

Perception and Practices of Shisha Smoking among Kafr El-Sheikh University Students, Egypt

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Abstract

Background: There is increasing evidence that tobacco consumption is spreading all over the world. Research showed a rising trend in college students' Shisha use. Scarse studies investigated Shisha smoking in Egypt among university students. **Objective:** The aim of the current study was to describe students' perception and practices towards shisha smoking and identify factors influencing adoption of this behaviour. **Method:** A cross-sectional study was conducted at Kafr El-Sheikh University among medical and engineering students. A total of 953 students were included in the study. Data were collected through a self-administered questionnaire. Descriptive statistics and Chi-square test were used for statistical analysis. **Results:** 22.5% of the study participants were 'current' shisha smokers; the majority (91.1%) of them were engineering students. Personal expenses were the main source of money spent on Shisha smoking. 'Traditional Café' was the preferred for most of both medical and engineering students (68.4% & 63.6%, respectively). 'Peer pressure' was the common cause for starting Shisha smoking among 63.1% of the participants. 34.1% of Shisha smokers are seriously considering quitting. **Conclusion:** Although the prevalence of shisha smoking was not so high, positive smoking attitude and faulty knowledge were noticed among a considerable number of university students necessitating planning, and implementation of educational campaign for college students about smoking and its associated hazards.

Keywords: *Shisha, smoking, University students, Kafr El-Sheikh, Egypt*

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Introduction

Worldwide, tobacco use continues to be the leading single greatest cause of preventable morbidity and mortality. The tobacco epidemic is still growing.¹ Globally, Tobacco is ranked as the second main cause of death.² Data have revealed that the trend of tobacco smoking is rising within developing countries leading to a remarkably high risk of tobacco-related linked diseases.³ WHO action plan set a target of a 25% relative reduction in tobacco use by 2025. However, evidence suggests that waterpipe tobacco smoking may challenge this goal, as there is an

increase in its prevalence across multiple countries.⁴

Egypt has the highest number of tobacco users among the population of the Arab world. Smoking prevalence has been increasing, with the number of smokers rising at nearly double the rate of population growth over the previous few decades.⁵ In Egypt, water pipe tobacco is considered as endemic.⁴

Shisha is the Arabic word of water pipe. Shisha smoking habit was conventionally limited to elder men and women; though, it is rapidly spreading amongst youth.⁶ The

quantity of smoke inhaled within a single Shisha session is approximately 200 times more than from a single cigarette. The nicotine content in Shisha tobacco is estimated as 2–4% compared to 1–3% in cigarettes. Shisha smoke also has carbon monoxide content measured as 0.34–0.40%. In addition, the smoke of tobacco comprises more than 4800 different chemicals among which 69 are carcinogenic.⁷ It is not certain whether smoking Shisha produces analogous dangerous chemicals since the composition of different forms of Shisha varies.⁸ However, there is evidence of a considerable increase of carcinoembryonic antigen (CEA) amongst heavy Shisha smokers.⁹

More than 100 million persons around the world smoke Shisha daily.¹⁰ Nearly 3.5% of the Egyptian population are Shisha smokers.¹¹ In 2008, a study among adolescent students in Mansoura reported 10.4% daily waterpipe use.¹²

College life is a critical transition stage through which young adults set out to discover tobacco use.¹³ College students are at risk population regarding Shisha use due to their perception of its use as a harmless substitute to cigarettes.¹⁴ In 2008, a systematic review revealed an alarmingly high prevalence of waterpipe tobacco smoking among school and university students within the Middle East.¹⁵ The aim of the current study was to identify students' perception and practices towards Shisha smoking and factors influencing adoption of this habit.

Method

This was a cross-sectional study conducted from January to March 2017 in Kafr El-Sheikh University, Egypt. The University was established in 2006 in Kafr El-Sheikh Governorate, which is an Egyptian governorate that lies in the northern part of

the country. It contains 18 faculties with more than 33,000 undergraduate students.

Two faculties were chosen randomly to represent students of Kafr El-Sheikh University; Faculty of Medicine and Faculty of Engineering. The sample size was calculated using Epi-Info software created by the World Health Organization and Center for Disease Prevention and Control, Atlanta, Georgia, USA version 2003. The estimated prevalence of smoking was 20% with a margin of error of 2.5 and 95% confidence limit. The sample size was estimated at 952. Students were divided into each academic grade into sections according to the schedule of practical training. One section was chosen randomly from each academic grade to represent the study population. Participants were 506 students from Faculty of Medicine and 447 students from the Faculty of Engineering.

Data collection methods and tools: The data was collected using a self-administered structured questionnaire prepared by authors. The questionnaire sheet included the following data: Socio-demographic data and background characteristics, perception and practices of Shisha smoking among students, and self-reported symptoms related to Shisha smoking. All questions were closed-ended.

Definitions: Smoking status was established according to the criteria set by Maziak et al. (2005) for water-pipe smoking.¹⁶

Statistical analysis

The collected data were organized, tabulated, and statistically analysed by SPSS version 25 created by IBM, Chicago, IL, USA. For quantitative variables, the number and percentage were calculated, and differences were tested using chi-square (χ^2). When chi-square was not appropriate, the Monte Carlo exact test was used. The level of significance was adopted at $p < 0.05$.

Ethical considerations

Ethical approval from the Faculty of Medicine Internal Review Board was obtained. Consent from each student was obtained before data collection and the questionnaires were filled anonymously.

Results

The study included 953 students; 61.8% of them were males with a mean age 20.5 ± 1.34 years. University educational level was reported for 72.1% of fathers and 58.8% of mothers of participants. More than half of participants' fathers (54.9% and 39.8% of mothers were professionals. Among 71.6% of participants, the living accommodation was with family. Smoking was reported among more than one third (37%) of students' parents; 20.5% of them smoke cigarettes only, 8.5% smoke shisha only, and 7.6% smoke both.

The pattern of Shisha smoking among university students (Table 1): More than one fourth (26.1%) of the study participants were 'Ever' Shisha smokers, and more than one fifth (22.5%) were 'current' Shisha smokers; the majority of the current smokers are engineering students; representing 43.6% of the all studied engineering students, while only 3.8% of the studied medical students were current Shisha smokers, the difference was statistically significant. More than half (51.3%) of Shisha smokers in the faculty of engineering reported that they smoke Shisha only, compared to 42.1% among medical ones. Nearly equal percentages of Shisha smokers in both faculties reported combined smoking of Shisha and Cigarettes (46.7% & 47.4%, respectively), and the difference was not statistically significant. Most of Shisha smokers in both faculties reported that they spend money on Shisha from their personal pocket money (89.5% & 79%, respectively), and the difference was not statistically significant. Nearly one half

(47.4%) of medical students started Shisha smoking for two or more years, compared to 34.9% of engineering peers. The highest percentage of frequency of Shisha smoking was '2-3 times/week', it was reported among 28.7% of engineering students, while more than two fifths (42.1%) of medical students reported that they smoke Shisha occasionally not regularly, the difference was statistically significant. Nearly one half (47.4%) of medical students reported a '<15 minutes' duration for Shisha session compared to 23.3% among engineering ones, while only minor percentage (5.3%) of medical students reported a session duration >1 hour compared to 22.8% of engineering students. Regarding participants' preferred places for Shisha smoking; 'Traditional Café' was the preferred for both medical and engineering students (68.4% & 63.6%, respectively. Among shisha smokers, 61.2% of their parents were not aware of their smoking. However, 6.5% of parents agreed for this.

Sociodemographic factors affecting shisha smoking (Table 2): The prevalence of shisha smoking was significantly higher among engineering students (43.6%) compared to medical students (3.8%). Prevalence of smoking shisha among males was significantly higher as reported by 35.3% compared to only 0.6 among females. Engaged students reported smoking in a significantly higher percentage compared to non-engaged ones (36.7% and 19.1%, respectively). Lower levels of parents' education showed a significantly higher prevalence of shisha smoking. The lowest prevalence of smoking was reported for students whose fathers have professional jobs (18.0%) while the lowest prevalence of 18.4% was reported for students with housewife mothers. Differences in the prevalence of smoking in relation to parents' educational level and jobs were found statistically

Table (1): Pattern of Shisha smoking among the studied students

Pattern of Shisha smoking	Medicine (n=506)		Engineering (n=447)		Total (n=953)		MCET P
	n	%	n	%	n	%	
Ever smoked Shisha	36	7.1	213	47.7	249	26.1	0.001
Currently smoking Shisha							
None	487	96.2	252	56.4	739	77.5	0.001
Yes	19	3.8	195	43.6	214	22.5	
<i>Shisha only</i>	8	42.1	100	51.3	108	50.5	0.09
<i>Shisha and Cigarettes</i>	9	47.4	91	46.7	100	46.7	
<i>Others</i>	2	10.5	4	2.0	6	2.8	
Source of money for smoking							
Pocket money from family	17	89.5	154	79.0	171	79.9	0.542
Part time work	2	10.5	32	16.4	34	15.9	
Others	0	0.0	9	4.6	9	4.2	
Onset of starting smoking							
< 6 months	4	21.0	37	19.0	41	19.1	0.481
6- months	0	0.0	16	8.2	16	7.5	
12- months	6	31.6	74	37.9	80	37.4	
≥ 24 months	9	47.4	68	34.9	77	36.0	
Frequency of smoking							
Irregular	8	42.1	30	15.4	38	17.8	0.045
Once or less/week	3	15.8	35	17.9	38	17.8	
2-3 times/week	2	10.5	56	28.7	58	27.0	
4-5 times/week	2	10.5	33	17.0	35	16.4	
Daily	4	21.1	41	21.0	45	21.0	
Duration of smoking session							
<15 minutes	9	47.4	44	22.4	53	24.8	0.067
15-30 minutes	5	26.3	55	28.1	60	28.0	
> 30 minutes	4	21.0	53	27.2	57	26.6	
> 1 hour	1	5.3	43	21.9	44	20.6	
Preferred smoking places:							
Traditional Café	13	68.4	124	63.6	137	64.0	0.374
Modern Café / Restaurant	5	26.3	52	26.7	57	26.6	
At home	1	5.3	3	1.5	4	1.9	
With friends	0	0.0	16	8.2	16	7.5	
Parents knowledge of being a smoker	6	31.6	77	39.5	83	38.8	0.499
Parents attitude of being a smoker							
Strongly disagree	12	63.1	89	45.6	101	47.2	0.511
Disagree	5	26.3	68	34.9	73	34.1	
Neutral	1	5.3	25	12.8	26	12.1	
Agree	1	5.3	13	6.7	14	6.6	

MCET = Monte Carlo exact test

significant. Family income was found to significantly affect the prevalence of smoking where the highest prevalence was reported for families with not enough monthly income (33.3%). If one parent was smoking and especially shisha was found to significantly increase the prevalence of smoking among studied students.

Participants` knowledge regarding Shisha smoking (Table 3): The highest agreement of the majority of participants was noticed for the following statements: Shisha smoking causes respiratory diseases (85.94%), Shisha smoking causes lung cancer (82.79%), Shisha smoking causes cardiovascular diseases (77.86%), Shisha smoking causes oral and dental problems (76.71%)

Table (2): Socio-demographic characteristics affecting shisha smoking of the studied students

Variables	Shisha smokers (n=214)		Nonsmokers (n=739)		Total (n=953)		χ^2	p
	n	%	n	%	n	%		
Faculty								
Medicine	19	3.8	487	96.2	506	100	216.66	0.001
Engineering	195	43.6	252	56.4	447	100		
Gender								
Males	212	35.3	389	64.7	601	100	153.56	0.001
Females	2	0.6	350	99.4	352	100		
Marital status								
Single	148	19.1	625	80.9	773	100	25.74	0.001
Engaged	66	36.7	114	63.3	180	100		
Fathers' education								
Illiterate	14	36.8	24	63.2	38	100	9.53	0.001
Primary	24	31.2	53	68.8	77	100		
Secondary	28	18.5	123	81.5	151	100		
University	148	21.5	539	78.5	687	100		
Fathers' job								
Manual worker	37	28.9	91	71.1	46	100	18.73	0.023
Employee	73	26.0	208	74.0	281	100		
Professional	94	18.0	429	82.0	523	100		
Retired/ Not working	10	47.6	11	52.4	21	100		
Mothers' education								
Illiterate	20	30.3	46	69.7	66	100	31.69	0.001
Primary	42	42.9	56	57.1	98	100		
Secondary	38	16.6	191	83.4	229	100		
University	114	20.4	446	79.6	560	100		
Mothers' job								
Manual worker	7	41.2	10	58.8	17	100	8.57	0.036
Employee	39	23.9	124	76.1	163	100		
Professional	98	24.9	295	75.1	393	100		
Housewife	70	18.4	310	81.6	380	100		
Parents status:								
Married	142	20.8	540	79.2	682	100	4.18	0.243
Divorced	19	29.7	45	70.3	64	100		
One is dead	30	26.1	85	73.9	115	100		
Father working abroad	23	25.0	69	75.0	92	100		
Family monthly income							11.73	0.003
Not enough	35	33.3	70	66.7	105	100		
Enough but no saving	91	24.2	285	75.8	376	100		
Enough & saving	88	18.6	384	81.4	472	100		
One parent is a smoker								
Yes	126	35.7	227	64.3	353	100	56.433	0.001
No	88	14.7	512	85.3	600	100		
Parent is Shisha smoker								
Yes	74	48.4	79	51.6	153	100	70.271	0.001
No	140	17.5	660	82.5	800	100		

These statements were significantly more accepted by non-Shisha smokers compared to Shisha smokers.

Participants' perception of Shisha smoking (Tables 4): Shisha smokers significantly

agreed with the following statements showing their perception of shisha smoking as being safer than cigarettes smoking: Shisha is less harmful than cigarettes, Quitting Shisha is easier than

Table (3): Knowledge regarding Shisha smoking among the studied students

Variables	Shisha smokers (n=214)		Nonsmokers (n=739)		Total (n=953)		χ^2	p
	n	%	n	%	n	%		
Sharing Shisha mouthpiece can transmit infections as tuberculosis	147	68.7	494	66.8	641	67.3	0.256	0.613
Shisha health related problems								
Cardiovascular diseases	153	71.5	589	79.7	742	77.9	6.484	0.011
Respiratory diseases	167	78.0	652	88.2	819	85.9	14.260	0.001
Lung cancer	160	74.8	629	85.1	789	82.8	12.474	0.001
Gastric & duodenal ulcers	115	53.7	483	65.4	598	62.7	9.586	0.002
Oral and dental problems	130	60.7	601	81.3	731	76.7	39.328	0.001
Unwanted pregnancy outcome	127	59.3	562	76.0	689	72.3	23.016	0.000

cigarettes, The filter removes harmful substance from shisha, Shisha contains smaller nicotine than cigarettes, Shisha can help to quit cigarettes smoking.

‘Rich people smoke shisha and favorite famous figures,’ was agreed by a significantly higher percentage of shisha smokers compared to non-smokers.

Attitude and Practices of Shisha smoking: Tables (5, 6): Most of the non-Shisha smokers thought they will never smoke Shisha, and they will ‘never’ accept trial offers (70.5% & 73.1%, respectively). Also, they reported a strict agreement with the extreme importance of non-Shisha smoking for their parents and friends (72.7% & 67.9%, respectively). Medical students showed a significantly higher percentage of the refusal of smoking and smoking among parents and friends than their peers in engineering faculties.

Nearly two thirds (63.1%) of the participants stated peer pressures as a cause for starting Shisha smoking, followed by curiosity for new experiment’ in 29.4% of them, then ‘entertainment’ among 26.2%, and the least reported motivator was ‘effect of mass media (9.3%). Regarding reasons for continuing Shisha smoking, more than two-thirds of participants reported ‘Anxiety or tension’, followed by ‘Keeping pace with friends or relatives’ as the main reasons (69.6% & 66.4%, respectively). Nearly two fifths (39.7%) (85 out of 214) of Shisha smokers had tried to quit smoking. More than half

(51.8%) of them couldn’t quit for more than one month, and 12.9% of them tried to quit for about one year but didn’t succeed. More than one third (34.1%) of Shisha smokers seriously consider quitting, while 38.3% of them had no plans for quitting in the near future. Shisha smokers seriously consider quitting, while 38.3% of them had no plans for quitting in the near future.

Discussion

College students comprise a remarkable proportion of the at-risk population concerning Shisha use. Its use is rising amongst them to the extent that it is now almost as familiar as cigarettes.¹⁷

In the current study, the mean age of Shisha smoker students was around 20 years which is supported by the observation that there is a rise in Shisha smoking in the last years and especially among youth in the Eastern Mediterranean countries.¹⁸ WHO, 2006 stated that water pipe smoking is currently spreading particularly among young adults and individuals from higher socioeconomic levels.¹⁹ In the present study, the sociodemographic characters of the studied population revealed a high prevalence among students whose parents have relatively lower educational and those with not enough monthly income. This contradicts with observations reported by

Table (4): Students` perception of Shisha smoking

Variables	Shisha smokers (n=214)		Nonsmokers (n=739)		Total (n=953)		χ^2	p
	n	%	n	%	n	%		
Shisha smoking is less harmful than cigarettes							78.450	0.001
Totally agree/agree	150	70.1	267	36.1	417	43.8		
Neutral	0	0.0	8	1.1	8	0.8		
Disagree/totally disagree	64	29.9	464	62.8	528	55.4		
Quitting Shisha smoking is easier than cigarettes							9.250	0.010
Totally agree/agree	150	70.1	441	59.7	591	62.0		
Neutral	1	0.5	17	2.3	18	1.9		
Disagree/totally disagree	63	29.4	281	38.0	344	36.1		
Water filter removes harmful substances from Shisha							50.890	0.001
Totally agree/agree	117	54.7	216	29.2	333	34.9		
Neutral	1	0.5	35	4.7	36	3.8		
Disagree/totally disagree	96	44.9	488	66.0	584	61.3		
Shisha contains smaller nicotine than cigarettes							19.410	0.001
Totally agree/agree	125	58.4	321	43.4	446	46.8		
Neutral	1	0.5	33	4.5	34	3.6		
Disagree/totally disagree	88	41.1	385	52.1	473	49.6		
Shisha smoking can help in quitting cigarettes							58.980	0.001
Totally agree/agree	139	65.0	264	35.7	403	42.3		
Neutral	1	0.5	19	2.6	20	2.1		
Disagree/totally disagree	74	34.6	456	61.7	530	55.6		
Shisha gives the same feeling of traditional cigarette							22.570	0.001
Totally agree/agree	113	52.8	269	36.4	382	40.1		
Neutral	2	0.9	38	5.1	40	4.2		
Disagree/totally disagree	99	46.3	432	58.5	531	55.7		
Most of businessmen often smoke Shisha							36.030	0.001
Totally agree/agree	145	67.8	331	44.8	476	49.9		
Neutral	2	0.9	27	3.7	29	3.0		
Disagree/totally disagree	67	31.3	381	51.6	448	47.0		
Stylish persons smoke Shisha							5.130	0.077
Totally agree/agree	124	57.9	409	55.3	533	55.9		
Neutral	0	0.0	17	2.3	17	1.8		
Disagree/totally disagree	90	42.1	313	42.4	403	42.3		
Rich people smoke Shisha more than poor							18.480	0.001
Totally agree/agree	126	58.8	333	45.1	459	48.2		
Neutral	1	0.5	28	3.8	29	2.9		
Disagree/totally disagree	87	40.7	378	51.1	465	48.8		
My favourite famous figures smoke Shisha							41.320	0.001
Totally agree/agree	132	61.7	278	37.6	410	43.0		
Neutral	1	0.5	26	3.5	27	2.8		
Disagree/totally disagree	81	37.9	435	58.9	516	54.1		

Sabra and Taha, 2011 in a study among medical university Students in Dammam City, Saudi Arabia where smoking Shisha was more prevalent among students of higher socioeconomic standard.²⁰ The economic differences between Egypt and Saudi Arabia are high. In Egypt, with the economic difficult situation, students tend to smoke to relieve stress and tension

which was evident in the present study as the one of the main motivators of smoking were life pressure and stress and as a source of entertainment. Available entertainment sources in resource-limited countries are restricted to few options as compared with rich countries.

The overall prevalence of current use of Shisha smoking among studied university

Table (5): Attitude of nonsmoker students towards trying Shisha smoking

Variables	Medicine (n=487)		Engineering (n=252)		Total (n=739)		χ^2	P
	n	%	n	%	n	%		
Do you think that you may ever smoke Shisha?								
Yes	12	2.5	30	11.9	42	5.7	133.47	0.000
Possible	64	13.1	112	44.4	176	23.8		
Never	411	84.4	110	43.7	521	70.5		
Accept if one of my friends offered me to try Shisha								
Yes	15	3.1	32	12.7	47	6.4	154.97	0.000
Possible	45	9.2	107	42.5	152	20.6		
Never	427	87.7	113	44.8	540	73.1		
For my parents: non-smoking is extremely important								
Agree/totally agree	389	79.9	148	58.7	537	72.7	37.74	0.000
Neutral	75	15.4	76	30.2	151	20.4		
Disagree/totally disagree	23	4.7	28	11.1	51	6.9		
For my friends & peers: non-smoking is extremely important								
Agree/totally agree	352	72.3	150	59.5	502	67.9	13.04	0.001
Neutral	89	18.3	72	28.6	161	21.8		
Disagree/totally disagree	46	9.4	30	11.9	76	10.3		

students was 22.5% with male predominance. This reported prevalence in the current study is higher than that in the general population estimated by Global Adult Tobacco Survey (GAT), 2009 as 3.3% among Egyptians aged 15 years or older²¹, however the prevalence among female was the same as reported by the current study. A nearly similar prevalence (25%) was reported by Dar-Odeh et al., 2010 among Jordanian university students.²² While higher prevalence (30%) was reported among Malaysian students.²³ Our study results coincide with Jawaid et al., 2008 study which revealed that male gender was a significant predictor of Shisha smoking.²⁴

The low prevalence among females can be explained by the fact that in Muslim societies it is considered improper and shameful for women to smoke²⁵, and it may be seen as a ‘social stigma’. However, the rise in smoking prevalence among women has been observed in recent years.²⁶ A study conducted within four Middle Eastern countries concluded that community norms play an essential role in this issue.²⁷

In the present study, most of the current Shisha smokers were engineering students, which is similarly reported by Arslaan et al., 2017 among university students in Karachi, Pakistan.²⁸ In addition, Abou-Faddan et al., 2012 reported a higher prevalence of Shisha smoking among engineering than medical students at Al-Jabal Al-Gharbi University, Gharian – Libya.²⁹ This could be likely explained by the fact that these students trend for seeking amusement, socializing and status symbol. On the contrary medical students are much occupied with their highly demanding studies that keep limited time for socialization.²⁸

The current study revealed that ‘Traditional Café’ is the most preferred place for Shisha smoking among the studied university students, which was inconsistent with Afzal et al., 2014 who reported café and open places as the preferred places among the Shisha smokers in Islamabad.³⁰ Similarly, Masood et al., 2103 stated that Shisha smoking is usually practiced in commercial cafés.⁶

In the present study, the highest agreement regarding Shisha hazards among smoker

Table (6): Practices of Shisha smoker students

Variable	Medicine (n=19)		Engineering (n=195)		Total (n=214)	
	n	%	n	%	n	%
Reasons for starting Shisha smoking[#]						
- Peer pressures	7	36.8	128	65.6	135	63.1
- Family member or relative	1	5.3	35	17.9	36	16.8
- Keeping pace with mainstream fashion	1	5.3	50	25.6	51	23.8
- Effect of mass media	1	5.3	19	9.7	20	9.3
- Curiosity for new experiment	10	52.6	53	27.2	63	29.4
- Life pressures & stresses	8	42.1	41	21.0	49	22.9
- For entertainment	3	15.8	53	27.2	56	26.2
- Help concentration in study	2	10.5	22	11.3	24	11.2
- Independence feeling & more grown up	2	10.5	36	18.5	38	17.8
Reasons for continuing Shisha smoking[#]						
- Anxiety or tension relief	9	47.4	140	71.8	149	69.6
- Keeping pace with friends or relatives	13	68.4	129	66.2	142	66.4
- Not convince with Shisha hazards	4	21.1	79	40.5	83	38.8
- Shisha smoking is less expensive	5	26.3	92	47.2	97	45.3
- Can't tolerate withdrawal symptoms	5	26.3	73	37.4	78	36.4
Ever tried to quit Shisha smoking:	7	36.8	78	40.0	85	39.7
The maximum duration of unsuccessful quitting trial was: (n=85)						
< 1 month	3	55.6	41	52.6	44	51.8
1 < 3 months	3	33.3	14	17.9	17	20.0
3 < 6 months	0	0.0	13	16.7	13	15.3
6-12 months	1	11.1	10	12.8	11	12.9
Future plan regarding Shisha smoking						
Seriously consider quitting	7	36.8	64	32.8	73	34.1
No intention to quit	5	26.3	54	27.7	59	27.6
No certain plan	7	36.8	75	38.5	82	38.3

[#]More than one answer was reported students was regarding respiratory complications and lung cancer. These findings were close to Haroon et al., 2014 results; where 80.7% of smoker students knew that habitual Shisha smoking may result in lung cancer.³¹ However, these percentages were lower than Al-Rawi et al., 2018 who reported agreement among 88.9% of the studied smoker students that Shisha may lead to lung cancer.³² Most of the smoker students in the current study believed that Shisha smoking is less harmful than cigarettes. 12 out of 18 studies in Middle Eastern societies, found that the majority of respondents had the same belief.³³ Reasons for this perception incorporated: a smaller amount nicotine content than cigarettes, filtering effect of water, generation of a reduced amount of harmful gases and fewer carcinogens and detoxification of smoke by fruit flavours.²⁴ However, Shisha seems to be more harmful than cigarettes, as a classical

Shisha session lasts from 20 to 80 minutes, with Shisha smokers taking up to about 200 puffs, while usually cigarette smoking typically takes only about 5 to 8 min with about 8 to 12 puffs. The amount of smoke inhaled during a Shisha session is about 200 times more than from a single cigarette.^{6, 34}

In the current study, the majority of smoker students reported their belief that ‘Quitting Shisha smoking is easier than cigarettes’. This finding was also supported by a systematic review which revealed that most respondents (79 to 98%) in Western and Middle Eastern societies had a high level of confidence that they can quit Shisha smoking at any time.³³

‘Peer pressure’ has been commonly distinguished as a crucial factor in adopting Shisha smoking.³¹ In our study, 63.1% of smoker students mentioned peer pressure as a reason for starting Shisha

smoking. However, these results were much higher than the findings among Turkish medical and engineering students who reported peer pressure as a cause for Shisha use only among 12% of the smoker students.¹⁸

Studies conducted among Iranian university students cited the commonest Shisha smoking motives as relieving stress, anger, anxiety, and depression.³⁵ In the present work, the majority of smoker students mentioned 'Anxiety or tension relief' as the commonest reason for continuing Shisha smoking, while Sabra et al., 2011 reported a lower percentage (54%) for Shisha smoking as a stress reliever among male medical students in Dammam City, Saudi Arabia.²⁰ These findings were supported by Al-Rawi et al., 2018 who found that stress as one of the empowering factors that lead to Shisha smoking.³²

In the present study, more than one third (34.1%) of smoker students seriously consider quitting Shisha smoking, lower percentage (28%) was reported in a study conducted at Qalyubiyah governorate, Egypt among rural residents¹⁹, this difference may be attributed to the increased awareness and positive attitude of university students towards risks of Shisha smoking.

Conclusion and Recommendations

Shisha smoking prevalence was relatively not high. The positive smoking attitude was noticed among smoker students. A considerable portion of smokers seriously intended to quit smoking. Those who tried to quit usually fail to continue quitting smoking. So anti-smoking interventions and campaigns should be implemented for university students with special emphasis on Shisha.

Limitations

The generalizability of study results might be limited by the self-reporting nature of

the research that permits for recall and social desirability bias that may have unperfected the information gathered from this study.

Conflicts of interest: None to declare

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