

# Prevalence of Smoking Among University Students in Saudi Arabia: Cross sectional Study

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**Abstract:** *Background:* Tobacco use has considerably short- and long-term effects on human health. It has increasingly become popular among youth worldwide. Saudi Arabia is not exceptional as tobacco raising concern over the possible prevalence factors and various ways of mitigation of the effects to the youth. This study therefore aims to assess the prevalence, characteristics in terms of knowledge and attitude and factors associated with tobacco use among male and female university students. *Methods:* A descriptive, cross-sectional study was conducted among 165 students, 124 male and 41 female and data collected using a web designed and administered questionnaire. The prevalence and predictors of tobacco use and the association between important socio-demographic factors such as sex, peers smoking, home mate smoking and close friend smoking and the various factors that induce tobacco use were studied. *Results:* The prevalence of tobacco use among students was high, approximately 33.9% which was higher than tobacco use prevalence in other neighboring countries. Prevalence of tobacco use among male students was found to be 34.6%, 18% higher than that in female counterparts. 40% of the student smokers smoke utmost three cigarettes in a day. A good number of students start smoking at high school level and carries on with this through to college. Factors that induce tobacco use among the students include exam anxiety, leisure, fun with peer smokers, personal and professional problems, exposure from family background and addiction. *Conclusion:* Tobacco smoking is a public health problem among college students in the Kingdom of Saudi Arabia and a majority of the student smokers are willing and ready to stop smoking. Future studies should use available resources to shift from repeatedly addressing the prevalence of smoking behaviors among college students in Saudi Arabia to focusing on intervention and prevention strategies to curb the same.

**Keywords:** Smoking, University, Students, Saudi Arabia

## 1. Introduction

Tobacco smoking has always been a more critical threat to people's health. It kills not less than 6 million people each year on projection and induces health-care related costs and productivity losses as well as there are more than one billion smokers globally, 80% of which lives in low and middle-income countries which have the heaviest burden of its effects [1]. According to [2], the rate of tobacco consumption in developing countries increases at a rate of 3.4% per year due to factors such as poverty, illiteracy, stress and depression among others while consumption is stable or in some instances declining in developed countries.

The health effects of tobacco use which results from both the active and passive smoking practices. According to [3] the effects of active smoking include causing cancer, stroke, heart and lung diseases, diabetes among other diseases and organ failures. It also increases the risk of contracting tuberculosis, arthritis and other immune system problems. Passive smoking on the other hand causes stroke, lung cancer and other coronary infections in adults. In children, exposure to passive smoke may cause acute respiratory infections, severe asthma, slowed lung growth among other infections. Smoking therefore harms close to all the body organs and leads to death. From the above evidence of the harmful effects of smoking, study and determination of the level of prevalence and its associated risk factors is important.

There have been several studies made a couple of years ago about the prevalence of tobacco use among university students. For instance, [4] estimated the prevalence of tobacco use and behavioral patterns among undergraduate

students during the 2011-2012 academic year and found out that smokers accounted for 17% of the total student population with the prevalence being higher in males than it is in females.

## 2. Methods

An observational cross-sectional study that targeted college students. The study is a descriptive and web-based survey to assess the prevalence of tobacco smoking and its determinants among male and female college students in Saudi Arabia. The criteria of inclusion included students, both male and female enrolled in different colleges in the year 2020. The student ages chosen were between 19 and 28, an age bracket of 90% of college students.

A representative random sample of 165 students was identified using a 2-stage cluster random sampling based on colleges and years of study. This included 124 males and 41 females all in the age bracket of 19 to 28 years. The number of male students were three times that of their female counterparts due to the fact that female students do tend to be insecure and do not like sharing their private life details.

A pre-tested questionnaire was made online and a link to the questionnaire shared to the various selected groups of students for data collection. The web-based questionnaire was sent to the students via social networks, who filled it at a time and place of their convenience. The independent variables included age, sex, year of study, place of residence (whether rural or urban) and various preferred social and leisure activities. The questionnaire contained three parts requiring background and demographic information, the student's attitude and knowledge about tobacco use and

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smoking and their effects on health, and their history of tobacco use and reasons for or against its usage.

### 3. Statistical Analysis

Current smokers were defined as college students who had smoked at least once within the last 30 days. Data was processed and analyzed using the statistical package for Social Sciences (SPSS). Descriptive statistics, that is the mean, standard deviation, and proportion were calculated and used to describe the study variables. The chi-square test was used to test for the associations, and Student's t test for independent samples used for bivariate analyses. Logistic regression analysis was used to assess the factors associated with smoking.

### 4. Results

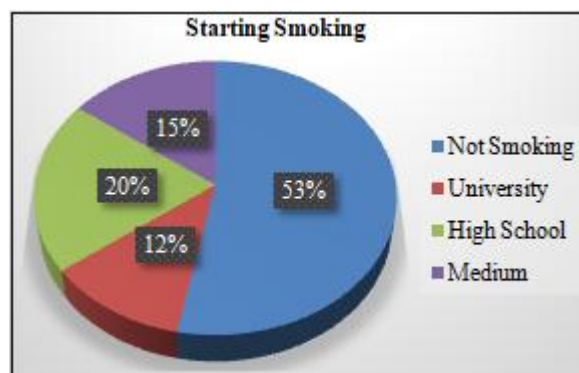
The total overall response rate for the distributed questionnaires was 82.5%, that is 165 of the targeted 200 students responded to all the questions as instructed. The results obtained from the study were statistically grouped in the tables as shown below;

**Table1: Personal Information of the Study Sample**

Demographics		Frequency	Percent
Sex	Male	124	75.2%
	Female	41	24.8%
College	Health	112	67.9%
	Not Health	53	32.1%
Home members smoking	Yes	80	48.5%
	No	85	51.5%
Friends smoking	Yes	94	57.0%
	No	71	43.0%
You smoking	Yes	56	33.9%
	No	90	54.5%
	Sometimes	19	11.5%
Start smoking	Medium	24	14.5%
	High school	33	20.0%
	University stage	19	11.5%
	No smoking	86	53.9%
Do you want to quit smoking?	Yes	64	38.8%
	No	14	8.5%
	No smoking	87	52.7%
Have you tried to quit smoking	Yes	52	31.5%
	No	24	14.5%
	No smoking	89	53.9%
Has smoking negatively affected your health	Yes	63	38.2%
	No	14	8.5%
	No smoking	88	53.3%
Does the smoke or smell bother you	Yes	120	72.7%
	No	45	27.3%
Would you be upset if you run out of cigarettes or stay for some hours in a place that does not allow smoking	Yes	38	23.0%
	No	42	25.5%
	No smoking	85	51.5%

**Table 1** above shows that most of the participants were male students with female students being approximately a third of the sample size. 68% had no health-related problems and about half of the participants had at least one family member who is an active smoker. 57% of the participants had friends who are active smokers and a majority of the smokers (43%) started smoking in high school level. Majority of the

smokers acknowledges the negative effects of smoking to their health, want to stop smoking and have tried stopping smoking.



**Figure 1: Starting Smoking**

**Figure 1** above indicates that of the smoking students, the majority (43%) began smoking in high school level. This is the teenage period where teenagers are always vulnerable to peer pressure and behavioral change. At university level, one is an adult who knows the consequences of their actions hence the lowest number of those who starts smoking at the university level.

**Table2: Smoking Patterns**

Demographics		Frequency	Percent
Daily smoking rate	From 1 to 3 times a day	30	18.2%
	4 to 10	23	13.9%
	11 to 20	17	10.3%
	Box or more	6	3.6%
	No smoking	89	53.9%
Do you smoke inside the University	Yes	39	23.6%
	No	36	21.8%
Where to smoke at university	No smoking	90	54.5%
	University lobby	14	8.5%
	corridors	21	12.7%
	The coliseum	1	0.6%
What are the conditions that increase your tobacco consumption	No smoking at university	40	24.2%
	No smoking	89	53.9%
	exams	10	13.1%
	leisure	16	21.1%
	Personal \ professional problems	12	15.8%
When do you smoke your first cigarette?	Have fun with friends who smoke	30	39.5%
	Addiction	8	10.5%
	In the first 5 minutes of waking up	10	6.1%
	From the first 5 minutes to half an hour after waking up	6	3.6%
	From the first half an hour to an hour after waking up	14	8.5%
	More than an hour of waking up	46	27.9%
I am not a smoker	89	53.9%	

**Table 2** above shows the smoking patterns of the student smokers. Majority of the smokers (39%) smokes once to three times per day with a majority preferring to smoke within the university corridors. 39% of the smokers do so to

have fun with friends who smoke whereas 60% of the smokers do so more than an hour after waking up.

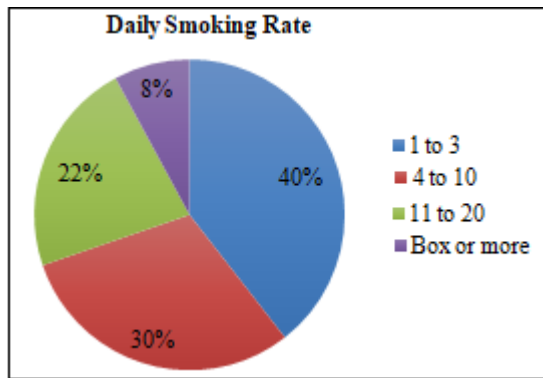


Figure 2: Daily Smoking Rate

Figure 2 above shows that among the students who are active smokers, the majority daily smoking rate is 1 to 3 cigarettes. Only 8% of the student smokers would smoke more than a box of cigarettes in a single day.

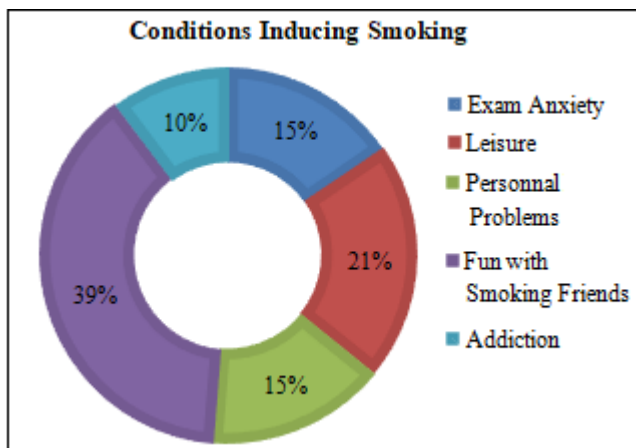


Figure 3: Conditions Inducing Smoking

Figure 3 above indicates the distribution of the various conditions that facilitate smoking among the students. Majority of the smokers (39%) do so in order to have fun with friends who are smokers or when their friends are smoking.

Table 3: Knowledge of smoking

Demographics	Frequency	Percent
Did you know that there are laws that prohibit smoking in public places	Yes	154 (93.3%)
	No	11 (6.7%)
What are the types of cancer caused by smoking?	Skin Cancer	6 (3.6%)
	Lung cancer and throat cancer	126 (76.4%)
	Liver Cancer	20 (12.1%)
	Colon Cancer	13 (7.9%)
Are you aware that smoking is bad for your health and has adverse negative effects to your health?	Yes	160 (97%)
	No	5 (3%)
Do you think smoking benefits a person in any way?	Yes	7 (4.2%)
	No	158 (95.8%)

Table 3 above indicates the students' knowledge of smoking and its effects. A larger percentage of the students are aware

that smoking in public is prohibited by law. All the students are aware of the various types of cancer caused by smoking. Also, more than 95% of the students do not think that smoking benefits a person in any way and are aware that smoking has negative effects to a person's health.

Table 4: Age Distribution

	Minimum	Maximum	Mean	Std. Deviation
Age	19.00	28.00	23.3273	1.99745

Table 4 above indicates the age distribution of the participants of the study with the lowest age being 19 and the highest age being 28.

## 5. Discussion

The overall prevalence of current tobacco smoking among students from our sample was estimated to be 33.9% which was 11% higher than the average prevalence reported among Saudi Arabia daily current smokers aged 15 to 25 years [5]. This indicates that Saudi college students smoke at a higher rate compared to a slightly similar age-group in the nationally representative study. In comparison with the documented prevalence of smoking of 12.4% in Yemen, 17% in Iran and 15.1% in the United Arab Emirates, smoking prevalence among college students in Saudi Arabia was higher than that found in other countries in the same region [6].

The approximate smoking prevalence of 34.6% among male university students reported in this analysis was 2% higher than the national smoking prevalence among Saudi Arabia males aged 15 years and older conducted across 13 regions of Saudi Arabia in 2019. In comparison with the previous studies, it is evident that the approximate smoking prevalence among male university students has been on the constant increase from 17% for a study conducted in 2012 to our current value of 34% conducted in 2020. This increase can be attributed to an increase in exposure to tobacco, the constantly rising cases of anxiety, depression and stress among the male students.

From the results it is also reported that the smoking prevalence among the male students was 18% higher than that among female students. This notable difference can be attributed to the limited access to female participants due to the fact that of the 165 participants, only 41 were female of which only 6 admitted to being active smokers. Female students tend to be shy especially when it comes to sharing information about their private life thus a good number of the female students did not participate in the study.

This study indicates that 40% of the students smoke only one or up to three cigarettes per day which is a similar trend in comparison to the findings of studies in the USA, where there is a declining trend in the number of cigarettes smoked by students on daily basis [7]. The study also found a strong association between the various factors inducing smoking among the students and the family smoking history or background. A good number of tobacco smoking students have at least one family member who is a smoker and therefore the smoking prevalence results from previous exposure at the family setting. Moreover, a good number of

student smokers do so in order to have fun with their peers who are also smokers. From the results it can therefore be reported that majority of the students just smoke for leisure and fun and are not tobacco addicts.

From this study, it is also evident that majority of student smokers starts smoking at high school level. This is the teenage period level where teenagers are always vulnerable to peer pressure and behavioral change as this is always a curious stage where teenagers tend to try smoking. At a university level, one is an adult who knows the consequences of their actions hence the lowest number of those who starts smoking at the university level.

Furthermore, more than 90% of the student smokers reported to be having knowledge about the negative effects of smoking to health, would wish to stop smoking and have tried stopping smoking. This therefore raises concerns such as whether these colleges and universities have smoking cessation programs in place for those students wish to quit smoking.

However, the results of this study should be viewed with caution due to the fact that it was based on self-reported responses and would therefore be subject to recall bias and underreporting. Despite this limitation, this study provides prevalence of tobacco use among college students and therefore provides a baseline for future prevention programs.

## 6. Conclusion

Prevalence of tobacco use among the study sample is considerable regardless of the various health effects associated with its use. University students in Saudi Arabia have a high tobacco smoking prevalence in comparison with the national Saudi smoking prevalence and that of neighboring countries.

Factors that induce tobacco smoking among students in Saudi Arabia include but not limited to examinations anxiety, leisure, having fun with peer smokers, personal and professional problems and addiction with majority of student smokers doing so in order to have fun with smoking peers.

Tobacco smoking by students starts in their early adolescence years and continues on to the university level. Tobacco smoking is a public health problem among college students in the Kingdom of Saudi Arabia and a majority of the student smokers are willing and ready to stop smoking. Further studies on the same population should therefore be done in order to obtain an up to date figures and statistics that would help curb this smoking menace among college students.

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## Author Profile

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