoking relieved stress, only 47.9% considered quitting. Additionally, 57.1% did not read health warnings, and 71.4% shared cigarettes with friends, with 61.4% unwilling to stop smoking. **Conclusions:** Smoking prevalence among medical students was higher than previous studies. Friends' influence and stress relief were common reasons for smoking. While knowledge about smoking hazards was generally good, awareness of cessation programs was low. Attitudes toward smoking were positive, but dependence and reluctance to quit were significant issues.

KEYWORDS: Knowledge's, Attitudes, Practices, Tobacco smoking, Medical students.

INTRODUCTION

Smoking is a well-established major cause of death worldwide, accounting for approximately five to six million deaths annually.^[1] The majority of these deaths by 2050 will occur among current smokers^[1], making the primary public health goal to increase the proportion of adults who quit smoking and reduce smoking uptake among young adults and children.^[1] According to the World Health Organization (WHO), tobacco use remains the leading cause of preventable death globally, killing nearly six million people each year.^[2] If current trends persist, WHO predicts that by 2030, tobacco smoking will result in over eight million deaths annually.^[2] Tobacco kills at such an alarming rate that every 10 seconds, someone dies from a tobacco-related illness.^[1] According to WHO, around one billion people worldwide use tobacco, and 60 trillion cigarettes are consumed annually, with smoking-related deaths expected to rise from four million to 10 million annually

by 2025, the majority occurring in developing countries.^[3] While smoking rates are static or declining in many developed countries like Western Europe, the United Kingdom, the United States, Canada, New Zealand, and Australia due to aggressive public health measures, smoking rates are rising in developing countries such as those in Asia, South America, and Africa^[4] This increase is attributed to extensive promotional activities by cigarette companies targeting these regions. Physicians play a critical role in reducing the tobacco burden. Research has shown that even brief advice from doctors can significantly improve smoking cessation rates.^[5] Every clinic visit presents an opportunity for physicians to counsel patients about tobacco dependence. However, there are several barriers that prevent physicians from intervening with tobacco-using patients. These include a lack of training and proficiency in tobacco dependence and cessation methods, low confidence and self-efficacy in counseling,

limited time, and health systems that do not support tobacco cessation services.^[6] The low level of competence in tobacco cessation practices among physicians is linked to insufficient knowledge about smoking cessation guidelines among medical students.^[7] Medical students, as future healthcare professionals, educators, and researchers, are in a unique position to influence tobacco cessation and control programs.^[8] Training medical students in tobacco-use prevention and smoking cessation counseling is therefore a key strategy to reduce smoking-related morbidity and mortality.^[9] Medical professionals who smoke are less likely to offer anti-smoking advice to their patients.^[10] This can have a detrimental effect on tobacco control efforts, as the attitudes and behaviors of healthcare professionals play a significant role in shaping public health policies and interventions. Hospitals and other medical institutions have a crucial role in promoting healthy behaviors within the community. Health professionals are particularly influential in tobacco control efforts.^[11] Collecting information on cigarette smoking is vital for enhancing the focus of prevention and control measures, thereby increasing the chances of success in combating tobacco use.^[12] Objectives of the investigation To quantify the prevalence of smoking among medical students at the College of Medicine at Baghdad University To evaluate the attitudes, practices, and knowledge of medical students at College of Medicine-Baghdad University with respect to smoking.

METHOD

A cross-sectional study with analytic elements was conducted at the College of Medicine, Baghdad University, from January 15 to June 15, 2020. Data were collected over 2-3 hours/day, 2-3 days/week. The study involved online interviews with medical students, facilitated through the university's Facebook page. A total of 310 students were invited, and 300 participated, while 10 refused. The sample was randomly selected, including students from all six academic years, with fewer females participating than males. The researcher designed a questionnaire based on similar studies and textbooks, with input from supervisors and specialists. It comprised five sections: socio-demographic data, smoking status, knowledge of smoking hazards, attitudes toward smoking, and lifestyle/practice. The smoking status section classified participants as daily, occasional, ex-, or non-smokers. Questions assessed reasons for

starting smoking, age of initiation, and daily cigarette consumption. Knowledge and attitude questions were either yes/no or agree/neutral/disagree, while the lifestyle section included the Fagerstrom test for nicotine dependency, assessing factors like smoking behavior and number of cigarettes/day. A pilot study was conducted on January 2-3, 2020, with 15 students to ensure the questionnaire's clarity and timing, resulting in minor adjustments. Approval was obtained from the Ministry of Higher Education, and permission from the Arab Board for Medical Specialization was granted. Participants were informed about the study's purpose, and their consent and privacy were ensured. Data were analyzed using SPSS version 23. Continuous variables were presented as mean \pm SD, and associations between smoking status and socio-demographic variables were determined using one-way ANOVA and Chi-square/Fisher's exact tests. A p-value of ≤ 0.05 was considered significant. Fagerstrom scoring classified nicotine dependency into very low, low, medium, high, or very high categories, based on factors like cigarette consumption and smoking during illness.

RESULTS

The mean age of the participants was 21.38 ± 1.505 . Regarding gender, male participants represent 72% and female participants 28%. The most common educational level included in our study was third level (24%), followed by fourth (21.7) and the least common level included was sixth (7.7%). Regarding academic achievement, the most common category was good (31%), followed by fair (24%). Regarding marital status, the vast majority of the participants were single (98.7%) and only 1.3% of them were married, Smoking prevalence for daily and occasional smokers was (46.7%), More than half of the participants (51%) never smoke cigarettes. On the other hand, 26% of the participants were daily smokers, 20.7% were occasional smokers and 2.3% were ex-smokers. Friend's effect represents the most common cause of starting smoking (28.6%), followed by stress relief (23.1%) and the least common cause was curiosity (12.2%). The majority of the participants who ever smoked before started smoking before 19 years old (61.9%), followed by 19-20 years old (27.2%). Regarding number of smoked cigarettes among current smokers, the majority smoked <11 cigarettes/day (59.3%), followed by 11-20 cigarettes/day (15%) as shown in Table 1.

Table 1: Frequency distribution and percent of participants regarding socio-demographic and clinical variables, Baghdad, 2020

Variable		Frequency N=300	Percent %
Age		Mean = 1.38	SD = 1.505
Gender	Male	216	72
	Female	84	28
Educational stage	First	39	13
	Second	49	16.3
	Third	72	24
	Fourth	65	21.7
	Fifth	52	17.3

	Sixth	23	7.7
Academic achievement of the last year** (first stage students not included)	Excellent	68	22.7
	Very good	67	22.3
	Good	93	31
	Fair	72	24
Marital status	Single	296	98.7
	Married	4	1.3
Smoking status	Daily smoker	78	26
	Occasional smoker	62	20.7
	Never smoker	153	51
	Ex-smoker	7	2.3
Reasons of starting smoking*	Friend's effect	42	28.6
	Stress relief	34	23.1
	Pleasure	29	19.7
	Curiosity	18	12.2
	First degree relative smoking	24	16.3
Age of starting smoking*	<19 years	91	61.9
	19-20 years	40	27.2
	21-22 years	11	7.5
	≥23 years	5	3.4
No. of smoked cigarettes#	<11/day	83	59.3
	11-20/day	21	15
	21-30/day	17	12.1
	≥31/day	19	13.6

Regarding smoking hazards, more than half of the participants said that smoking represents a real risk or several diseases ranging from 90.3% for respiratory diseases to 52% for bladder cancer. The only exception for this was sexual dysfunction in which 47.3% said that smoking was a real risk. Most of the participants (70%) do not know about smoking cessation programs while

85.3% said that pathological changes do not reverse if smoking stopped. Regarding suggestion for smoking control, the majority of the participants accepted all the strategies proposed to them ranging from 89% for health education to 57.7% for increasing the price of cigarettes as shown in Table 2.

Table 2: Frequency distribution and percent of participants regarding knowledge of smoking hazards and suggestion for smoking control, Baghdad, 2020.

Variable		Frequency N=300	Percent %
1. Smoking hazard			
a) Respiratory disease	Yes	271	90.3
	No	29	9.7
b) Cardiovascular disease	Yes	264	88
	No	36	12
c) Stroke	Yes	182	60.7
	No	118	39.3
d) Bladder cancer	Yes	156	52
	No	144	48
e) Sexual dysfunction	Yes	142	47.3
	No	158	52.7
f) Neonatal mortality	Yes	159	53
	No	141	47
2. Do you know about smoking cessation programs?			
	Yes	90	30
	No	210	70
3. pathological changes caused by smoking will reverse if smoking stopped			
	Yes	44	14.7
	No	256	85.3
4. suggestion for smoking control			
a) health education	Yes	267	89
	No	33	11
b) increasing the price of cigarettes	Yes	173	57.7

	No	127	42.3
c) prevent smoking in public places	yes	210	70
	no	90	30

Regarding the attitude of current and ex-smokers for tobacco smoking, most of the participants (69.4% and 63.3%) agreed that public smoking and cigarette advertising and promotion should be banned respectively. Also most of the participants (70.7 and 74.1%) said that they will advise and persuade their patients to quit smoking respectively. Regarding second hand smoke, 55.1% of the participants said that it affects

the health of non-smoker, 14.3% said it does not affect and 30.6% were neutral. Regarding social attraction for smoking, more than half of the participants agreed the proposed items ranging from 66.7% for relieving stress to 51.7% for increasing focus and concentration. For current smokers, less than half (47.9%) of the participants thought about quitting smoking, 12.9% did not think and 39.3% were neutral as shown in Table 3.

Table 3: Frequency distribution and percent of smoker participants regarding attitude of tobacco smoking, Baghdad, 2020.

Variable		Frequency N=147	Percent %
5. Public smoking should be banned	Agree	102	69.4
	Neutral	39	26.5
	Disagree	6	4.1
6. Cigarette advertising and promotion should be banned	Agree	93	63.3
	Neutral	33	22.4
	Disagree	21	14.3
7. Will you strongly advice your patients to stop smoking	Agree	104	70.7
	Neutral	31	21.1
	Disagree	12	8.2
8. Do you think about quitting smoking #	Agree	67	47.9
	Neutral	55	39.3
	Disagree	18	12.9
9. Social attraction for smoking			
a) Popularity among peers	Agree	94	63.9
	Neutral	25	17
	Disagree	28	19
b) Give pleasure and relaxation feeling	Agree	91	61.9
	Neutral	24	16.3
	Disagree	32	21.8
c) Increase focus and concentration	Agree	76	51.7
	Neutral	28	19
	Disagree	43	29.3
d) Relieve stress	Agree	98	66.7
	Neutral	27	18.4
	Disagree	22	15
10. Second hand smoking not affect health of non-smoker	Agree	21	14.3
	Neutral	45	30.6
	Disagree	81	55.1
11. your present knowledge is sufficient to persuade patients to quit smoking	Agree	109	74.1
	Neutral	26	17.7
	Disagree	12	8.2

#N=140 number of current (daily and occasional) smokers

Regarding practice of current smokers of tobacco smoking, the majority of the participants (80.7%) appreciate receiving advice about smoking harmful effects while 57.1% of them did not usually read health warning label on cigarette package and 71.4% usually share cigarettes with friends.

Regarding attempts to stop smoking, 61.4 % said that they were not ready to stop smoking and 67.1% of them had not make a serious attempt to stop smoking. Regarding smoking dependency, 50% smoke their first

cigarette within 30 minutes after waking up in the morning and 53.6% smoke more frequently during the first hours of the day than during the rest of the day. In addition to that, 51.4% hate the first cigarette in the morning to give up than any others. Also, 53.6% find it difficult to refrain from smoking in places where it is forbidden. About half of the participants (50.7%) said that health protection is the cause if they want to quit smoking, followed by self-discipline (35.7%).

Regarding practice of current and ex-smokers, source of the first cigarette was a friend (45.6%), followed by the self-intake (27.9%) While the place of first cigarette was

outside home among 61.2% followed by home among 23.8% of the participants as shown in Table 4.

Table 4: Frequency distribution and percent of participants regarding practice of tobacco smoking, Baghdad, 2020.

Variable		Frequency N=140	Percent %
12. I appreciate receiving advice from doctors about smoking harmful effects	Yes	113	80.7
	No	27	19.3
13. I usually read health warning label on cigarette package	Yes	60	42.9
	No	80	57.1
14. I'm not ready to stop smoking	Yes	86	61.4
	No	54	38.6
15. I usually share my cigarette with friend	Yes	100	71.4
	No	40	28.6
16. source of first cigarette**	Friend	67	45.6
	By myself	41	27.9
	Family and relatives	27	18.4
	Don't remember	12	8.2
17. place of first cigarette**	Outside home	90	61.2
	Home	35	23.8
	Bathroom	22	15
18. smoking dependency			
a) How soon after you wake up do you smoke your first cigarette?	Within 5 minutes	32	22.9
	6-30 minutes	38	27.1
	31-60 minutes	39	27.9
	After 60 minutes	31	22.1
b) Do you find it difficult to refrain from smoking in places where it is forbidden?	Yes	75	53.6
	No	65	46.4
c) Which cigarette would you hate most to give up?	The first one in the morning	72	51.4
	All others	68	48.6
d) Do you smoke more frequently during the first hours after waking up than during the rest of the day?	Yes	75	53.6
	No	65	46.4
e) Do you smoke if you are so ill that you are in bed most of day?	Yes	47	33.6
	No	93	66.4
19. have you made a serious attempt to stop smoking	Yes	46	32.9
	No	94	67.1
20. cause of stop smoking if I want to quit is	Health protection	71	50.7
	Self-discipline	50	35.7
	Avoid discomfort to others	8	5.7
	Save money	11	7.9

It was found that more than one third of the participants (37.1%) had low dependency on tobacco smoking, followed by very low dependency (20.7%) while the

least common category found was very high dependency (8.6%) as shown in Figure 1.

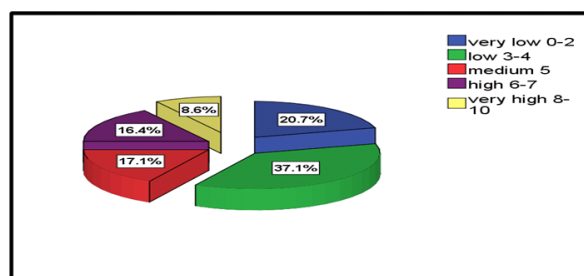


Figure 1: Distribution of smoker's participants according to Fagerstrom score results, Baghdad, 2020.

The result of cross-tabulation between smoking status and socio- demographic variables of the participants showed that being smoker was associated with male gender (P=0.000) and decreasing academic achievement

(P=0.000). On the other hand, no significant association found between smoking status and age (P=0.484), educational level (P=0.190) and marital status (0.830) as shown in Table 5.

Table 5: Relationship of smoking status with socio-demographic variables of the participants, Baghdad, 2020.

Variable		Smoking status								P value
		Daily smoker		Ocasional smoker		Never smoker		Ex-smoker		
		n	%	n	%	n	%	n	%	
Age	Mean	21.47		21.44		21.35		20.57		0.484 F = 0.819 One - way ANOVA
	SD	1.466		1.532		1.519		1.397		
Gender	Male	741	94.9	46	74.2	89	58.2	7	100	0.0008* X ² = 37.626 Chi- square
	Female	4	5.1	16	25.8	64	41.8	0	0	
Educational stage	First	8	10.3	7	11.3	22	14.4	2	28.6	0.190 X ² = 18.110 Fisher's exact
	Second	9	11.5	10	16.1	28	18.3	2	28.6	
	Third	28	35.9	16	25.8	28	18.3	0	0	
	Fourth	18	23.1	11	17.7	33	21.6	3	42.9	
	Fifth	9	11.5	12	19.4	31	20.3	0	0	
	Sixth	6	7.7	6	9.7	11	7.2	0	0	
Academic achievement	Excellent	8	10.3	7	11.3	50	32.7	3	42.9	0.000* X ² =50.205 Fisher's exact
	Very. good	8	10.3	12	19.4	47	30.7	0	0	
	Good	34	43.6	24	38.7	32	20.9	3	42.9	
	Fair	28	35.9	19	30.6	24	15.7	1	14.3	
Marital status	Single	77	98.7	62	100	150	98	7	100	0.830 X ² = 1.684 Fisher's ex
	Married	1	1.3	0	0	3	2	0	0	

*Statistically significant result.

DISCUSSION

The present study showed that the smoking prevalence among medical students at the College of Medicine, Baghdad University, was 46.7%, significantly higher than the 21% reported by Yasso et al. in Iraq, which involved 500 medical students from various Baghdad colleges.^[13] This increase could be due to intensified cigarette marketing, weak tobacco prohibition laws, socioeconomic decline, and the failure of national health programs to control smoking. Our prevalence aligns closely with Chkhaidze et al.'s study in Georgia, which reported 49.5% smoking prevalence among medical students^[14], and is higher than the 39.8% found by Al-Kaabba et al. in Saudi Arabia.^[15] Additionally, our prevalence exceeds the 25.8% smoking rate reported by Chidiac et al. in Lebanon.^[16] Furthermore, the 26% prevalence of current smokers in our study is significantly higher than the 12.3% found by Mahmood et al. at Hawler Medical University in Iraq^[17], as well as the 10% reported by Elamin et al. in Sudan^[18] and 12% by Abu-elenin et al. in Egypt.^[19] In terms of ex-smokers, the present study reported a low prevalence of 2.3%, compared to the 3.3% ex-smoker rate reported by Khan et al. in Pakistan.^[20] The lower ex-smoker rate highlights a potential public health concern, as it reflects a lack of cessation efforts despite the high rate of current smoking. The primary reasons for starting smoking in this study were peer pressure and stress relief, consistent with findings from Kumar et al. in India^[21] and Abdulghani et al. in Saudi Arabia.^[22] Similarly, many studies have emphasized the role of friends in the initiation and

continuation of smoking.^[23,24] The age at which smoking begins was commonly during adolescence (61.9%), in line with the findings of Swe and Bhardwaj in Myanmar, where the mean age was 14.5 years.^[25] Regarding smoking habits, 59.3% of medical students smoked fewer than 11 cigarettes per day, a relatively low amount that aligns with Kusma et al.'s findings in Germany, where 78.5% of medical students smoked 1-10 cigarettes daily.^[26] This low consumption suggests that cessation might be more achievable for these students. Knowledge about the health risks of smoking was generally high, particularly regarding respiratory and cardiovascular diseases, but lower in areas like neonatal mortality, bladder cancer, and sexual dysfunction. These results mirror findings from Al-Haqwi et al. in Saudi Arabia.^[9] Only 30% of students were aware of smoking cessation programs, a figure similar to the 28.7% reported by Jardi and Al-Shehri.^[27] This lack of knowledge may be due to inadequate education about cessation programs in schools and medical curricula. Additionally, only 14.7% of students knew that pathological changes caused by smoking could be reversed after cessation, a percentage much lower than the 50% reported by Grassi et al. in Italy.^[28] Attitudinally, most students supported banning public smoking and cigarette advertising, consistent with Peng et al.'s study in China.^[29] Many students also expressed a willingness to advise patients to quit smoking, similar to findings in Maeckelberghe's European study.^[30] However, attitudes toward secondhand smoke was less positive, with 14.3% believing it had no impact on health, echoing the results

of Salgado et al. in Argentina.^[31] In terms of practice, the majority of students valued advice from doctors on smoking hazards but were less likely to quit, share cigarettes, or avoid smoking in prohibited places. Half of the students smoked their first cigarette within 30 minutes of waking, indicating nicotine dependence. About half had low or very low dependence, which is higher than the 26.7% reported by Parmar et al. in India.^[32] Furthermore, only 32.9% had attempted to quit smoking, similar to the 36% found by Lei et al. in China.^[33] Fagerstrom scores revealed that 17.1% had medium dependency, while 16.4% had high dependency, figures better than the high dependency rates of 51.2% and 44.3% reported by Khatatbeh et al. in Jordan and Tamaki et al. in Japan, respectively.^[34] Additionally, male students were significantly more likely to be current or ex-smokers than females, consistent with findings from Ferrante et al. in Italy^[35], Çuperjani et al. in Kosovo^[36], and Takeuchi et al. in Japan.^[37] Finally, there was a strong association between lower academic achievement and smoking, reflecting studies like Alkhalaf's in Saudi Arabia^[38] and highlighting the cognitive decline associated with smoking.^[39]

CONCLUSION

The prevalence of smoking among medical students at the College of Medicine, Baghdad University, was higher than in previous studies. Key reasons for smoking were peer influence and stress relief. While knowledge of smoking hazards was generally good, awareness of cessation programs and reversibility of smoking damage was low. Attitudes were positive, except for secondhand smoke, and practices were acceptable, though dependency remained a concern. Gender and academic achievement were significant risk factors for smoking prevalence.

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