Smoking Habits and Health Promotion among University Students in King Faisal University: A Cross-Sectional study

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Abstract

To assess the incidence of smoking, habits and awareness among students of King Faisal university and to find association of smoking with socio-demographic determinants and to recommend health promotion activities among the university. This cross sectional study recruited a total of 606 students by administering a self-administered questionnaire. Mean age of the students was 21.8±2.1 years. 52.3% male and 47.7% female students enrolled during Mar-Aug 2023 from King Faisal University, Saudi Arabia. Descriptive and inferential statistics was applied by using SPSS software version-26. 10.1% incidence of smoking was reported in this study. Mostly male students (90.2%) were active smokers. Rate of smoking increased in 4th and 5th educational year. Effect of cohabitants in encouraging smoking was considered the significant factor. There were 345(56.9%) medical and 261 (43.1%) non-medical students, out of which 34(9.9%) and 27 (10.3%) active smokers respectively. More than 90% medical and non-medical students consider smoking as a risk factor for most of the diseases (p=0.013) and second hand smoke is also harmful to health (p=0.001), although 270 (78.3%) medical and 191 (73.2%) non-medical students stated that there should be a ban on smoking in public places (p=0.008) with significant findings. In the light of the findings of the study and comparison with the existing literature, it is suggested to propose a training model that might be implemented as a health promotion program. Using this framework, we found that a combination of targeted training for smoking dissuasion, cohabitant influence, and integrated addiction management will be effective in reducing cigarette consumption. Additional investigation is need to be conducted to determine the efficacy of these proposed models.

Keywords: Awareness, Health promotion, Medical students, Non-medical students, Smoking, students

Introduction

The use of tobacco products is a major contributor to global morbidity and mortality rates. The anticipated global frequency of tobacco use has decreased from a quarter in the decade of 2000 to 19.8 percent in 2015, thanks to a number of efforts to reduce the prevalence rates; nonetheless, it is still anticipated that it will stay 17.1% by 2025. Besides substantially higher estimates (24.0%) across the continent of Europe. In terms of sex, Europe has a 3:2 ratio, whereas the United States has a 2:1 ratio. In some nations, men appear to consume tobacco products at a higher rate [1]. The data from 2019 indicates that an average percentage of individuals between 20 to 54 years of age who started tobacco usage at an early age of 19 or 20 years was estimated to be 76.6%, with a confidence interval ranging from 59.0% to 97.5%. Europe and the Americas had the youngest mean initiation ages [2]. Tobacco smoking is the main cause of early mortality and disability in males, according to the World Health Organization [3], and will result in the loss of life expectancy of sixty million years will be reached in the following twenty-year period. Tobacco use has been identified as a contributory factor for several prolonged illnesses. These diseases include vascular disease, rheumatoid arthritis (RA), Crohn's disorder, psoriasis, and type-II diabetes that is not insulin-dependent. Additionally, cigarette smoking is widely recognized for its role in the development of chronic obstructive pulmonary disease (COPD), hypertension, cardiovascular disease (CVD), and malignancies [4]. Cardiovascular disease (CVD) is the primary contributor fatalities in those who consume nicotine. The number of smokers who succumb to heart disease surpasses the combined mortality rates from pulmonary illnesses and all forms of malignancies globally [5].

The Centers for Disease Control and Prevention (CDC) classified smoking behaviors as follows: current smokers are individuals who have smoked at least 100 cigarettes in their lifetime and who smoke cigarettes at the present moment; never-smokers are individuals who have either never smoked or who have smoked less than 100 cigarettes in their lifetime. Former smokers are those who

have smoked at least 100 cigarettes in their lives but have given up the habit at the time the study was conducted [6].

According to Nilan K et al., the total prevalence of tobacco use in the hospital context was 21%, 31% in males and 17% in females, which is consistent with global trends. According to the country-level comparison, male healthcare professionals had a lower frequency than men in the general population in high-income nations, whereas females have similar values. These findings highlight the importance of addressing smoking behaviors among healthcare personnel, since they are on the front lines of combating tobacco use in their patients [7]. Given the aforementioned concern, smoking is a key focus of workplace health promotion (WHP) programs, particularly in healthcare. WHP is a coordinated set of workplace activities and tactics that promote the health and safety of all employees. Evidence suggests that well-designed and well-executed WHP programs based on evidence-based principles and occupational physician (OP) cooperation can yield beneficial health and economical results [8]. Workers' health must be effectively protected by initiatives focused, on the one hand, at limiting exposure to particular workplace dangers and, on the other, at countering unhealthy lifestyles, including cigarette use. Furthermore, healthcare personnel serve as behavioral models for their patients and have the ability to play a critical role in combating the tobacco pandemic [9].

The purpose of this study was to evaluate the smoking prevalence, behaviors, and awareness among medical students at King Faisal University, as well as to determine the correlations between smoking and socio-demographic factors and to recommend workplace health promotion activities among the University for the students to reduce smoking cessation.

Methods

Study Design, study setting and study population

This cross sectional study was carried out during Mar to Aug 2023 among King Faisal University students. The estimated sample size was calculated by taking 95% CI and 5% margin of error based on a 50% prevalence of smoking among students. The anticipated sample size of 385 was determined. Although, we recruited a total of 606 students, thus the expected size was revised by considering non-response rate.

Data Collection, Variables and Outcome

The students were recruited through non-probability convenience sampling by filling a self structured questionnaire, which was adopted from a previously conducted study by Garzillo E.M et al., in 2022 [10], it was modified and shared with the students through google forms and ask them to consent before filling and then 606 participants responded by filling the questionnaire. The questionnaire comprised on demographic details, smoking status, habits and awareness of smoking hazards. University students who were enrolled in different departments were included. Students who were not willing to participate were excluded from the study.

Statistical Analysis

SPSS software version 26 was used to populate and analyze data. Descriptive and inferential statistics was applied. Descriptive statistics was used to calculate mean & standard deviation (SD) and frequency (percentage). Inferential statistics was applied to find the association between the dependent and independent variables by applying the appropriate tests including T-test, Pearson's chi-square test, and Fisher's exact test. P value ≤ 0.05 was considered significant by taking 95% confidence interval and 5% margin of error.

Results

Electronic questionnaires were used to collect the data. The collected data was retrieved in Microsoft excel sheets. It was then converted to SPSS version 26, which was employed in order to carry out the statistical analysis of the data. It was ensured that all data was correctly coded, validated, cleaned, and revised before analysis. The questionnaire was disseminated to students, and 606 were eventually recruited, out of which 317 (52.3%) were male and 289 (47.7%) were female students. The mean age of the students was 21.8±2.1 years. The incidence of smoking (active smokers) is reported to be 10.1% (n=61). Descriptive statistics including demographic details, smoking incidence and awareness of students is mentioned in table-I. Smoking status of the students is shown in fig-I.

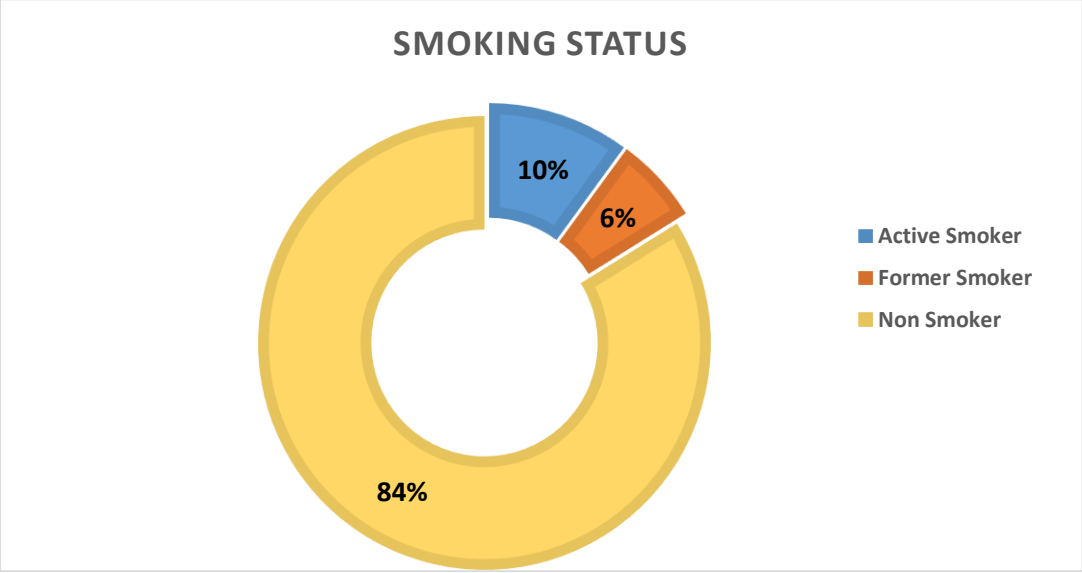

Fig-I: Smoking status of the students in King Faisal University

Table – I: Descriptive statistics of study population (N=606)

SR#	Variables		Data
	Demographics		
	Age		21.8±2.1 years
	Gender	Male	317 (52.3%)
		Female	289 (47.7%)
	College	Prep year	45 (7.4%)
		Medical student	273 (45%)
		Dentistry	45 (7.4%)
		Computer Science	28 (4.6%)
		Agriculture	5 (0.8%)
		Pharmacy	27 (4.5%)
		Science	21 (3.5%)
		Other	162 (26.7%)
	Educational Year	1st year	128 (21.1%)
		2nd year	69 (11.4%)
		3rd year	81 (13.4%)
		4th year	176 (29%)
		5th year	151 (24.9%)
	Comorbidities	Diabetes	24 (4%)
		Hypertension	16 (2.6%)
		COPD*	11 (1.8%)
		Asthma	22 (3.6%)
		CVD*	4 (0.7%)
		Obesity	43 (7.1%)
		Other	36 (5.9%)
		None	465 (76.7%)

Smoking status

Do you Smoke cigarette?	Active smoker Former- smoker Non smoker	61 (10.1%) 37 (6.1%) 508 (83.8%)
Use E-cigarette?	Yes No Sometimes	66 (10.9%) 490 (80.9%) 50 (8.3%)
Do you consume Alcohol?	Rarely (≤ once per week) Sometimes (1-3 times per week) Often (≥ 4 times per week) Everyday Never	12 (2%) 6 (1%) 6 (1%) 3 (0.5%) 577 (95.2%)
Age when you started smoking		15±8.5 years
How many cigarettes you smoke per day?	Zero ≤10 11-20 21-30 ≥ 31	539 (88.9%) 39 (6.4%) 20 (3.3%) 4 (0.7%) 4 (0.7%)
Do you want to quit smoking?	Yes No May be	56 (9.2%) 47 (7.8%) 34 (5.6%)
Attempts to quit smoking?	Once Twice More than twice Never	18 (3%) 19 (3.1%) 29 (4.8%) 43 (7.1%)
Why did you quit smoking?	For family To improve health Other reason	18 (3%) 60 (9.9%) 18 (3%)
Do you live alone?	Yes No	122 (20.1%) 477 (78.7%)
How many cohabitants you live with?		5.76±6.5
No of smoker cohabitant	0 1 >1	413 (68.2%) 114 (18.8%) 67 (11.1%)

Habits and Awareness of smoking hazard

There should be a Ban on smoking in public places?	Yes No	461 (76.1%) 134 (22.1%)
Smoking makes me relaxed	Yes No Sometimes	70 (11.6%) 51 (8.4%) 39 (6.4%)
Smoking helps me lose weight		57 (9.4%)
I feel confident when I smoke		65 (10.7%)
I smoke when I feel stressed		94 (15.5%)
Smoking makes me happy		83 (13.7%)
I smoke with friends only		45 (7.4%)
Smoking is a risk factor for most of the diseases		559 (92.2%)
Secondhand smoke is also harmful to health		572 (94.4%)

Smoking causes	Pulmonary diseases	535 (88.3%)
	CVD*	524 (86.5%)
	Liver diseases	485 (80%)
	Cancer	548 (90.4%)
	Other	509 (84%)
	All of them	461 (76.1%)
	None of them	18 (3%)
From where you get this knowledge	TV	160 (26.4%)
	Newspapers	22 (3.6%)
	Internet	401 (66.2%)
	Academic sources	267 (44.1%)
	Doctors	357 (58.9%)
	Other sources	47 (7.8%)

***** CVD: Cardiovascular disease, COPD: Chronic obstructive pulmonary disorder

Students were categorized into medical 345(56.9%) and non-medical 261 (43.1%) students and they were compared for the smoking status, there was not any difference between the smoking status of medical and non-medical student i.e. 34(9.9%) and 27 (10.3%) active smokers among medical and non-medical students respectively with non-significant findings (p=0.108) as shown in fig-II. More than 90% students of both groups agree that smoking is a risk factor for most of the diseases (p=0.013) and it cause many diseases (p<0.001), second hand smoke is also harmful to health (p=0.001), although 270 (78.3%) medical and 191 (73.2%) non-medical students stated that there should be a ban on smoking in public places (p=0.008).

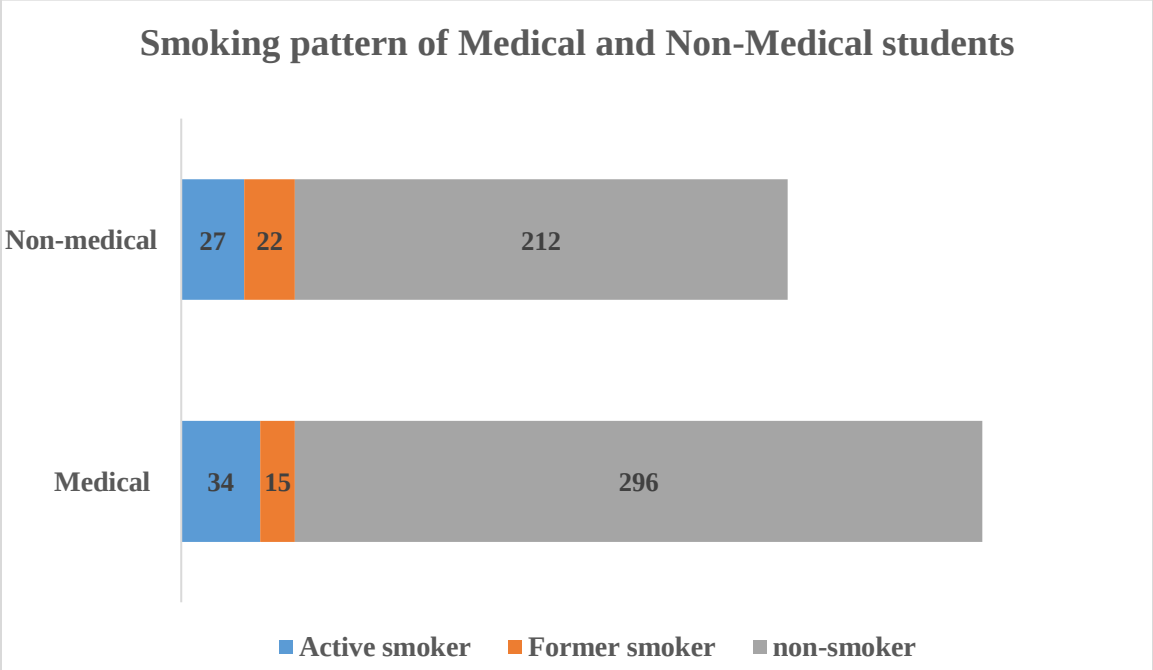

Fig-II: Smoking status among medical and non-medical students

When compared the smoking status of the students with educational year, most of the students become active smoker in 4th and 5th year as depicted in fig-III. Pearson's chi-square test was applied to find out the association between the smoking status and socio-demographics, smoking habits and awareness as shown in table-II. The percentage of co-morbidities was higher in active smokers as compared to former and non-smokers with statistically significant findings (p<0.05). 59% active smokers use electronic cigarettes (E-cigarettes) in their daily routine (p=<0.001). 62.8% active and former smokers live with 1 or more than 1 smoker cohabitant and the finding was statistically significant. Most of the study participants were well awared with the fact that smoking is a risk factor to most of the diseases including cardiovascular disease (CVD), pulmonary diseases, cancer, liver diseases and many others with significant findings (p<0.05).

Table-II: Comparison of smoking status with socio-demographics, smoking habits and awareness

Variables			Smoking status			P value
			Active (n=61)	Former (n=37)	Non (n=508)	
Gender	Male	n	55	27	235	<0.001
		%	90.2%	73.0%	46.3%	
	Female	n	6	10	273	
		%	9.8%	27.0%	53.7%	
College	Prep year	n	1	1	43	<0.001
		%	1.6%	2.7%	8.5%	
	Medical student	n	16	9	248	
		%	26.2%	24.3%	48.8%	
	Dentistry	n	17	4	24	
		%	27.9%	10.8%	4.7%	
	Computer science	n	5	2	21	
		%	8.2%	5.4%	4.1%	
	Agriculture	n	1	1	3	
		%	1.6%	2.7%	0.6%	
	Pharmacy	n	1	2	24	
		%	1.6%	5.4%	4.7%	
	Science	n	3	3	15	
		%	4.9%	8.1%	3.0%	
	Other	n	17	15	130	
		%	27.9%	40.5%	25.6%	
Educational year	1st year	n	9	5	114	0.142
		%	14.8%	13.5%	22.5%	
	2rd year	n	3	7	59	
		%	4.9%	18.9%	11.6%	
	3rd year	n	9	7	65	
		%	14.8%	18.9%	12.8%	
	4th year	n	19	7	150	
		%	31.1%	18.9%	29.6%	
	5th year	n	21	11	119	
		%	34.4%	29.7%	23.5%	
Co morbidities	Asthma	n	3	5	14	0.003
		%	4.9%	13.5%	2.8%	
	CVD*	n	2	0	2	0.028
		%	3.3%	0.0%	0.4%	
	COPD*	n	5	2	4	<0.001

		%	8.2%	5.4%	0.8%	
	Diabetes Mellitus	n	8	4	12	<0.001
		%	13.1%	10.8%	2.4%	
	Hypertension	n	4	6	6	<0.001
		%	6.6%	16.2%	1.2%	
	Obesity	n	12	3	28	<0.001
		%	19.7%	8.1%	5.5%	
	Other	n	7	4	25	0.049
		%	11.7%	10.8%	4.9%	
Use E-cigarette	No	n	14	9	467	<0.001
		%	23.0%	24.3%	91.9%	
	Sometimes	n	11	12	27	
		%	18.0%	32.4%	5.3%	
	Yes	n	36	16	14	
		%	59.0%	43.2%	2.8%	
Consume alcohol	Everyday	n	1	1	1	<0.001
		%	1.6%	2.7%	0.2%	
	Never	n	51	27	499	
		%	83.6%	73.0%	98.2%	
	Often (≥ 4 times per week)	n	1	3	2	
		%	1.6%	8.1%	0.4%	
	Rarely (≤ once per week)	n	5	4	3	
		%	8.2%	10.8%	0.6%	
	Sometimes (1-3 times per week)	n	2	2	2	
		%	3.3%	5.4%	0.4%	
Want to quit smoking	Maybe	n	21	--	--	<0.001
		%	34.4%	--	--	
	No	n	17	--	--	
		%	27.9%	--	--	
	Yes	n	20	--	--	
		%	32.8%	--	--	
Attempts to quit smoking	Once	n	11	4	--	<0.001
		%	18.0%	10.8%	--	
	Twice	n	8	7	--	
		%	13.1%	18.9%	--	
	More than twice	n	11	13	--	
		%	18.0%	35.1%	--	
	Never	n	20	--	--	
		%	32.8%	--	--	
Number of smoker cohabitant	0	n	44	23	346	0.751
		%	73.3%	63.9%	69.5%	

	1	n	12	8	94	
		%	20.0%	22.2%	18.9%	
	>1	n	4	5	58	
		%	6.7%	13.9%	11.6%	
Smoking helps lose weight		n	32	17	8	<0.001
		%	52.5%	45.9%	1.6%	
Smoking gives confidence		n	36	19	10	<0.001
		%	59.0%	51.4%	2.0%	
I smoke, whenever I feel stressed		n	52	27	15	<0.001
		%	85.2%	73.0%	3.0%	
Smoking gives happiness		n	46	22	15	<0.001
		%	75.4%	59.5%	3.0%	
I smoke with my friends only		n	20	15	10	<0.001
		%	32.8%	40.5%	2.0%	
Smoking makes me relaxed	No	n	1	2	48	<0.001
		%	1.6%	5.4%	9.4%	
	Sometimes	n	13	15	11	
		%	21.3%	40.5%	2.2%	
	Yes	n	44	16	--	
		%	72.1%	43.2%	--	
There should be a Ban on smoking in public places		n	27	27	407	<0.001
		%	44.3%	73.0%	80.1%	
Smoking is a risk factor for most of the diseases		n	57	34	468	0.643
		%	93.4%	91.9%	92.1%	
Second hand smoke is also harmful		n	58	34	480	0.809
		%	95.1%	91.9%	94.5%	
Smoking causes	CVD*	n	52	26	446	0.010
		%	85.2%	70.3%	87.8%	
	Cancer	n	55	29	464	0.035
		%	90.2%	78.4%	91.3%	
	Liver disease	n	48	31	406	0.819
		%	78.7%	83.8%	79.9%	
	Pulmonary disease	n	53	25	457	<0.001
		%	86.9%	67.6%	90.0%	
	Other	n	48	26	435	0.024
		%	78.7%	70.3%	85.6%	

***** CVD: Cardiovascular disease, COPD: Chronic obstructive pulmonary disorder

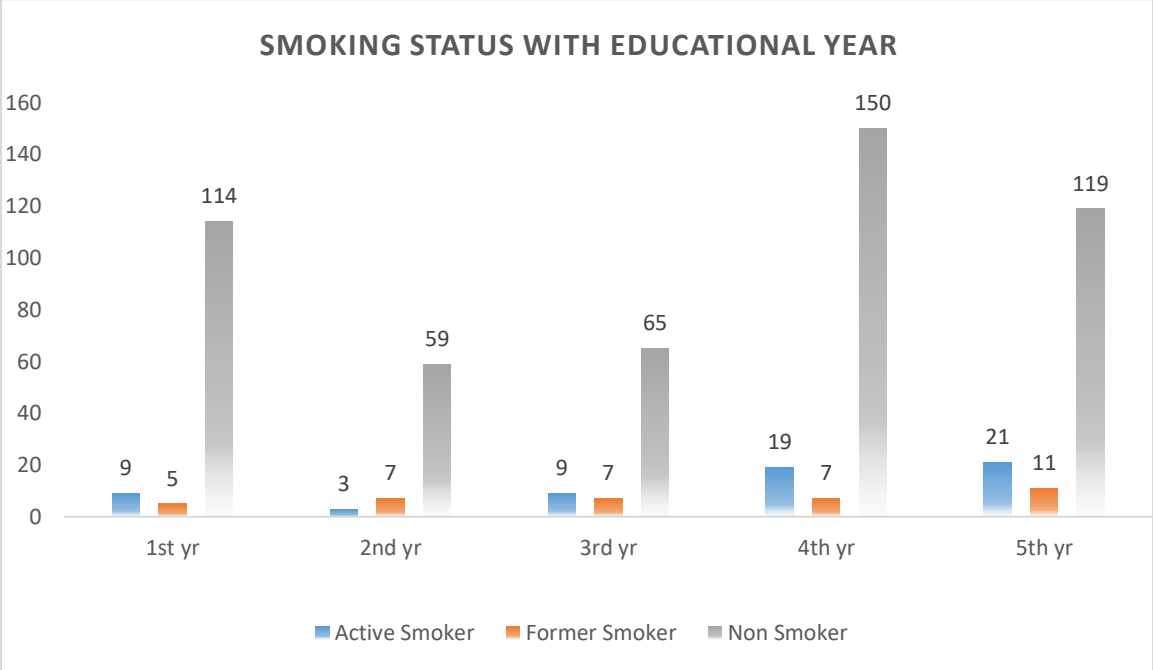

Fig-III: Association of smoking status of students with the educational year

Discussion

The findings of current study reported 6.1% former smokers and 10.1% active smoking rate. The highest proportion of participants reported to be non-smokers and rarely consume alcohol. The smoking rate of students in early years (14.8%) was less than the 4th and 5th year students i.e. 31.1% and 34.4% respectively. Our study had 52.7% male and 47.3% female students, in terms of active and former smokers; 26% male and only 5.5% females were indicated. There were 345(56.9%) medical and 261 (43.1%) non-medical students, out of which 34(9.9%) and 27 (10.3%) active smokers respectively. 62.8% smokers (active and former) live with 1 or more than 1 smoker cohabitant. Data revealed that >90% medical and non-medical students consider smoking as a risk factor for most of the diseases (p=0.013) and second hand smoke is also harmful to health (p=0.001), although 270 (78.3%) medical and 191 (73.2%) non-medical students stated that there should be a ban on smoking in public places (p=0.008) with significant findings. Mostly smokers stated that smoking gives them confidence (59%), happiness (75.4%) and helps in losing weight (52.5%), 85.2% said they smoke when stressed, 32.8% smoke with friends only and 72.1% claimed that smoking make them relaxed and these factors were statistically significant (p<0.05).

The incidence of smoking reported by our study is 10.1% which is in-line with a study conducted by Cena H. et al., who reported the prevalence of smoking to be 12% in the region of Spain [11]. While the reported prevalence of smoking by a recent study was 25.3% and 24.6% [10, 12], this difference may be because both of these studies conducted in Italian students. Garzillo, E.M et al., reported 34.2% former smokers in their study. Alternatively, Gallè F. et al., reported the prevalence of former smokers to be 8.8% [12], which is similar with our findings of 6.1% former smokers. This discrepancy in the data could be attributable to the varied study designs or times of data collection, and therefore to different eras in which more recent, compelling smoking cessation programs may have been carried out. Alternatively, this variation in the data could be due to a combination of all of these factors.

Gender distribution showed 52.7% male and 47.3% female students, out of which 26% male were smokers (former + active) and only 5.5% females were smokers (active + former). However, it appeared that the data on smoking cessation around the world is somewhat consistent with the findings of our study that females has lower ratio of smoking as compared to men [1]. In opposite to our findings, a recent study claimed 37.7% male and 62.8% female smokers (active + former) but their findings were not statistically significant [10]. Our study focused solely on examining gender differences, whereas the research of other authors investigated differences in smoking behaviors based on gender identity and sexual orientation, but found no statistically significant results [13].

Smoking habits sturdily influenced by the smoking co-habitants [14]. Several studies highlight the adverse consequences of living with smokers on the influence of a smoking habit, especially on smoking cessation behaviors

[10, 15, 16] confirmed this finding with a statistical significance for the association between smoking and cohabitation with smokers. Likewise our data suggest that 62.8% active and former smokers live with 1 or more than 1 smoker cohabitant. Literature also showed the significant relationship of alcohol consumption with the co-habitants [17].

In our study sample, 19.2% students reported the use of e-cigarettes, likewise in another study 12.7% stated the usage of e-cigarettes. Although, limited data on e-smoke prevalence among university students is existing. In contrast Kinnunen et al., claimed the rate of e-smokers to be 30% [18]. The regional difference between the prevalence rates is considered to be the main reason.

In a current study, 78.3% students of medical science reported that there should be a ban on smoking in public places (p=0.008), while 92.8% medical students agreed that smoking is the risk factor for most of the diseases (p=0.013). Same findings were reported by D'Egidio et al., they also engrained and focused on the training of the students on smoking cessation during the academic year [19]. The findings of La Torre et al., also confirmed that trainings and inclusion of smoking cessation activities in academia can reduce the rate of smoking among the students [20]. Our data predict that 92.2% students were awared that smoking is a risk factor for most of the diseases. And majority of students mentioned that they gained this knowledge from different information sources including internet, doctors and academic sources. Consequently, another study declared that approximately 90% of participants reported receiving information about the hazards of smoking from multiple sources. The results of this study provide plausible explanation for the link between cigarette smoking and resistance to receiving additional information regarding the dangers of tobacco use. They also reported that approximately 58% study participants got the awareness regarding the hazards of smoking from academics [10]. Nearly to their findings, our study also claimed that 44.1% students get this information from academic sources.

Health promotion activities

The high incidence of smoking among our demographics may be ascribed to the ineffectiveness of health promotion initiatives implemented throughout academic coursework, as well as the heightened expectations and academic stress experienced during the duration of the program. According to our data, 85.2% active smokers claimed that they smoke when they feel stressed, same findings were reported by Shadid, A. et al., in their survey [21]. According to our perspective, it is plausible that health professional students may need education and support in the form of training regarding substance abuse and cigarette cessation as part of their primary university curriculum in order to quit smoking. It's important to note that the emergence of innovative tobacco and nicotine-based goods (including e-cigarettes and next-generation non-smoking products) on the market has created new possibilities for preventative measures. The proliferation of such products is of relevance and a public health concern. The participants in this study represent a potential dwell for health promotion initiatives, as it is a favorable population. Most likely our study population is comprised of young adults who view smoking as a paradigm for social assimilation. Cigarette smokers casts the positive effects of increased socialization and closeness with friends outweigh the negative effects of smoking on one's personal and psychological well-being. According to a study conducted by Mannocci et al., [22], the optimal communicating approach for healthcare initiatives involves directing advertisements at less mature groups of the educational individuals, with the aim of debunking inaccurate perceptions. The available research has evidence on the effectiveness of health-promoting methods in reducing nicotine consumption amongst teenagers [23]. The investigators in the systematic review found an efficacy of 21 percent after the implementation of a smoking-cessation strategy. Prevention efforts and legislative actions have the potential to effectively support smokers in quitting smoking, particularly when using conjunction methods [24].

One significant factor to consider in education initiatives is the insufficient awareness about the growing industry of digital cigarettes. Hence, it is highly recommended to provide supplementary education to undergraduates and grads, given that those items are often promoted to be less detrimental substitutes for conventional tobacco products. However, it is worth noting that there is data indicating that they have the potential to induce cardiac morbidity and pulmonary illnesses [25]. Based on the findings of Warren et al., (26), it may be argued that healthcare establishments have an ethical duty to support the learners in attempting to quit smoking by offering reassurance, disseminating pertinent knowledge, and extending aid to those who demonstrate motivation. At present, healthcare apprentices are provided with inadequate and variable instruction on tobacco-related matters. Health education programs must have been shown to provide adequate knowledge on smoking cessation [27].

Recommendations

- It's safe to presume that smoking cessation education should be integrated into the curriculum at multiple points during a student's academic career.
- This segmentation can also change the training delivery methods, shifting from traditional didactics to more targeted techniques like focus groups, and not forgetting the influence of more contemporary means of

communication (such social media and websites) on today's youth.

- Starting in the first year, the curriculum should include explicit instruction on how to prevent students from becoming tobacco users, how to help current smokers quit, and how to instill a sense of duty as a role model in future patients.

Strengths and limitations

There are some caveats to this study. First, although a large percentage of people completed the survey, no data regarding those who opted not to participate was obtained. The study also used a self-administered questionnaire that did not allow for open-ended responses from participants. Second, research shows that smokers tend to have poorer diets [29], Such possible associations were not investigated in our study but could be in future research. Finally, the cross-sectional methodology and self-reported data may have introduced bias and weakened the reliability of the findings. Despite these caveats, there are some benefits to the current study. The number of students in the study were good enough, and it was evenly distributed throughout a wide range of academic disciplines.

Conclusions

According to the findings of the survey, the primary factor contributing to the emergence of a smoking habit among students is exposure to smoker cohabitants. It is vital to implement proactive education on health promotion and smoking-related risk factors by introducing particular training within educational institutions. More research is needed to determine the true prevalence of the phenomena and the factors that contribute to it. This research should complement existing public health programs and may involve a high-quality methodological approach and field work.

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