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## Prevalence of smoking habits among college students in Al-Nahrain University

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### Abstract

**Background:** Tobacco use is recognized as the most significant global cause of preventable diseases and death. Multiple studies have established a direct correlation between smoking and a range of severe health issues, leading to increased mortality, premature death, and significant morbidity. The aim of study is to determine prevalence of smoking habits among college students and to estimate some of smoking risk factors.

**Method:** This study utilized a cross-sectional design to evaluate smoking behaviors among 421 students across three colleges at Al Nahrain University, using a self-administered questionnaire in Arabic from February to May 2014. Data analysis was performed with SPSS 20, applying Chi-square and Fisher exact tests to explore demographic and psychosocial associations with smoking, with ethical approvals obtained for adherence to academic and ethical standards. The study aimed to provide actionable insights for smoking cessation interventions.

**Results:** This study examined smoking behaviors among 421 students from three colleges at Al Nahrain University, revealing a smoking prevalence of 31.6%, with significant gender and employment-related disparities. Key influences on smoking initiation included family and peers, while health concerns were the primary motivator for cessation. Despite varied readiness to quit across smoking types and frequencies, no significant differences in cessation intent were observed across colleges or initial smoking causes.

**Conclusion:** The study identifies key factors such as gender, cultural norms, and economic conditions influencing smoking behaviors among Iraqi university students. It suggests that tailored, culturally sensitive intervention programs could leverage the significant readiness to quit observed in many students. These interventions should address both the psychological motivations and social influences driving tobacco use.

**Keywords:** Smoking habits, Al-Nahrain University, college students

### Introduction

Tobacco use is recognized as the most significant global cause of preventable diseases and death. Multiple studies have established a direct correlation between smoking and a range of severe health issues, leading to increased mortality, premature death, and significant morbidity<sup>[1-3]</sup>. Despite the well-documented dangers, smoking continues to be a prevalent habit worldwide. Currently, smoking-related diseases claim the lives of one in ten adults globally, and projections suggest that this rate could increase to one in six by 2030 if current trends persist<sup>[4]</sup>. This escalation is especially concerning given that smoking is entirely preventable, marking it as the primary avoidable risk factor for disease and premature death. The global smoking population was estimated at 1.22 billion as of 2000. Without significant interventions to reduce smoking rates, this number is expected to rise to between 1.5 and 1.9 billion by 2025<sup>[5]</sup>. Alarmingly, it is estimated that by the same year, 75% of early deaths in developing countries will be attributable to smoking-related illnesses. The World Health Organization (WHO) highlights a disproportionate impact of tobacco-related diseases on poorer populations, noting that out of the 1.22 billion smokers worldwide, approximately 1 billion reside in developing or transitional economies<sup>[6]</sup>. While smoking rates have plateaued or declined in developed countries, the trend in the developing world is markedly different. Tobacco consumption there is increasing at an annual rate of 3.4% as of 2002<sup>[6]</sup>. The WHO has issued warnings that unless current smoking patterns are reversed, tobacco will be responsible for 10 million deaths per year during the 2020-2030 decade, with 70% of these deaths occurring in developing nations<sup>[7]</sup>. In the United States alone, smoking causes over 400,000 deaths annually, which equates to more than one in six American deaths.

This makes smoking more lethal than AIDS, car accidents, homicides, suicides, drug overdoses, and fires combined [8]. There is also a notable disparity in smoking rates between genders; smoking prevalence is typically five times higher among men than women, although this gap decreases among younger populations [8]. As of the period from 2008 to 2010, tobacco use has been recorded in roughly 3 billion individuals globally, accounting for about 49% of men and 11% of women. Approximately 80% of this consumption is through smoking. Notably, the gender gap in smoking tends to narrow in younger age groups, suggesting shifting cultural norms and the potential for targeted prevention efforts [9-11]. This overview underscores the critical need for robust anti-smoking policies and interventions, particularly in developing countries where smoking rates continue to rise and the health impact is most severe. By targeting the root causes of tobacco consumption and implementing comprehensive tobacco control measures, global health authorities can mitigate the profound health, economic, and social burdens posed by tobacco use. Such efforts are crucial to reversing the current trends and achieving significant public health improvements worldwide. The aim of study is to determine prevalence of smoking habits among college students and to estimate some of smoking risk factors.

## Method

The methodology employed in this study involved a cross-sectional design, conducted across three distinct colleges at Al Nahrain University: The College of Medicine, the College of Administration & Economics, and the College of Engineering. The study took place over a three-month period from February 1<sup>st</sup> to May 1<sup>st</sup>, 2014, with data collection occurring one day each week to capture a diverse array of responses without disrupting educational activities. A total of 421 students were randomly selected from an aggregate student population of 2,300 attending these colleges, ensuring a representative sample for robust statistical analysis. The sample size calculation was aimed at achieving sufficient power to detect significant differences and associations within the data collected. Data collection was executed using a self-administered questionnaire, developed in Arabic and vetted by two specialists in community medicine as well as a supervisor specialist in family medicine to ensure validity and reliability. The questionnaire was distributed during break times and within classroom settings, allowing for convenient participation by the students. Each questionnaire packet included detailed instructions and was equivalent to 20 cigarettes, facilitating a standardized measurement of smoking habits and frequencies. To ensure the integrity of the research process, a pilot study was initially carried out with 20 students to refine the questionnaire and address any potential issues. The pilot study confirmed that there were no significant difficulties in understanding or completing the questionnaire, thereby validating the approach for the larger sample. Several challenges were noted during the study, including logistical constraints related to the short data collection period and the broader unstable conditions in Iraq at the time, which posed potential disruptions. Nonetheless, the research team managed to execute the study effectively within the set timeframe. Ethical approval for the study was obtained from the deans of the respective colleges, with permissions documented and available in Appendix Two,

page 46 of the study report. This approval was crucial for maintaining ethical standards and respecting the academic environment. For data analysis, the Statistical Package for the Social Sciences (SPSS) version 20 was employed. The analysis included descriptive statistics to present the data as numbers and percentages. Inferential statistical tests, such as the Chi-square test for independence and the Fisher exact test, were used to examine the associations between smoking behaviors and various demographic and psychosocial variables. Significance was determined at a p-value of less than 0.05, aligning with standard practices for determining statistical relevance in behavioral sciences research. This comprehensive methodology ensured that the study adhered to rigorous academic standards and produced reliable, generalizable results that could inform future interventions and policies aimed at smoking cessation among university students.

## Results

The study assessed smoking behaviors among 421 university students across three colleges: Engineering (34.9%), Business (36.1%), and Medicine (29%). The demographics revealed a male majority of 60.6% and a predominantly urban residency (98.8%). In terms of smoking status, 31.6% of the students were current smokers, with a significant gender disparity: 47.8% of males versus 6.6% of females were smokers. Non-smokers constituted 63.9% of the sample, with females predominantly in this category (93.4%). As in table 1, 2. The types of smoking varied: 48% of smokers used both cigarettes and Argila, 36.8% exclusively used Argila, and 15.2% smoked only cigarettes. Smoking frequency analysis showed that 39.6% smoked more than two packs of cigarettes daily, and similar proportions smoked less frequently. For Argila users, 36.4% engaged weekly, and the same percentage stretched their usage to a month or longer. The primary reasons for initiating smoking included familial influence (43.4%), peer influence (35.8%), stress (24.4%), and a minor percentage sought to boost self-confidence (6%). Regarding cessation, the major motivators for non-smoking were health concerns (48%), religious reasons (10%), and economic factors (6.9%). As in table 3.

Family history showed a significant role in smoking behaviors, with 43.7% of students reporting a smoking family member. Fathers were the most common smoking relatives (51%), followed by siblings (47.2%), and mothers (4.3%). Health risks associated with smoking were well recognized among the students; 88.1% linked it to cancer, and other significant concerns included cardiac disease and respiratory issues. Willingness to quit was reported by 56.4% of current smokers. As in table 4. Analysis by college showed no significant difference in smoking rates or willingness to quit among the different faculties. However, gender and employment status showed significant associations with smoking habits; males and working students displayed higher smoking rates. Further analysis on willingness to quit based on the type of smoking revealed varied readiness, with 59.7% of dual users (cigarette and Argila) showing readiness to quit. Those smoking less frequently were more inclined to quit compared to heavier smokers. The study found no significant correlation between the causes of initiating smoking and the readiness to quit. As in table 5, 6.

**Table 1:** Demographic characteristics of study sample

Variables	Categories	N=421	100%
College	Engineering	147	34.9
	Business	152	36.1
	Medicine	122	29.0
Sex	Male	255	60.6
	Female	166	39.4
Residence	Urban	416	98.8
	Rural	5	1.2
Marital Status	Single	397	94.3
	Married	24	5.7
Working (Beside study)	Yes	80	19.0
	No	341	81.0

**Table 2:** Distribution of study sample according to smoking history and sex

Sex	Current smoker N:133 100%	Ex- smoker N:19 100%	Never smoker N:269 100%	Total
Male	122 47.8%	19 7.5%	114 44.7%	255
Female	11 6.6%	0 0.0%	155 93.4%	166
Total	133, 31.6%, 19, 4.5%, 269, 63.9%			421

**Table 3:** Distribution of study sample according to study variables

Category	Total Sample (N=421)	Current Smoker	Ex-Smoker	Never Smoker	Reasons for Smoking	Reasons for Non-smoking
Number of Students	421 (100%)	133 (31.6%)	19 (4.5%)	269 (63.9%)	-	-
Type of Smoking	-	-	-	-	-	-
Cigarette	-	23 (15.2%)	-	-	-	-
Argila	-	56 (36.8%)	-	-	-	-
Both	-	73 (48.0%)	-	-	-	-
Frequency of Cigarette Smoking	-	-	-	-	-	-
Less than one packet/day	-	20 (20.8%)	-	-	-	-
1-2 packets / day	-	38 (39.6%)	-	-	-	-
More than two packets / day	-	38 (39.6%)	-	-	-	-
Causes of Initiating Smoking	-	-	-	-	-	-
Influence by Family	-	66 (43.4%)	-	-	-	-
Influence by Friends	-	54 (35.8%)	-	-	-	-
Stress Relief	-	37 (24.4%)	-	-	-	-
Self-Confidence	-	9 (6.0%)	-	-	-	-
Reasons for Non-smoking	-	-	-	-	-	-
Health Concerns	-	-	-	202 (48.0%)	-	-
Religious Prohibitions	-	-	-	42 (10.0%)	-	-
Cost	-	-	-	29 (6.9%)	-	-
Not Encouraged by Family	-	-	-	23 (5.5%)	-	-

**Table 4:** Distribution of study sample according to study variables

Category	Total Sample (N=421)	Family History of Smoking	Perceived Health Risks	Willingness to Quit Smoking
Number of Students	421 (100%)	-	-	-
Positive Family History	184 (43.7%)	-	-	-
Father Smokes	95 (51%)	-	-	-
Mother Smokes	8 (4.3%)	-	-	-
Sibling Smokes	87 (47.2%)	-	-	-
Diseases Caused by Smoking	-	-	-	-
Cancer	371 (88.1%)	-	-	-
Cardiac Disease	271 (64.4%)	-	-	-
Decreases Appetite	242 (57.5%)	-	-	-
Low Birth Weight	240 (57.0%)	-	-	-
Gum Infection	240 (57.0%)	-	-	-
Willingness to Quit	133 (Current smokers)	-	-	-
Yes	75 (56.4%)	-	-	-
No	58 (43.6%)	-	-	-

**Table 5:** Distribution of study sample according to history of ever smoking and to different personal and knowledge factors

Variable	Category	Ever smoker		Non-smoker		P value
		N=152	%	N=269	%	
College	Engineering	48	32.7	99	67.3	0.550
	Business	57	37.5	95	62.5	
	Medicine	47	38.5	75	61.5	

Sex	Male	141	55.3	114	44.7	<0.001
	Female	11	6.6	155	93.4	
Residence	Urban	151	36.3	265	63.7	0.450
	Rural	1	20	4	80	
Marital Status	Single	141	35.5	256	64.5	0.307
	Married	11	45.8	13	54.2	
Working (Beside studying)	Yes	46	57.5	34	42.5	<0.001
	No	106	31.0	235	69.0	
Family history of smoking Positive		85	46.2	99	53.8	<0.001
Negative		67	28.3	170	71.7	

**Table 6:** Distribution of current smokers according to willing to quit smoking and to different personal and knowledge factors

Variable	Category	Will you quit smoking				P value
		Yes		No		
		N=75	100.0%	N=58	100.0%	
College	Engineering	25	62.5%	15	37.5%	0.580
	Business	28	56%	22	44%	
	Medicine	22	51.2%	21	48.8%	
Sex	Male	70	57.4%	52	42.6%	0.445
	Female	5	45.5%	6	54.5%	
Residence	Urban	75	56.4%	58	43.6%	
	Rural	0	0.0%	0	0.0%	
Marital Status	Single	73	59.8%	49	41.2%	0.008
	Married	2	18.2%	9	81.8%	
Working beside study	Yes	25	62.5%	15	37.5%	0.351
	No	50	53.8%	43	46.2%	
Type of smoking	Cigarette	10	55.6%	8	44.4%	0.759
	Argila	28	52.8%	25	47.2%	
	Both	37	59.7%	25	40.3%	
Frequency of smoking cigarettes (cigarettes/day)	Less than one packet/a day	12	80%	3	20%	0.091
	1-2 packet/a day	16	47.0%	18	53.0%	
	More than 2 packet /a day	19	40.4%	12	36.4%	
Intervals between Argila to Argila smoking	Daily	5	35.7%	9	64.3%	0.267
	Weekly	26	60.5%	17	39.5%	
	less than a week	13	68.4%	6	31.6%	
	A month or longer	21	53.8%	18	46.2%	
Cause that initiated smoking	Relief stress	22	71.0%	9	29.0%	0.278
	Express self-confidence	3	42.9%	4	57.1%	
	Influence by friends/family	25	54.3%	21	45.7%	
	Don't know	25	51.0%	24	49.0%	
Family history of smoking Yes		42	57.5%	31	42.5%	0.769
No		33	55.0%	27	45.0%	

**Discussion**

The study conducted among 421 university students revealed a smoking prevalence of 31.6%, higher than the 20% reported in Iran in 2010 by Saeid Nazemi [12] but close to the 35% observed in Jordan in 2005 by Khader [13]. This indicates a significant smoking issue among the student population, particularly influenced by cultural and social norms, especially in the Middle East where smoking habits vary significantly between genders and regions. Gender disparities in smoking were pronounced, with 55.3% of males and only 6.6% of females smoking. This gap is partly attributed to cultural perceptions in Iraq that deem female smoking undesirable, possibly leading to underreporting among women. Compared to Middle Eastern standards where male smoking rates are around 60% and female rates are higher than in our study at 20% [14], our findings suggest a cultural suppression of female smoking habits. Smoking preferences among students included dual use of cigarettes and Argila at 48%, solely Argila at 36.8%, and only cigarettes at 15.2%. This distribution is aligned with regional trends, where Argila is particularly popular. Studies by Saeid Nazemi and Yousif A Al Turki reflect similar trends in Iran and Saudi Arabia, indicating a cultural

preference for Argila, often not recognized as harmful as cigarettes [12, 15]. The frequency and initiation of smoking habits reflect significant social influences. Family and friends were major influencers, cited by 43.4% and 35.8% of smokers, respectively. This aligns with findings from Al Turki's study, where peer and family influence played a substantial role in smoking initiation [15]. Stress was another considerable factor, influencing 24.4% of smokers, suggesting the psychological burden faced by students might contribute to smoking habits. The reasons for non-smoking were predominantly health concerns (48%), with economic and religious reasons also playing roles. This mirrors findings from Jordan, where health concerns were a major deterrent [13, 16]. The impact of family was also significant, with a high correlation between family smoking history and individual smoking habits. This correlation underscores the role of familial behavior in shaping personal habits, similar to trends observed across the region [12, 17]. Quitting smoking was contemplated by 56.4% of smokers, reflecting a general awareness and concern about smoking's health implications. This readiness to quit did not significantly vary across different colleges, suggesting that educational background did not strongly influence cessation

intentions. However, employment status did impact smoking behavior, with working students more likely to smoke, potentially due to increased stress and disposable income [12].

### Conclusion

The study highlighted several factors influencing smoking among university students in Iraq, including gender, cultural norms, social influences, and economic status. Efforts to reduce smoking rates must consider these diverse influences, targeting specific groups with tailored interventions that address both the psychological and social drivers of smoking behavior. The readiness to quit smoking among a significant portion of the population presents an opportunity for intervention programs to encourage cessation using strategic, culturally sensitive approaches that consider the complex interplay of factors contributing to tobacco use.

### Conflict of Interest

Not available

### Financial Support

Not available

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