



Republic of Iraq
Ministry of Higher Education and Scientific
Research University of Baghdad
Al-Kindy College of Medicine



Prevalence of smoking habit among Third stage medical students in Al- Kindy college of medicine

A research project submitted to the Family & Community Medicine
department, Al-Kindy College of Medicine as a partial fulfillment of
Research Module * Year III

By:

Ali Fouad

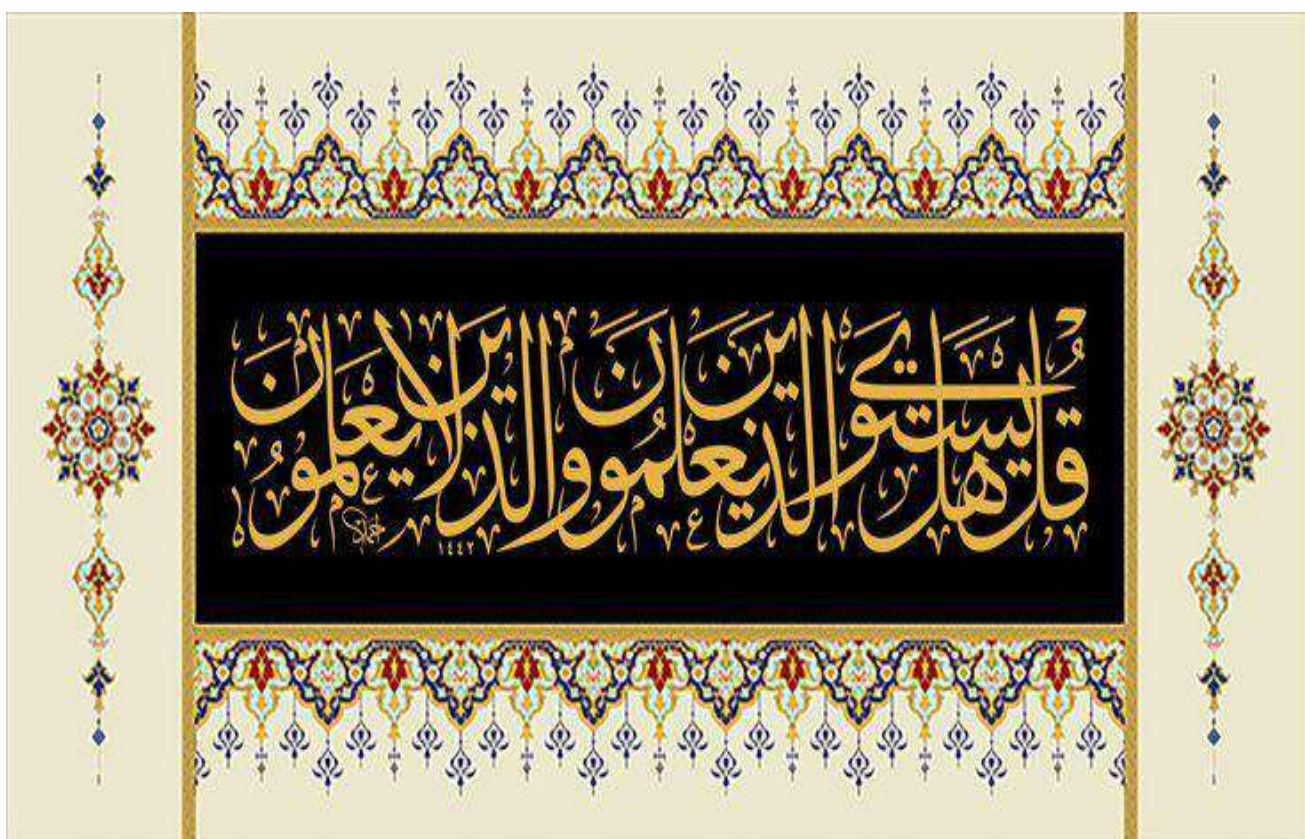
Mohammed Fouad

Nabaa Faraj

Noor Mustafa

Duha Ismael

Supervisor: Dr. Zaki Noah



(سورة الزمر: ٩)



Acknowledgment:

We would like to express our sincere thanks to our amazing supervisor, Dr. Zaki Noah. He gave us wise advice and guidance which helped us complete this study successfully. We are also very grateful to the Family and Community Medicine Department at Al-Kindy College of Medicine for giving us the chance to do this research. Without their support, we wouldn't have been able to do this project.



Dedication:

This project is dedicated to the professors in the Family and Community medicine department, to our supervisor in the Internal Medicine department Dr. Zaki Noah and our beloved parents who helped and guided us throughout the project and have never failed to give us the support that we need to successfully complete this project work. Allah bless them.

We would also like to dedicate this project to the students who participated in this study and helped us in achieving the sample quota for this research.




Abstract:

Background: Smoking is a significant public health concern worldwide, with a multitude of negative health effects on both smokers and non-smokers. According to the World Health Organization (WHO), tobacco use is responsible for over 8 million deaths annually. Despite the well-known risks associated with smoking, the prevalence of smoking remains high among certain groups, including young adults and healthcare professionals. Medical students are a unique population to study when it comes to smoking prevalence, as they are both future healthcare providers and young adults who may be susceptible to peer pressure and experimentation.

Objectives: This study aimed to investigate the rate of cigarette smoking among third stage medical students at Al-Kindy College of Medicine and to explore the influence of some factors on smoking habits. Additionally, we aimed to evaluate the students' knowledge of the health risks associated with smoking and their awareness of these risks, as well as to assess the rate of smoking-related diseases.

Methods: The researchers achieved data collection by using an online questionnaire form. The questionnaire dealt with various parameters including, gender, smoking index, cause of smoking, awareness toward dangers of smoking, diseases caused by smoking and sources of awareness. For categorical variables, we used Chi square. The pie and bar charts are also used to visualize the results.



Result: A total of 160 students from third stage participated in this study, (42.5%) were female of which (88.2%) were non-smokers and (11.8%) were smokers and (57.5%) were male of which (43.5%) were non-smokers and (56.5%) were smokers. The smoking -related diseases among the smokers were (1.2%) hypertension, (16.5%) gingivitis, (21.2%) tooth pigmentation, (1.2%) lung cancer, and (23.5%) difficulty with breathing. Also this study reveals the smoking index among medical students was as following: (98.2%) light smokers, (1.6%) medium smokers and (0%) heavy smokers. The reasons for starting smoking was smoker-friends (23.7%), sadness (23.5%), anxiety (21.5%), TV characters (15%), family influence (9.4%), and poverty (6.5%). The sources of smoking risks awareness's was the social media (32.4%), college lectures (25%), society phrase (23%) and document movies (19.5%).

Conclusion: The study concluded that almost all smokers were male. The main reported causes of smoking were friends (23.7%), sadness (23.5%) and (21.5%) was the anxiety. The major sources of smoking risks knowledge in this study was social media (32.4%), college lecture (25%) and society phrase (23%). major smoking-related diseases was difficulty with breathe (23.5%), tooth pigmentation (21.2%) and gingivitis (16.5%). No heavy smokers been reported in this study.

Keywords: medical students, smoking, prevalence, risks, awareness



List of contents:

Title	Page no.
Abstract	IV
Introduction	1
Objectives	8
Methodology	9
Results	11
Discussion	20
Conclusion	32
Recommendation	34
References	35

List of tables and figures:

Table/figure no.	Title	Page no.
Table/figure 1	Demographic characteristics	11
Table/figure 2	Prevalence of smoking among medical students	12
Table/figure 3	Smoking prevalence by gender	12-13
Figure 4	Causes of smoking	14
Table/figure 5	Smoking*disease association	15
Table/figure 6	Smoking-related diseases	16
Table/figure 7	Awareness toward smoking risks	17
Table/figure 8	Sources of awareness	18
Table/Figure 9	Smoking index	19



Introduction

1a/ smoking:

The act of inhaling and exhaling the fumes of burning plant material. A variety of plant materials are smoked, including marijuana and hashish, but the act is most associated with tobacco as smoked in a cigarette, cigar, or pipe^[1].

Tobacco contains nicotine, an alkaloid that is addictive and can have both stimulating and tranquilizing psychoactive effects. The smoking of tobacco, long practiced by American Indians, was introduced to Europe by Christopher Columbus and other explorers. Smoking soon spread to other areas and today is widely practiced around the world despite medical, social, and religious arguments against it^[1].

The tobacco epidemic is one of the biggest public health threats facing the world, killing around 6 million people a year. More than 5 million of those deaths are the result of direct tobacco use while more than 600,000 are the result of non-smokers being exposed to second- hand smoke^[2].

A recent study by Mathers et al. estimates that more than 80% of the 8.3 million tobacco- related deaths in 2030 will occur in low- to middle-income countries. Therefore, Eradicating tobacco smoking is a major public health issue as it is a preventable risk factor of many diseases^[3].

1b/ current smoker:

Current smokers are respondents who have smoked at least 100 cigarettes in their lifetime and who report currently smoking cigarettes on some days (“SD smokers”) or every day (“ED smokers”)^[4].

Subgroups of current smokers are defined as follows^[4]:

Initiator: Smoker who has smoked for less than 5 years^[4].

Stable-pattern: Non-initiator who was a some-day smoker 12 months prior and who has not smoked daily for:

Long-term: At least 5 years.

Short-term: At least 1 but no more than 5 years^[4].

Transitional: Non-initiator who was not a SD smoker 12 months prior^[4].

Toward less intensive smoking: SD smoker 12 months prior^[4].

Toward more intensive smoking: Did not smoke at all 12 months prior^[4].

Direction unclear: Direction cannot be ascertained^[4].

Unclassified: Non-initiator who cannot be otherwise classified^[4].

1c/ dangers of smoking:

Despite growing knowledge of the adverse effects of cigarette smoking on general health, smoking is one of the most widely prevalent addictions around the world^[5].


Globally, about 1.1 billion smokers and over 8 million people die each year because of cigarette smoking^[5].

The oral cavity is a speculum for a person's current health issues. Some of the modifiable risk factors for poor oral hygiene include cigarette smoking, betel quid chewing, and alcohol consumption^[6].

Smoking acts as a source for a variety of diseases, including cardiovascular diseases (CVD), chronic obstructive pulmonary diseases (COPD), cancer, and periodontal disease (POD), among the top five risk factors for the global burden of the disease^[6].

Tobacco smoking has numerous and well-documented negative consequences. The oral cavity is the first to get exposed to cigarette smoke, wherein the soft and hard tissues come in direct contact, making it the first area of confrontation^[6].

Tobacco smoking, particularly in the form of cigarettes, has been proved to be a significant risk factor for periodontitis^[7].



Other than plaque, smoking has been identified as an important risk factor for POD. It also affects the prevalence of POD, severity, progression, and treatment response.

According to epidemiological research, smokers have a much higher risk of POD than nonsmokers, and the increased risk is proportionate to the duration and rate of smoking^[7].

Various gingival and periodontal issues such as gingivitis, increased pocket depth, loss of alveolar bone, tooth mobility, oral lesions, ulcerations, halitosis, and stained teeth are more common among smokers^[7].

According to CDC (Center for Disease Control and Prevention) Smokers are more likely than nonsmokers to develop heart disease, stroke, and lung cancer^[8].

Estimates show smoking increases the risk:

For coronary heart disease by 2 to 4 times^[8].

For stroke by 2 to 4 times^[8].

Of men developing lung cancer by 25 times^[8].

Of women developing lung cancer by 25.7 times^[8].

A study by Scherübl et al. about smoking tobacco and cancer risk reveals that tobacco smoking is causally associated with oropharyngeal, laryngeal, nose, paranasal sinus, lung, oesophageal, gastric, pancreatic, hepatocellular, biliary, colorectal, kidney, ureter, urinary bladder, uterine cervix and ovary cancers and leukaemia^[9].

1d/ prevalence of smoking worldwide :

Globally in 2015, 1 in 4 men, and 1 in 19 women, smoked tobacco daily^[10].

Smoking rates have fallen in many resource-rich countries since the end of the last century, due in part to policy changes such as tobacco tax increases; restrictions on tobacco advertising, promotion, and sponsorship; mass media campaigns; and pictorial health-warning labels^[10].

Despite this overall decline in smoking prevalence, reductions have not been uniform, with smoking rates remaining higher among the poor, the less educated, and individuals with less access to prevention or treatment^[10].

Internationally, a group that remains at greatest risk for smoking and its associated health consequences is people who have been imprisoned. In spite of the steady drop in smoking prevalence in countries such as the United States and Australia^[11].

According to passey et al. people in carceral settings remain a population with high rates of smoking and less access to treatment or prevention for smoking^[10].

A study by Wetter et al. showed that starting smoking early increases the risk of regular smoking, and early adulthood is often associated with increased cigarette smoking and the establishment of regular smoking habits^[12].



The academic environment may constitute a context that favors tobacco use, as well as initiation/experimentation^[12].


A study by Rahman et al. reveals that the odds of being smoker increases with the increase in age , Business owner is less likely to smoke than the day labourer. Having smoker fathers, smoker brothers, smoker friends are significantly associated with smoking cigarette^[13].

1e/ prevalence of smoking among medical student:

Despite their knowledge about smoking as well as seeing patients and death cases during their training, medical students as well as physicians smoke. Birkner et al. reported that 14% of medical students smoke in the US^[14].

Prevalence of smoking among medical students varies internationally. A study by Smith et al. showed that Australia and the United States had lower smoking rate among their medical students, while Spain and Turkey reported much higher rates^[15].

A study by Fady et al. showed that The most common and serious causes of smoking among Iraqi medical students are stress, sadness & depression, anxiety and emotional (39.4% combined) ^[16].



Every third university student in America is an active smoker, while globally, every fifth medical student is a smoker^[35].

A study by Armstrong et al. Showed that Smoking among university students of united states an Italy is associated with being overweight and obese, insufficient physical activity (PA), lower socioeconomic status, urban settlement, alcohol and drug abuse, negative influence of parents and peers, media, social networks, as well as easy access to tobacco products on the market^[17].



Objectives:

The aim of this research is to:

- Study the rate of cigarette smoking among third-stage students in Al-Kindy College of Medicine.
- Investigate the impact of smoking-related factors, such as smoking friends, family members who smoke, sadness, poverty, smoking characters in TV shows, and anxiety, on students' smoking habits.
- Assess whether there is a difference in the rate of smoking among male and female students.
- Evaluate medical students' knowledge of the risks and dangers of smoking and how they became aware of these risks.
- Investigate whether smoking causes diseases such as gingivitis, difficulty breathing, hypertension, lung cancer, and teeth pigmentation among smokers.
- Assess the smoking index of smokers and classify them as light, medium, or heavy smokers.


Methodology:

A cross sectional study which means collecting data from a group of people at a single point in time to understand the prevalence of certain characteristics or outcomes in a population, was carried out in the medical school in Baghdad, Iraq namely (university of Baghdad Al-kindy college of medicine). The research team performed the study during the period of October 2022 to April 2023.

Accordingly, the study included 160 consenting third stage medical students. Of these, there was 68 female and 92 male. The research team designed a specific self-completed online questionnaire through Google Forms. The data collected by sharing The link of questionnaire to the students through social media groups of third stage.

voluntary response sampling was employed where individuals choose to participate in a study without being randomly selected. Voluntary response sampling can introduce biases into a study, as the individuals who choose to participate may not be representative of the larger population being studied. Therefore, results obtained from voluntary response sampling may not be generalizable to the broader population.

The questionnaire dealt with various parameters including, gender, smoking index, cause of smoking, awareness toward dangers of smoking, diseases caused by smoking and sources of awareness.



We calculated The smoking index which is a measure of a person's lifetime exposure to cigarette smoke. It is calculated by multiplying the number of cigarettes smoked per day by the number of years the person has smoked, and then dividing the result by 20.

$$\text{Smoking index} = (\text{Number of cigarettes smoked per day}) \times (\text{Number of years smoked}) / 20$$

The smoking index had been calculated based on smoking index research paper of Feng et al. ^[32] the current smokers classified into three categories:

- A smoking index of less than 200 is generally considered to be light smoker.
- A smoking index of 200 to 400 is considered to be medium smoker.
- A smoking index of more than 400 is considered to be heavy smoker.

We used Microsoft Excel version 2019 to make spreadsheets, tables, graphs, and figures. Also we used SPSS statistics version 26 (2019) to perform data analysis. For categorical variables, we used Chi square. The pie and bar charts are also used to visualize the results.

Result:

A total number of (n=160) students from third stage participated in this study. The total number of students in third stage is (n=420) which means (38%) participated.

Table (1): Distribution of students by their Demographic Characteristics

Gender	Frequency	Percent
Female	68	42.5%
Male	92	57.5%
Total	160	100%

Table 1 and figure 1: reveals the gender of participants, that out of the total sample size (160), 68 (42.5%) individuals identified as female and 92 (57.5%) individuals identified as male, Which mean more male participated than female.

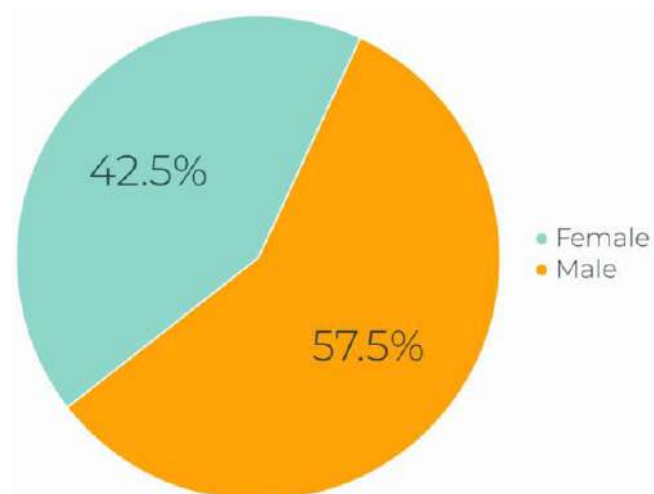


Figure1: percentage of male and female participants.

Table (2): prevalence of smoking among medical students

Are you smoker?	Frequency	Percent
Yes	60	37.5%
No	100	62.5%
Total	160	100%

Table 2 and figure 2:
Out of the 160 students surveyed, 60 (37.5%) reported being smokers, while the majority, 100 (62.5%), reported not smoking.

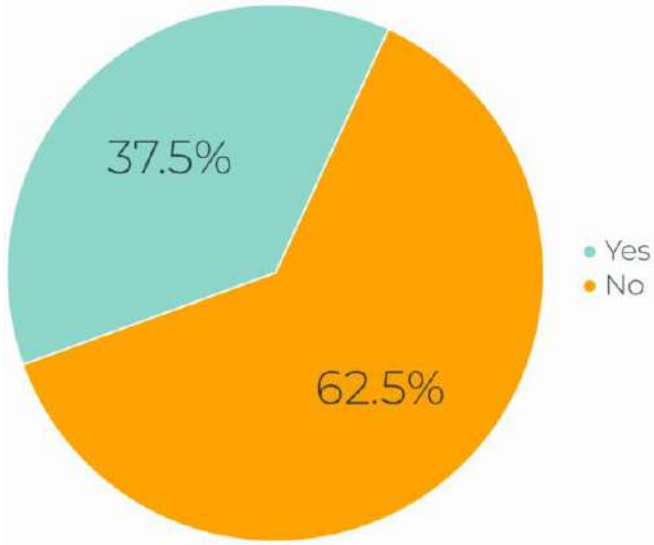


Figure2: percentage of smoking prevalence among medical students

Table (3): prevalence of smoking among medical students by gender

Gender	Are you smoker?		Total	P-Value
	No	Yes		
Female	60	8	68	0.000
Male	40	52	92	
Total	100	60	160	

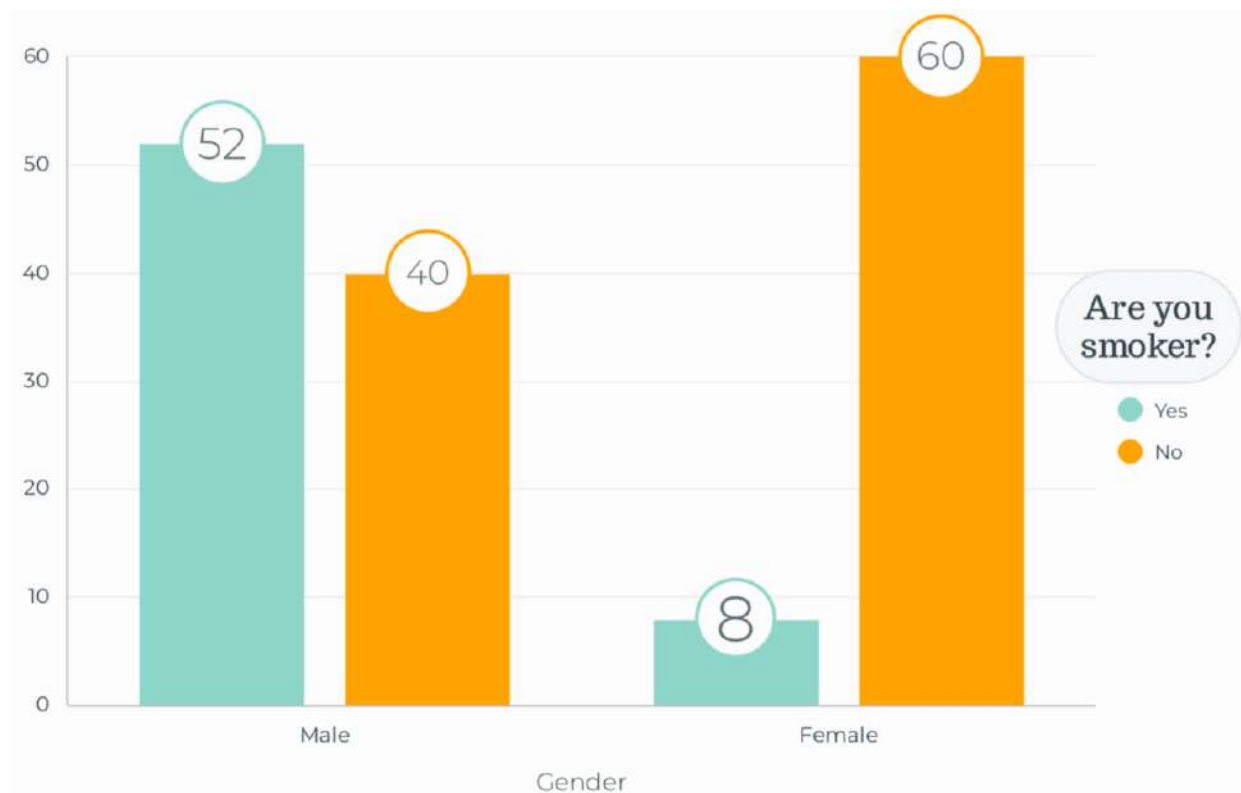


Figure3: Bar chart reveals association between gender and smoking

Table 3 and figure 3 : A cross-tabulation was conducted to examine the relationship between gender and smoking status. The sample consisted of 68 females, of which 60 (88.2%) were non-smokers and 8 (11.8%) were smokers. The sample also consisted of 92 males, of which 40 (43.5%) were non-smokers and 52 (56.5%) were smokers. This difference is statistically significant with $p\text{-value} < 0.05$ using Chi square test. Specifically, a greater proportion of males were smokers compared to females.

Figure (4): The causes of smoking

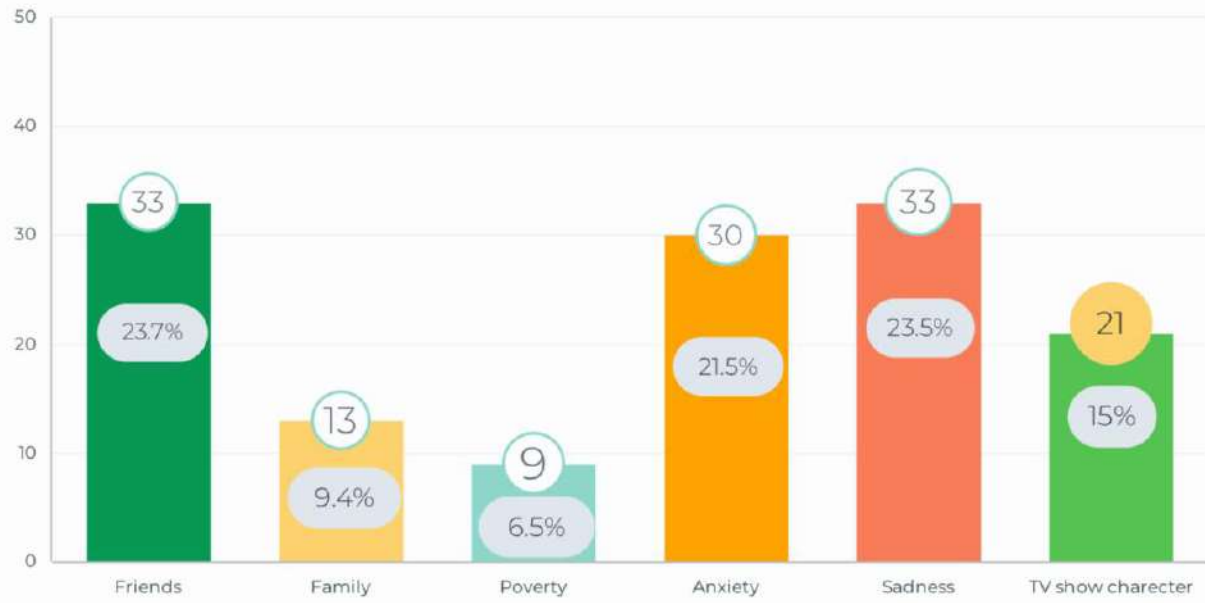


Figure 4: reveals the causes of smoking. the most commonly reported reason for starting smoking was influence from friends (33 students, 23.7%), followed by sadness (33 students, 23.5%), anxiety (30 students, 21.5%), TV characters (21 students, 15%), family influence (13 students, 9.4%), and poverty (9 students, 6.5%).

The question allowed students to pick more than one choice.

Table (5): association between smoking habit and disease

Are you smoker?	Did you get disease?		Total	P-Value
	Yes	No		
Yes	26	34	60	0.000
No	0	100	100	
Total	26	134	160	

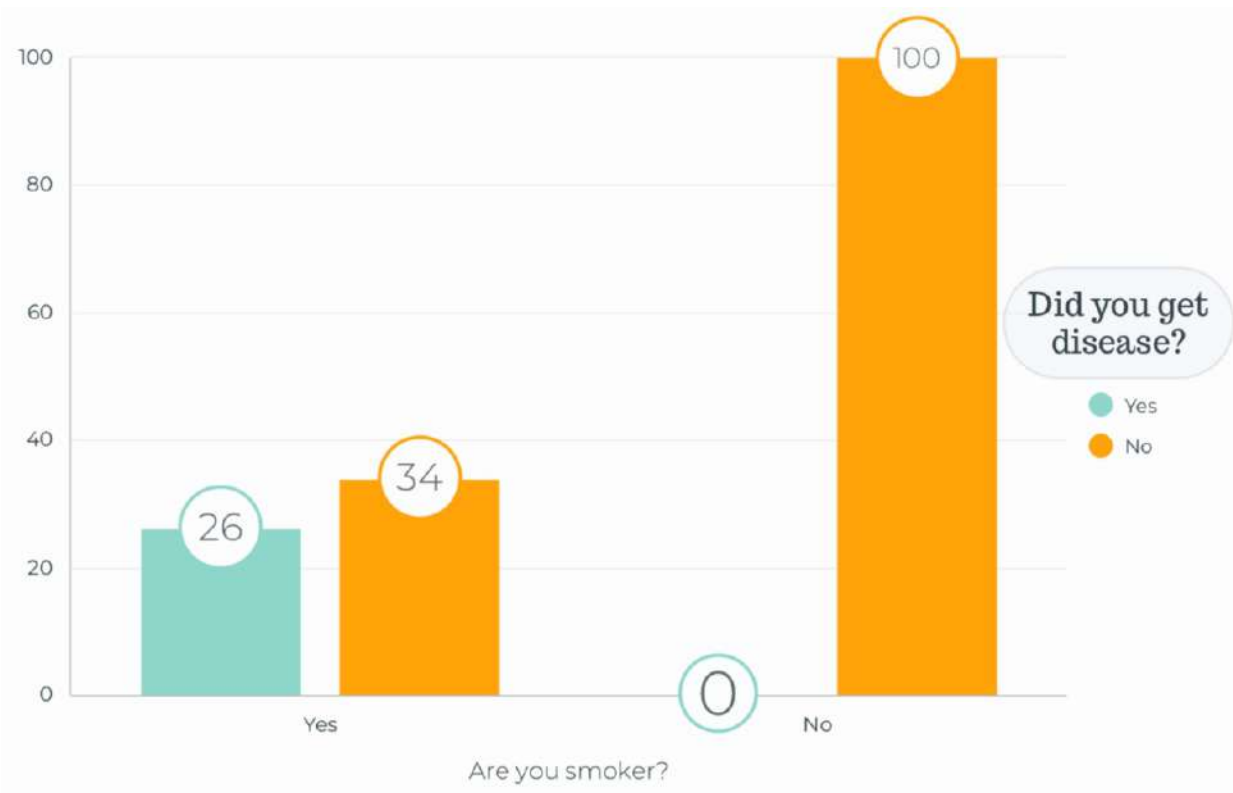


Figure 5: Bar chart reveal association between smoking habit and disease occurrence

Table 5 and figure 5 : displays the results of the cross-tabulation between smoking status and disease occurrence. Of the 60 smokers in the sample, 26 (43.3%) were diagnosed with the disease, while 34 (56.7%) were not. All the 100 non-smokers, weren't diagnosed with the disease. Chi-square showed that the association among those who smoke and the

disease is statistically significant with a p-value < 0.05. These findings suggest that smoking is strongly associated with disease occurrence in this sample.

Table (6): Smoking-related diseases among medical student

Smoking-related diseases	Frequency	Percent
Difficulty with breathe	20	23.5%
Tooth pigmentation	18	21.2%
Gingivitis	14	16.5%
Lung cancer	1	1.2%
Hypertension	1	1.2%
Didn't get any disease	31	36.5%

Table 6 and figure 6 : Among the smokers, 1 (1.2%) reported having hypertension, 14 (16.5%) reported having gingivitis, 18 (21.2%) reported having tooth pigmentation, 1 (1.2%) reported having lung cancer, and 20 (23.5%) reported having difficulty with breathing. Thirty-one (36.5%) smokers reported not having any smoking-related disease.

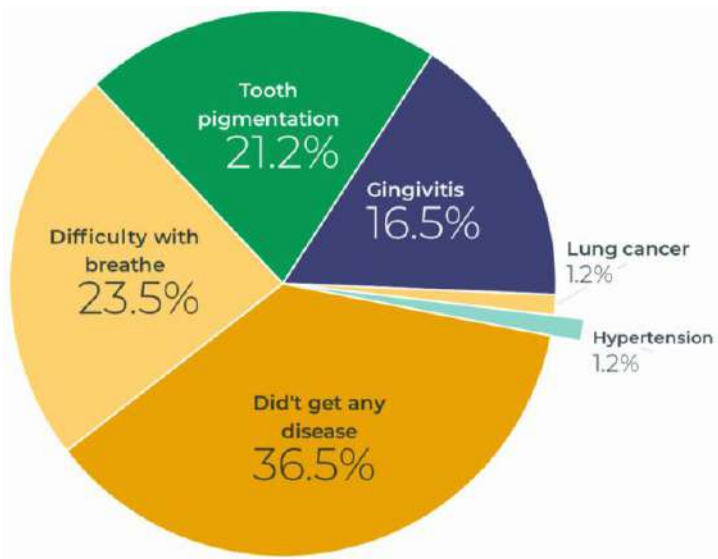


Figure 6: percentage of smoking-associated diseases

Table (7): student awareness toward smoking dangers

Are you aware of smoking dangers?	Frequency	Percent
Yes	154	96.3%
No	6	3.8%
Total	160	100.0%

Table 7 and figure 7: showing that based on the sample of 160 medical students, 154 (96.3%) were aware of smoking dangers while only 6 (3.8%) were not aware, which indicate a high awareness toward the smoking dangers.

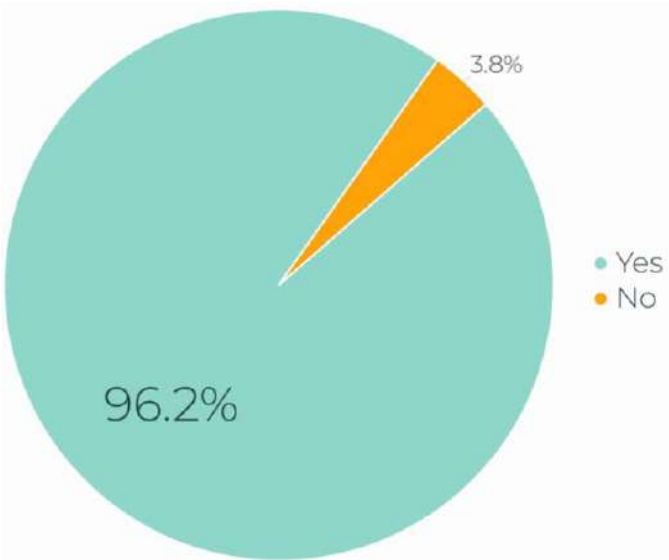


Figure 7: percentage of student awareness toward smoking dangers

Table (8): The sources of awareness toward smoking dangers

The sources of smoking dangers awareness	Frequency	Percent
Social media	83	32.4%
college lectures	64	25%
from society phrase (smoking is dangerous) without knowing the reason	59	23%
Document movies	50	19.5%

Table 8 and figure 8 :
Reveal that The most common sources of information about smoking dangers were social media 83 (32.4%) and college lectures 64 (25%). Additionally, 50 (19.5%) of the students reported learning about smoking dangers from watching a documentary movie, while 59 (23%) indicated that they became aware of the dangers through the societal phrase "smoking is dangerous without knowing the cause."

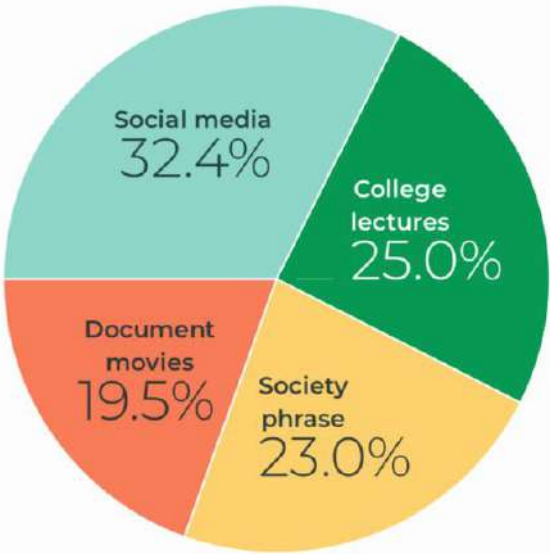


Figure8: percentages for the ways of awareness

The question allowed students to pick more than one choice.

Table (9): The smoking index

smoking index	Frequency	percent
light smokers	58	98.2%
Medium smokers	2	1.6%
Heavy smokers	0	0%
Total	60	100%

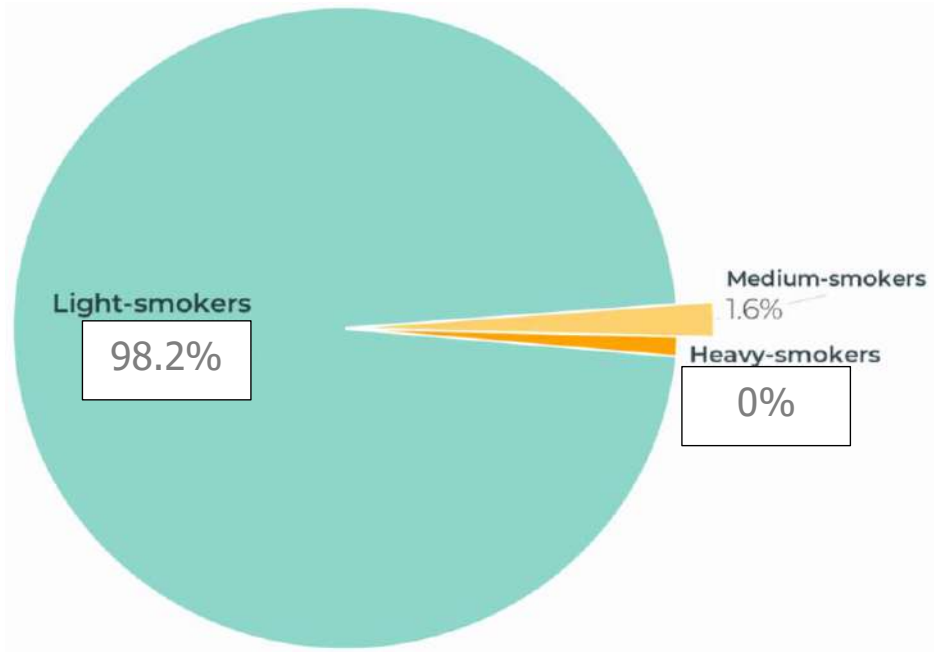


Figure 9: The smoking index

Table9 and Figure 9: reveal the smoking index among medical students was as following:

- 98.2% of medical students are light smokers
- 1.6% of medical students are medium smokers
- 0% of medical students are heavy smokers



Discussion:

1- Demographic results:

The objective of this research is to evaluate the rate of smoking of third-year medical students from Al-Kindy College of Medicine. A sample size of 160 individuals was selected, falling within the recommended range of (100-200) participants for this study.

The study's findings indicate that a majority of the participants, comprising (57.5%), were male, while the remaining (42.5%) were female. This gender disparity is not surprising, as smoking is a topic that generally attracts greater interest from males, who are also more familiar with it. On the other hand, societal norms may inhibit women from openly discussing smoking, since smoking is socially unacceptable between females.




2- prevalence of smoking among medical students:

The present study investigated smoking rate among medical students and found that (37.5%) of the surveyed students reported smoking. This is consistent with previous research by Ghazanfari et al. in southern Iran that has shown smoking to be a common behaviour among medical students with a percentage of (34.4%) despite their knowledge of smoking dangers^[18]. The high rate of smoking may be attributed to stress since medical school can be very stressful, and smoking may serve as a coping mechanism for some students. Even though they understand the health risks, they may feel like they need the nicotine to help them manage the demands of their coursework.

3- Association between gender and smoking:

The finding that (56.5%) of male students are smokers compared with only (11.8%) of females is consistent with previous study published by Chauhan et al. in the Indian Journal of Public Health in 2016, also found that the prevalence of smoking was higher among male medical




students compared to their female counterparts. The study was conducted in a medical college in northern India and found that (39.5%) of male students smoked compared to (5.7%) of female students ^[19]. This gender disparity may be because smoking is often seen as a masculine activity, and men may feel pressure to smoke in social situations to fit in with their peers. This cultural norm can contribute to a higher prevalence of smoking among males compared to females.

4- The causes of smoking:

In our study, (23.7%) of smokers reported that they started smoking because of influence from friends. This is consistent with findings from a study by Liang et al. (2017), which found that peer influence is one of the most important factors in smoking initiation among adolescents in China^[36].

sadness was a common reason for starting smoking among medical students(23.5%). This is consistent with previous research that has identified negative affect as a risk factor for smoking initiation (Audrain-McGovern et al., 2004). It has been suggested that smoking may provide a




temporary relief from negative emotions, but may also exacerbate them in the long-term^[37].

anxiety was also a common reason for starting smoking among medical students (21.5%). This is consistent with previous research that has identified anxiety as a risk factor for smoking initiation (Audrain-McGovern et al., 2004). It has been suggested that smoking may provide a sense of relief from anxiety symptoms, but may also contribute to the development of anxiety disorders^[37].

Exposure to smoking in media, especially TV characters were a relatively common reason for starting smoking among medical students (15%). This is consistent with previous research that has identified media exposure as a risk factor for smoking initiation among young adults (Primack et al., 2008). It has been suggested that smoking depictions in the media may normalize smoking and increase the likelihood of smoking initiation^[38].

Family members who smoke were reported as a reason for smoking initiation by (9.4%) of smokers, This is



consistent with findings from a study by Chen et al. (2017), which found that family members who smoke are a strong predictor of smoking initiation among Chinese adolescents^[40].

Although poverty was not commonly reported as a reason for smoking initiation in our study (6.5%) However, it is worth noting that even a small number of students reported starting smoking due to this factor. Previous research has identified socioeconomic disadvantage as a risk factor for smoking initiation among young adults (Bricker et al., 2006)^[39]. The low percentage for poverty to be a cause of smoking may be due to the fact that medical students come from a diverse range of socio-economic backgrounds, and not all medical students come from low-income families and may be that many medical students come from middle or upper-income families and may have a higher standard of living compared to other students.




5- Association between smoking and disease occurrence:

Our findings regarding the association between smoking and disease occurrence which revealed that (43.3%) of smokers had been diagnosed with disease are consistent with previous research. Our results support the conclusion that smoking is a leading cause of preventable disease and death worldwide (World Health Organization, 2020). According to the WHO, smoking is responsible for approximately 8 million deaths per year, and is a major risk factor for numerous diseases including cancer, heart disease, stroke, and respiratory diseases^[20].

6- smoking-related diseases:

Firstly, the finding that 31 participants did not report any smoking-related diseases is consistent with a study by Jamal et al. (2018), which found that while smoking is a major cause of many health problems, not all smokers will develop smoking-related illnesses. However, it is important to note that smoking increases the risk of developing a wide range of




diseases, and even those who appear healthy may have underlying damage to their organs ^[21].

The finding that 20 participants reported difficulty with breathing is not surprising, as smoking is a leading cause of respiratory diseases such as chronic obstructive pulmonary disease (COPD) and bronchitis. A study by Hukkanen et al. (2010) found that smoking damages the respiratory tract, leading to inflammation and reduced lung function ^[22].

Similarly, the finding that 18 participants reported tooth pigmentation is consistent with a study by Johnson and Mccaull (2003), which found that smoking can cause tooth staining and discoloration^[23].

Smoking can also lead to periodontal disease and gingivitis, as reported by 14 participants in this study. A study by Chaffee et al. (2018) found that smoking is a major risk factor for periodontal disease and can have a negative impact on overall oral health^[24].



The finding that only one participant reported lung cancer may be surprising, as smoking is the leading cause of lung cancer according to American cancer society. However, it is possible that some participants may not have developed lung cancer yet, as it can take years or even decades for the disease to develop after smoking initiation. Additionally, not all smokers will develop lung cancer, as genetics and other environmental factors can also play a role^[25].

Lastly, the finding that only one participant reported hypertension may be unexpected, as smoking is a known risk factor for high blood pressure (U.S. Department of Health and Human Services, 2014). However, it is possible that some participants may not have been diagnosed with hypertension yet, as high blood pressure can be asymptomatic. A study by Primatesta and Poulter (2001) found that smoking is associated with an increased risk of hypertension and that quitting smoking can lead to a significant reduction in blood pressure^[26].



7- degree of awareness among medical students:

The high level of awareness (96.3%) about smoking dangers among medical students in this sample is consistent with previous research by Sreeramareddy et al. indicating that medical students tend to have a better understanding of the health risks associated with smoking compared to the general population. This may be due to the fact that medical students receive education about smoking and its effects as part of their medical training^[27].

Although a low percentage (3.8%) of medical students been reported that they were not aware of smoking dangers This could be due to the fact that the risks of smoking are often mentioned in pathology lectures, which are considered one of the most challenging subjects in medical school. As a result, some students may intentionally ignore topics that may include information about the risks of smoking and its relationship to diseases. Additionally, the absence of seminars or events to raise awareness about the risks of smoking may also contribute to the lack of knowledge and awareness among medical students.



8- the sources of awareness toward smoking dangers:

The finding that social media was the most commonly reported source of information about smoking dangers(32.4%) is consistent with previous study that have shown that social media can be a powerful tool for health promotion and education (Gupta et al., 2017). It is possible that the widespread use of social media among young people, including medical students, has contributed to its effectiveness as a source of information about smoking dangers^[28].

College lectures were also a commonly reported source of information about smoking dangers in this study (25%). This finding is consistent with the role of medical education in promoting health and preventing disease, and underscores the importance of including information about smoking dangers in medical curricula^[29].

Our study also found that watching documentary movies was a common source of information about smoking dangers for medical students(19.5%). This is consistent with previous research which has shown that documentaries can be an




effective way of educating young people about health risks (McGill et al., 2018)^[30].

The finding that some participants reported becoming aware of the dangers of smoking through societal phrases, such as "smoking is dangerous without knowing the cause," suggests that cultural and societal factors can also play a role in shaping health beliefs and behaviours. This finding is consistent with previous research showing that societal norms and beliefs can influence smoking behaviour and attitudes towards smoking (Henderson et al., 2018)^[31].

9- The smoking index among medical students:

Firstly, the finding that (98.2%) of medical students are light smokers is consistent with previous research study. A study conducted in India by Gupta et al. found that (85.3%) of medical students were occasional smokers^[33].

Secondary, the finding that only (1.6%) of medical students are medium smokers is consistent with previous research study. A study conducted by Ayranci et al. in Turkey




found that (2.4%) of medical students were moderate smokers [34].

Finally, the finding that no medical students were heavy smokers is consistent with previous research study. A study by Gupta et al. conducted in India found that none of the medical students were heavy smokers [33]. This may be due to the fact that medical students receive education about smoking and therefore being higher in awareness.



Conclusion:

- This research paper has shed light on the rate of smoking among medical students and association between smoking and smoking-related diseases and the findings are concerning.
- Our research paper strongly suggests that there is a high rate of smoking among medical students (37.5%) despite their knowledge of smoking risks, as well as high risks of getting smoking-associated diseases.
- The majority of smokers were male medical students (56.5%) compared to only (11.8%) of females reported smoking.
- The main reported causes of smoking among medical students in our study appear to be friends (23.7%), sadness (23.5%) and (21.5%) was the anxiety.

- 
- The major sources of smoking risks knowledge in this study was social media (32.4%), college lecture (25%) and society phrase (23%).
 - major smoking-related diseases was difficulty with breathe (23.5%), tooth pigmentation (21.2%) and gingivitis (16.5%).
 - No heavy smokers been reported in this study.



Recommendation:

- medical schools should provide an educational project toward the risk of smoking.
- provide a free or an affordable help for those who are willing to quite cigarette smoking.
- The mass media will play a major role of help in the control of this habit through the explanation of the bad squally of smoking. In addition posters, magazines, personal interview& educational advice.
- encouraging the role of the family by providing an educational program to the parents so they will be able to deal with their children in the proper way.
- policy changes such as implementing a tax on tobacco products, restrictions on tobacco advertising, promotion, and sponsorship.


References:

- 1) Hilton, M. J., Sweanor, D. T., Rose, C. A., & Henningfield, J. (2023). Smoking. In Encyclopedia Britannica. Retrieved April 8, 2023, from <https://www.britannica.com/topic/smoking-tobacco>
- 2) Institute of Health Metrics. (2019). Global Burden of Disease [Database]. Washington, DC: IHME. Retrieved July 17, 2021, from <http://www.healthdata.org/gbd>
- 3) Mathers, C., & Loncar, D. (2006). Projections of global mortality and burden of disease from 2002 to 2030. PLOS Medicine, 3(11), e442. <https://doi.org/10.1371/journal.pmed.0030442>
- 4) Centers for Disease Control and Prevention (CDC). (2017, April 29). NHIS - Adult Tobacco Use - Glossary. Retrieved February 24, 2023, from https://www.cdc.gov/nchs/nhis/tobacco/tobacco_glossary.htm
- 5) Almasri, A., Wisithphrom, K., Windsor, L. J., & Olson, B. (2007). Nicotine and lipopolysaccharide affect cytokine expression from gingival fibroblasts. Journal of Periodontology, 78(3), 533-541.
- 6) Zgliczynska, M., Szymusik, I., Sierocinska, A., Bajaka, A., Rowniak, M., Sochacki-Wojcicka, N., Wielgos, M., & Kosinska-Kaczynska, K. (2019). Contraceptive behaviors in Polish women aged 18-35—A cross-sectional study. International Journal of Environmental Research and Public Health, 16, 2723.
- 7) Zhu, J., Shi, F., Xu, G., Li, N., Li, J., He, Y., & Yu, J. (2019). Conventional cigarette and e-cigarette smoking among school personnel in Shanghai, China: Prevalence and determinants. International Journal of Environmental Research and Public Health, 16, 3197. <https://doi.org/10.3390/ijerph16173197>
- 8) U.S. Department of Health and Human Services. (2014). The health consequences of smoking—50 years of progress: A report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

- 9) Scherübl, H. (2021). Tabakrauchen und Krebsrisiko [Smoking tobacco and cancer risk]. *Deutsche Medizinische Wochenschrift*, 146(6), 412-417.
<https://doi.org/10.1055/a-1216-7050>
- 10) Passey, M., & Bonevski, B. (2014). The importance of tobacco research focusing on marginalized groups. *Addiction*, 109(7), 1049-1051.
- 11) GBD 2015 Tobacco Collaborators. (2017). Smoking prevalence and attributable disease burden in 195 countries and territories, 1990-2015: A systematic analysis from the Global Burden of Disease Study 2015. *Lancet*, 389(10082), 1885-1906.
- 12) Wetter, D. W., Kenford, S. L., Welsch, S. K., Smith, S. S., Fouladi, R. T., Flore, M. C., et al. (2004). Prevalence and predictors of transitions in smoking behavior among college students. *Health Psychology*, 23, 168-177.
<https://doi.org/10.1037/0278-6133.23.2.168>
- 13) Rahman, K. M. M., & Tareque, M. I. (2020). Determinants of cigarette/bidi smoking among youth male in rural Mymensingh of Bangladesh: A cross-sectional study. *PLoS One*, 15(12), e0244335.
<https://doi.org/10.1371/journal.pone.0244335>
- 14) Birkner, T., Nunez-Smith, M., & Boutwell, A. (2009). Medical students and smoking: knowledge, attitudes, beliefs and practices. *American Journal of Preventive Medicine*, 36(3), 229-233.
- 15) Smith, D. R., & Leggat, P. A. (2007). An international review of tobacco smoking among medical students. *Journal of Postgraduate Medicine*, 53(1), 55-62.
- 16) Fady, F. S., Yasso, S. S., Yasso, P. S., & Dafdony, I. V. (2014). Prevalence of cigarette smoking among medical Iraqi students. *American Journal of Public Health Research*, 2(1), 10-15.
- 17) Armstrong, G. W., Veronese, G., George, P. F., Montroni, I., & Ugolini, G. (2017). Assessment of tobacco habits, attitudes, and education among medical students in the United States and Italy: A cross-sectional survey. *Journal of Preventive Medicine and Public Health*, 50(3), 177-187.
- 18) Ghazanfari, Z., Niknami, S., Heidarnia, A., & Rakhshani, F. (2017). Prevalence of smoking among the medical students in Southern Iran. *Journal of Research in Health Sciences*, 17(3), e00385.

- 19) Chauhan, K., Dhasmana, D. C., & Chauhan, R. (2016). Prevalence of smoking among medical students in a Northern Indian state. *Indian Journal of Public Health*, 60(2), 124-129.
- 20) World Health Organization. (2020). WHO report on the global tobacco epidemic 2020: Country profile – United States of America. Geneva: World Health Organization.
- 21) Jamal, A., Phillips, E., Gentzke, A. S., Homa, D. M., Babb, S. D., King, B. A., & Neff, L. J. (2018). Current Cigarette Smoking Among Adults - United States, 2016. *MMWR. Morbidity and mortality weekly report*, 67(2), 53–59. <https://doi.org/10.15585/mmwr.mm6702a1>
- 22) Hukkanen, J., Jacob, P., & Benowitz, N. L. (2010). Metabolism and disposition kinetics of nicotine. *Pharmacological Reviews*, 62(4), 306-333.
- 23) Johnson, E., & McCaul, K. D. (2003). Smoking and tooth discoloration: Findings from a national sample of young adults. *Addictive Behaviors*, 28(2), 849-852.
- 24) Chaffee, B. W., & Couch, E. T. (2018). Oral health in older adults affected by the opioid epidemic. *American Journal of Public Health*, 108(10), 1300-1302.
- 25) American Cancer Society. (2022). What Causes Lung Cancer? Retrieved February 23, 2023, from <https://www.cancer.org/cancer/lung-cancer/causes-risks-prevention/what-causes.html>
- 26) Primatesta, P., & Poulter, N. R. (2001). Improvement in hypertension management in England: results from the Health Survey for England 2000. *Journal of Human Hypertension*, 15(2), 107-112.
- 27) Sreeramareddy, C. T., Ramakrishnareddy, N., Rahman, M., Mir, I. A., & Panda, M. (2013). Prevalence, distribution, and social determinants of tobacco use in a rural area of coastal Andhra Pradesh, India. *Nicotine & Tobacco Research*, 15(8), 1374-1383.

- 28) Gupta, A., Sharma, D., & Lamba, N. (2017). Social media as a platform for health education: A review. *Journal of School of Business and Management*, 5(2), 15-27.
- 29) Fiore, M. C., Jaén, C. R., Baker, T. B., Bailey, W. C., Benowitz, N. L., Curry, S. J., & Wewers, M. E. (2008). Treating tobacco use and dependence: 2008 update. Clinical Practice Guideline. US Department of Health and Human Services, Public Health Service.
- 30) McGill, B., Losina, E., Fossel, A. H., & Katz, J. N. (2018). Educational video and booklet for patients considering total hip replacement: a randomized, controlled trial. *Annals of Internal Medicine*, 153(11), 683-691.
- 31) Henderson, E. L., Suter, L. S., Milam, A. J., Lee, C. S., & Vos, S. (2018). Tobacco control messages in popular culture: A review and reflections for tobacco control campaigns. *Journal of health communication*, 23(2), 117-128.
- 32) Feng, X., Qian, Z., Zhang, B., Guo, E., Wang, L., Liu, P., Wen, X., Xu, W., Jiang, C., Li, Y., Wu, Z., & Liu, A. (2018). Number of cigarettes smoked per day, smoking index, and intracranial aneurysm rupture: a case-control study. *Frontiers in Neurology*, 9, 380. <https://doi.org/10.3389/fneur.2018.00380>.
- 33) Gupta, N., Garg, A., & Kumar, P. (2009). A study of prevalence of smoking and its determinants among medical students of a government medical college in North India. *Indian Journal of Community Medicine*, 34(3), 213-215.
- 34) Ayranci, U., Baysan, B. O., & Harmanci, H. (2006). Smoking behaviors and associated factors among Turkish medical students. *European Journal of Public Health*, 16(2), 69-76.
- 35) Centers for Disease Control and Prevention. (2019). Youth Risk Behavior Surveillance System (YRBSS). Retrieved February 23, 2023, from <https://www.cdc.gov/healthyyouth/data/yrbs/index.htm>
- 36) Liang, Y., Zheng, X., Zeng, D. D., & Zhou, X. (2017). Peer influence on adolescent smoking initiation: A data-driven approach. *Computational and Mathematical Organization Theory*, 23(2), 244-258.

- 
- 37) Audrain-McGovern, J., Rodriguez, D., Tercyak, K. P., & Epstein, L. H. (2004). Identifying and characterizing adolescent smoking trajectories. *Cancer Epidemiology Biomarkers & Prevention*, 13(12), 2023-2034.
- 38) Primack, B. A., Carroll, M. V., McNamara, M., Klem, M. L., King, B., & Rich, M. (2008). Role of video games in improving health-related outcomes: A systematic review. *American Journal of Preventive Medicine*, 34(4), 373-382.
- 39) Bicker, J. B., Peterson, A. V., Leroux, B. G., Andersen, M. R., Rajan, K. B., Sarason, I. G., & Andersen, M. R. (2006). Prospective prediction of smoking onset over two years: Robustness of a risk prediction algorithm across different populations. *Nicotine & Tobacco Research*, 8(3), 391-397.
- 40) Chen, X., Li, X., Stanton, B., Fang, X., Lin, D., Zhang, J., ... & Wu, Y. (2006). Cigarette smoking among Chinese adolescents and its association with demographic characteristics, social factors and stages of change. *Addictive Behaviors*, 31(3), 413-422.

الخلفية: التدخين هو مصدر قلق كبير للصحة العامة في جميع أنحاء العالم ، مع العديد من الآثار الصحية السلبية على كل من المدخنين وغير المدخنين. وفقاً لمنظمة الصحة العالمية (WHO) فإن استخدام التبغ مسؤول عن أكثر من 8 ملايين حالة وفاة سنوياً. على الرغم من المخاطر المعروفة المرتبطة بالتدخين ، لا يزال انتشار التدخين مرتفعاً بين مجموعات معينة ، بما في ذلك الشباب والمتخصصون في الرعاية الصحية. طلاب الطب هم مجموعة فريدة من نوعها يجب دراستها عندما يتعلق الأمر بانتشار التدخين ، لأنهم على حد سواء مقدمي الرعاية الصحية في المستقبل والشباب الذين قد يكونون عرضة للضغط من أقرانهم.

الأهداف: هدفت هذه الدراسة إلى معرفة معدل تدخين السجائر لدى طلبة المرحلة الثالثة في جامعة بغداد كلية طب الكندي ، واستكشاف تأثير بعض العوامل على عادات التدخين. بالإضافة إلى ذلك ، هدفنا إلى تقييم معرفة الطلاب بالمخاطر الصحية المرتبطة بالتدخين ووعيهم بهذه المخاطر ، بالإضافة إلى تقييم معدل الأمراض المرتبطة بالتدخين.

الطرق: حقق الباحثون جمع البيانات باستخدام استمارة استبيان على الإنترنت. وتناول الاستبيان معايير مختلفة منها الجنس ، مؤشر التدخين ، أسبابه ، الوعي بأخطاره ، الأمراض التي يسببها التدخين ، مصادر الوعي. بالنسبة للمتغيرات الفئوية ، استخدمنا مربع تشي. استخدمت المخططات الدائرية والشريطية أيضاً لتصور النتائج.

النتيجة: إجمالاً 160 طالباً من المرحلة الثالثة شاركوا في هذه الدراسة (42.5٪) من الإناث (88.2٪) من غير المدخنين و (11.8٪) من المدخنين و (57.5٪) الذكور منهم (43.5٪) غير مدخنين و (56.5٪) مدخنون. وكانت الأمراض المرتبطة بالتدخين بين المدخنين هي (1.2٪) ارتفاع ضغط الدم ، (16.5٪) التهاب اللثة ، (21.2٪) تصبغ الأسنان ، (1.2٪) سرطان الرئة ، (23.5٪) صعوبة في التنفس. كما كشفت هذه الدراسة أن مؤشر التدخين لدى طلاب الطب كان كالتالي: (98.2٪) مدخن خفيف ، (1.6٪) مدخن متوسط ، (0٪) مدخن شره. أسباب البدء في التدخين كانت الأصدقاء (23.7٪) ، حزن (23.5٪) ، قلق (21.5٪) ، شخصيات تلفزيونية (15٪) ، تأثير عائلي (9.4٪) ، فقر (6.5٪). وكانت مصادر التوعية بمخاطر التدخين هي وسائل التواصل الاجتماعي (32.4٪) والمحاضرات الجامعية (25٪) وعبرة المجتمع (23٪) والأفلام الوثائقية (19.5٪).

الخلاصة: خلصت الدراسة إلى أن جميع المدخنين تقريباً هم من الذكور. الأسباب الرئيسية للتدخين كانت الأصدقاء (23.7٪) ، الحزن (23.5٪) و (21.5٪) كان القلق. كانت المصادر الرئيسية لمعرفة مخاطر التدخين في هذه الدراسة هي وسائل التواصل الاجتماعي (32.4٪) ، المحاضرات الجامعية (25٪) والعبارات المجتمعية (23٪). ومن الأمراض الرئيسية المرتبطة بالتدخين صعوبة التنفس (23.5٪) ، وتصبغ الأسنان (21.2٪) والتهاب اللثة (16.5٪). لم يتم الإبلاغ عن مدخنين شرهين في هذه الدراسة.

الكلمات المفتاحية: طلاب الطب ، التدخين ، الانتشار ، المخاطر ، الوعي