PREVALENCE OF SHISHA SMOKING AND FACTORS ASSOCIATED WITH THE INITIATION OF SHISHA SMOKING AMONG STUDENTS OF UNIVERSITY OF THE PUNJAB, LAHORE

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ARTICLE INFO

Keywords:
Shisha smoking, Prevalence, University Students

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Vol 01 Issue 02
APR-JUNE 2023

ISSN Online: 2960-2599
ISSN Print: 2960-2580

ORIGINAL ARTICLE

ABSTRACT

Background: Smoking is a significant menace to the public's health because it directly causes more than seven million deaths worldwide each year. Smoking shisha is a type of tobacco consumption in which smoke is filtered by way of water before being inhaled. It's a common misconception that shisha smoking is healthier than cigarettes because it contains fruits flavour, but this is false belief. **Objective:** To determine the prevalence of shisha smoking and associated factors to initiate shisha smoking among students of University of the Punjab. **Methods:** This cross sectional study included 435 university students aged 20-40 years from New Campus, university of the Punjab Lahore. A structured questionnaire was used to collect data from students. The data was analyzed through Statistical Package for Social Sciences (SPSS) version 17.0. The frequency distribution and mean± standard deviation were calculated for categorical variables, and continuous variables, respectively. The comparison of categorical variables across groups was done by Chi-square test or Fisher's exact test. The p-value ≤ 0.05 was considered significant. **Results:** In this sampled population, majority of the students (92%) had heard about shisha smoking and the overall prevalence of shisha smoking was (23.9%).Statistically significant difference was observed between shisha smoker and non-shisha smoker regarding factors starting shisha smoking including; family member uses shisha, pleasures seeking and boredom (p- value < 0.05). Whereas no statistical significant difference was found between shisha smoker and non-shisha smoker regarding; factors starting shisha smoking; curiosity, fashion, status symbol, stress, and peer pressure (p- value >0.05). **Conclusion:** This study concluded that the prevalence of shisha smoking was higher in male than female students. Most of the study participants had ever heard about shisha smoking and a significant number of participants ever smoked shisha in their life. The present study results revealed that having a shisha smoker family member , pleasure seeking and reducing boredom had a significant impact on initiation of shisha smoking among students of University of the Punjab. Society has to make efforts to reduce shisha smoking.

INTRODUCTION

Smoking is a significant menace to the public's health because it directly causes more than seven million deaths worldwide each year.[1] Smoking is the main contributor to avoidable deaths, illnesses, and poverty globally.[2] According to the Global Youth Tobacco Survey (GYTS), which surveyed 750,000 students in 131 countries, it was reported that around about 9% of students were current cigarette smokers. However, 11% of students reported using tobacco products other than cigarettes.[3] By 2030, it is predicted that over eight million people will die each year from diseases linked to tobacco use.[4]

Tobacco is consumed in numerous ways, including through cigarettes, bidis, kreteks, cigars, chewing tobacco and shisha. Smoking shisha is known by various names such as hubble-bubble, hookah, water pipes, goza and nargile in different regions of the world. Smoking shisha is a type of tobacco consumption in which smoke is filtered by way of water before being inhaled. Typically, tobacco, molasses/sugar, and fruit flavours make up shisha. Shisha is available in a variety of tastes, including cotton candy, blue berry, strawberry, and cappuccino. [5] The smoke is produced by heating the charcoal, which is smoked through a water pipe. It's a common misconception that shisha smoking is healthier than cigarettes because it contains fruit flavours, but this is false belief. [6] The prevalence of shisha smoking differs by geography; in Iraq, it is 4.4% among students at Karbala University, (8) in Iran: 8.9%,(9) in US: 18.0%,[7] in Saudi Arabia: 24.2%,[8] and in Kurdistan Region of Iraq: 28.0%.[9] In India, the prevalence of active tobacco smokers was 41.8% among migrants.[10] There have not been many researches carried out to determine how prevalent Shisha smoking is in Pakistan. The prevalence of shisha smoking among Karachi's students studying medicine and dentistry is 22.7%.[11] Shisha prevalence was determined to be 53.6% in another study conducted at Aga Khan University.[12] The percentage of water pipe smokers was 45.2%, according to survey undertaken at college and universities of Karachi.[13] According to a cross-sectional survey conducted in four major Pakistani cities, 61% of shisha users reported smoking occasionally.[14] A research in a small, semi-urban region in Karachi found that 19% of tobacco smokers also smoked shisha.[15] It is predicted that shisha smoking will become more prevalent among university students, and the most common reasons include relief from stress and boredom, as well as pleasure seeking, curiosity, the usage of shisha by family members, fashion, social prestige, and peer pressure.[16] The favourite places of students hangouts for shisha smoking at parties, home, hostel and cafes.[17] Shisha smoking has grown in popularity among university students these days. The prevalence and reasons to start shisha smoking among university students have not been extensively studied. Therefore, the objective of present study was to determine the prevalence of shisha smoking and associated factors to initiate shisha smoking among students of University of the Punjab.

MATERIALS AND METHODS

Study Design: Descriptive cross sectional

Study Setting: The study was conducted in New Campus, University of the Punjab, Lahore. The total number of enrolled students was 30,771. The study population consisted of all the students enrolled in a university program during the academic session 2014- 2016 from 9 different faculties of this university.

Duration: Study was completed within four months after the approval of synopsis

Sampling Technique:

Cluster sampling proportional to size of cluster was used. The faculties of university were considered as the clusters. Within cluster the students were approached on the basis of convenience

Sample size: The sample size was calculated according to **t**he Yamane's formula (1967), which is given as; **n =N/ (1+N*e2)**

The calculated sample size was 395, which was increased by 10% to avoid non respondent bias. Therefore, a total of 435 students were enrolled.

The total sample size was proportionally allocated among each cluster according to this

$$n_h = n\left(\frac{nh}{N}\right)$$

SAMPLE SELECTION CRITERIA:

Inclusion criteria:

Both male and female students of age group 20-

40 years who were regularly registered at University of the Punjab during the academic year 2014-16.

Exclusion criteria:

All other students enrolled in correspondence, extension, or evening programs were excluded from the study.

Data collection procedure

A structured questionnaire was used to collect data from students. The information sought included demographic characteristics and specific questions asked to assess the reasons to initiate of shisha smoking.

Data analysis plan

The data was analyzed through Statistical Package for Social Sciences (SPSS) version 17.0. The frequency distribution and mean± standard deviation were calculated for categorical variables, and continuous variables, respectively. For the comparison of categorical variables across groups chi-square test was used as appropriate. The p-value ≤ 0.05 is considered significant.

RESULTS

In this sampled population, majority of the students (92%) had heard about shisha smoking and the overall prevalence of shisha smoking was (23.9%). The family members of (14.3%) students were also smoking shisha.

A large number of students (63.5%) said that they smoked shisha occasionally. Mostly students preferred to smoke shisha (28.8%) in parties, (20.2%) in cafeteria/ restaurant, (18.3%) at hostel, (12.2%) other places such as dera (community gathering places), friend's home etc. First exposure of students smoking shisha (52.9%) had aged more than 18 years. The mean age at first exposure to shisha smoking was 18.70±2.099years. **(Table-1)**

Table 1: Frequency of Shisha Smoking and Characteristics of Smokers and Non-smokers

		Frequency	Percentage
Ever heard about shisha*	Yes	400	92.0
	No	35	8.0
Ever smoked shisha*	Yes	104	23.9
	No	331	76.1
Any family member uses shisha*	Yes	58	14.5
	No	342	85.5
Frequency of shisha smoking	Daily	10	9.6
	Twice a week	5	4.8
	Once a week	7	6.7
	Once a month	16	15.4
	Occasionally	66	63.5
Place at which prefer to smoke shisha	Cafeteria	15	14.4
	Restaurants	6	5.8
	In parties	30	28.8
	At home	21	20.2
	At hostel	19	18.3
	Other place	13	12.5
Age at first exposure to shisha smoking (Years)	≤18	49	47.1
	>18	55	52.9
Age at first exposure to shisha smoking (Years)	Mean± S.D	18.70±2.099	

Shisha smoking was statistically significant associated with class, age group, gender and income level (p- value <0.05). Whereas shisha smoking was not statistically significant associated with current residence status (p-value > 0.05) **(Table 2).**

Table 2: Association between Demographic Characteristics of University Students and Shisha Smoking

		Groups		Total	X^2 Value	P Value
		Smokers	Non-smokers			
		%	%	N (%)		
Class	Gradu--ation	59.2	41.0	197(45.3)	10.581	0.005*

Class	Master	35.9	51.8	209(48.0)	10.581	0.005*
	M.Phil/ PhD	4.9	7.2	29(6.7)		
Age group (Years)	<22	39.8	64.8	256(58.9)	20.213	<0.001**
	≥22	60.2	35.2	179(41.1)		
Gender	Male	82.5	40.4	219(50.3)	55.902	<0.001**
	Female	17.5	59.6	216(49.7)		
Current Residence Status	Day Scholar	61.2	65.1	279 (64.1)	0.519	0.471
	Hostelite	38.8	34.9	156(35.9)		
Monthly Family Income (PKR)	<50,000	53.4	70.5	289(66.4)	10.289	0.001*
	>50,000	46.6	29.5	146(336)		

Statistically significant difference was observed between shisha smoker and non-shisha smoker regarding factors family member uses shisha, pleasures seeking and boredom (p- value < 0.05). Whereas no statistical significant difference was found between shisha smoker and non-shisha smoker regarding factors; curiosity, fashion, status symbol, stress, and peer pressure (p-value >0.05) **(Table 3).**

Table 3: Comparison of Student's Perception Regarding Reason for Start of Shisha Smoking between Shisha Smoker and Non-Smoker Group

		Groups		Total	X2-value	P-Value
		Smokers	Non-smokers			
		%	%	N (%)		
Family Member Uses Shisha	Yes	23.1	11.5	58(14.5)	8.339	0.004*
	No	76.9	88.5	342(85.5)		
Curiosity	Yes	67.3	57.8	241(60.2)	2.923	0.087
	No	32.7	42.2	159(39.8)		
Pleasure Seeking	Yes	73.1	61.1	257(64.2)	4.767	0.029*
	No	26.9	38.9	143(35.8)		
Boredom	Yes	58.7	39.2	177(44.2)	11.820	0.001*
	No	41.3	60.8	223(55.8)		
Fashion	Yes	76.9	79.7	316(79.0)	0.365	0.546
	No	23.1	20.3	84(21.0)		
Status Symbol	Yes	61.5	63.2	251(62.7)	0.088	0.766
	No	38.5	36.8	149(37.2)		
Stress	Yes	51.9	51.4	206(51.5)	0.010	0.920
	No	48.1	48.6	194(48.5)		
Peer Pressure	Yes	57.7	49.0	205(51.2)	2.335	0.127

*35 student's response were excluded from comparison as they did not know about reasons to initiate shisha smoking

DISCUSSION

Shisha smoking has just been identified as a global public health risk. Almost 100,000 people die each year due to shisha smoking.[18] Nowadays, shisha is becoming a more popular way of tobacco use worldwide, particularly the majority of shisha smokers are young people, primarily university and college students, as well as high school students. Therefore, the present study was conducted to determine the prevalence of shisha smoking and associated factors to initiate shisha smoking among university students. According to our study, there was a prevalence of 23.9% for shisha smoking. This rate is near to the result of other study conducted by Rice et al. (27%).[1] However, our study's prevalence of shisha smoking was lesser compared to the United Arab Emirates (44.9%),[19] and Saudi Arabia (44.1%).[20] The higher prevalence rates in the mentioned countries can be attributed to the cultural and social adoption of shisha. On the other hand, a study by Weglicki et al. (2007) reported a lower prevalence of regular shisha smoking (15%) among Arab American and non-Arab youths.[21] It is important to note that prevalence rates can vary across different population, countries, and time periods due to factors such as cultural norms, accessibility of shisha, awareness campaigns, and changes in smoking behaviors. Our study revealed that shisha smoking is prevalent among males (83.7%) compared to females. Similar findings were reported by Habibullah et al. (2013), where the prevalence was 19.7%, shisha smoking was more frequent in males (29.8%) compared to females (10.4%).[22] Another study by Masood et al.

(2013) found that 59.22% were male and 22% were female shisha smokers.[23] These findings consistently indicate a higher frequency of male shisha smokers compared to females. The difference in prevalence rates between our study and previous studies can be attributed to variations in methods used, such as the definition of smokers, sample size and geographic coverage. In current study, the mean age of shisha-smoking students was 21.23±2.088 years. Similar findings were reported by Jawad et al. and Hossain et al., where the mean ages were 20.4±2.0 years and 21.55±1.98 years, respectively.[24,25] The mean age at first exposure to shisha smoking in our study was 18.70±2.099 years. This is slightly higher than the mean age reported by Jawad et al. (16.1±2.6 years)[24] and Sabahy et al. (16.3±3.2 years).[26] The difference in age at initiation may be explained by variations in social and cultural environments between the regions studied. In our study, statistically significant differences were observed between shisha smokers and non-smokers regarding factors that initiate shisha smoking, such as having a family member who uses shisha, seeking pleasure, and boredom. However, no significant differences were found regarding factors like curiosity, fashion, status symbol, stress, and peer pressure. This contrasts with a study by Jawed et al. (2008), which reported curiosity as the most common reason for initiating shisha smoking, followed by pleasure-seeking, peer pressure, boredom, and stress.[12] The present study revealed a significant proportion of male and female participants who reported having friends ($P < 0.001$ for both genders) and family members ($P < 0.001$ for males, $P = 0.001$ for females) that used waterpipes. These findings suggested that numerous waterpipe users have friends or family members who also engaged in waterpipe smoking. Similar results reported by Abbasi-Ghahramanloo et al. and Obeidat et al. have also demonstrated that having friends or family members who smoked waterpipes is a crucial factor in starting and maintaining waterpipe use.[27,28] Considering that shisha smoking is often a communal activity enjoyed with family and friends, it is clear that having family members or friends who smoked significantly impact shisha use among youth.[29] Research further suggests that family and friends played a significant role in facilitating the initiation of waterpipe use.[28] All of the aforementioned studies align with our findings. Additionally, other studies have suggested that having a friend who disapproves of tobacco use is linked with lower waterpipe smoking.[30] In present study population, age and gender of student were found to be significantly associated with shisha smoking ($P < 0.05$). In accordance with our results, another study from Saudi Arabia that studied young adolescents reported the same results.[31] Similar findings were reported in a research by Naggar RL., et al. (2012).[32] It should be obvious male students with age 20 or above were more adhered to shisha smoking than female students and students of lesser age. Another similar study, the prevalence of ever shisha use was significant in males ($P = 0.018$) but there was no significant difference observed in females ($P = 0.506$).[33]

CONCLUSION

This study concluded that the prevalence of shisha smoking was higher in male than female students. Most of the study participants had ever heard about shisha smoking and a significant number of participants ever smoked shisha in their life. The present study results revealed that having a shisha smoker family member, pleasure seeking and reducing boredom had a significant impact on initiation of shisha smoking among students of University of the Punjab. Society has to make efforts to reduce shisha smoking.

RECOMMENDATIONS

This study finding suggests that health education programs should be designed and implemented to create awareness of the adverse

health effects due to shisha smoking. Particularly efforts should be made to reduce shisha smoking in Pakistan. To reduce the spread of shish smoking in Pakistan, shisha smoking should be the part of the tobacco use control programs. Further studies are required to investigate perceptions of the adverse health effects of shisha smoking.

Acknowledgement:
I am deeply indebted and grateful to my supervisor, **Late Ms. Farida Rafique** for her valuable guidance and support throughout my research work. May God give her soul rest in peace (Ameen).

AUTHORS CONTRIBUTION

IY: Study design, data collection, analysis and drafting of manuscript, **YN:** Study design and revision of manuscript, **UR:** Analysis and drafting of manuscript

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