

Smoking Hookah: A Dire Need Of Raising Awareness And Dispelling Misconceptions

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Abstract

Background: Hookah Usage or water-pipe smoking is gaining fervor and acceptance among the millennials in the Middle East and Saudi Arabia is no exception to it. The everyday increase in its consumption led us to do a research on the ignorance of its hazardous ingredients and its impact on the long term health of a smoker.

Methods: The Prince Sultan Military College of Health Sciences conducted research study to explore the level of awareness among hookah smokers based on quantity and frequencies. The pool comprised of 528 respondents with 472 males and 56 females.

Results: Based on the respondent's age groups, 76% of hookah smokers were under the age of 21, whereas 24% were in the age group of 21 years and above. From this total pool, 62% had an addiction to hookah, whereas 38% smoked due to other luxurious reasons. 74% of the smokers were influenced by their friends. 44% of the respondents showed a desire to quit using shisha as they were now aware of the health warning signs.

Conclusions: As perceived, hookah smoking is becoming more prevalent among the younger generation as they are uninformed and are driven into smoking by their peers. Hookah smokers inhale large quantities of toxicants due to the lack of awareness of the carcinogenic ingredients present in the shisha. Friends are the major game changers. Education of health risks could be a motivational factor in lowering the toxic consumption or even quitting.

Impact: Smoking hookah is gaining popularity in the kingdom. Due to the lack of information about its toxicity and harmful effects on the body, it is perceived to be safe. There is a need for educating and spreading awareness in not just the youth but even the adults. About the hazards, hookah smoking can have deception about its health risks. The data provided on hookah exposure may be a motivational factor in public education regarding health risks of hookah.

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Key-words: Smoking Hookah; Shisha; Respiratory Care Survey; Impact on Health

INTRODUCTION:

Hookah, also known as a waterpipe, narghile, argileh, shisha, hubble-bubble, goza, borry, qaylan, chica, and mada'a, is a tobacco pipe with a long, flexible tube that draws smoke through a bowl of water [1]. Although hookah smoking is a relatively new phenomenon in the Western world, it has been around for millennia, beginning in India's North Western provinces and spreading to Iran, the Arab world, and Turkey before gaining popularity in the United States and Europe [2]. The hookah or hookah apparatus consists of an upper and lower compartment connected by a pipe, with the top containing a bowl containing tobacco or molasses and covered with perforated aluminum foil above which burning charcoal is placed. A water jar covered by a gasket, a protruding hose, and a release valve are located on the apparatus's bottom [3]. It is estimated that 100 million people worldwide use hookah on a daily basis [4]. In 2011, "current hookah use" among adults over the age of 18 was 15% in Lebanon, 9-12% in Syria, 4-12% in the Arab Gulf countries, and 6% in Pakistan [5], and 30% in Jordan [6]. In Iran, however, it was discovered that more nonsmokers transition to tobacco use, including water pipe/hookah use [7]. According to Jamil H et al., hookah smoking is significantly more prevalent among Arabs (32% vs. 26%, $p < 0.01$), and being Arab was a risk factor for lifetime hookah use [8].

Hookah tobacco comes in three varieties: Mouassal, Jurak, and Tumbak, each with its own set of ingredients. In summary, Mouassal (Arabic for "honeyed") contains 30% tobacco and approximately 70% honey/sugarcane, as well as glycerol and flavours [9]. Hookah users, in fact, are at risk of infections, cancer, lung disease, and other medical conditions [1]. Many studies have found a link between hookah smoking and an increased risk of chronic diseases, cancer, cardiovascular disease, and infectious diseases [10]. Other studies have found that Shisha smoking is harmful to both the oral and general health of the public. It has been linked to poor oral health outcomes [11-13]. Shisha smoking causes an increase in heart rate, blood pressure, impaired pulmonary function, and CO intoxication in the short term [14]. Long-term use causes

chronic bronchitis, emphysema, and coronary artery disease, as well as lung, gastric, and esophageal cancer, periodontal disease, obstetrical complications, osteoporosis, hematological, and mental health problems [15,16]. Shaikh et al. found that smoking shisha for 30 minutes increases systolic blood pressure by 12-16 mmHg, diastolic blood pressure by 2-8 mmHg, and heart rate and respiratory rate by 6-15 beats/min and 2 breaths/min, respectively [17]. Shisha smoking reduces baroreflex sensitivity, increases high sensitivity C reactive protein, and alters endothelial function, all of which are risk factors for cardiovascular disease [18,19]. Similar to tobacco smokers, shisha smokers have higher levels of total cholesterol, triglycerides, very low-density lipoproteins, and low-density lipoproteins [20]. Raad et al., concluded in a systematic review that shisha smoking has a negative effect on lung function and is likely to be a cause of chronic obstructive pulmonary disease [21]. Shisha smoking impairs cognitive functions such as attention, alertness, and memory [22]. Family members and peers played an important role in hookah smoking prevention among these students. Students must be educated about the toxicity of hookah tobacco smoking and its direct impact on their health [23]. However, because the majority of studies have focused on the negative effects of cigarette smoking, there is a scarcity of evidence regarding the prevalence, awareness, negative effects, and associated factors of shisha smoking among the young population. As a result, the purpose of this research was to determine the prevalence and perceptions of shisha smoking among university students.

MATERIALS AND METHODS

This descriptive study is cross-sectional in design and was conducted between December 2021 and April 2022 by The Prince Sultan Military College of Health Sciences conducted research study to explore the level of awareness among hookah smokers based on quantity and frequencies with local peoples between the ages of 20-50 years in Dhahran city. An anonymous, self-administered questionnaire with 10 items, was hand delivered to the pool comprised of 528 respondents with 472 males and 56 females responded to the questionnaire. The sample size was calculated using Cochran's formula at a 95% confidence interval. The questionnaire was standardized and validated before the administration. Based on the different answers given for each question, their choices were revised and standardized. Cronbach's alpha test was used to measure the internal consistency reliability. The content validity was determined by the department expert for consistency, simplicity, and clarity of the questionnaire.

ETHICAL APPROVAL AND CONSENT PROCEDURE

This prospective study was approved by Scientific Research Committee and Institutional Review Board (SRC/010/0000260) at Prince Sultan Military College of Health Sciences, Dhahran Kingdom of Saudi Arabia during the academic year of 2021-2022. The inclusion criteria comprised all male and female subjects, who complete their questionnaires. Withdrawn, dismissed, and postpone students were excluded. Written informed consent was obtained from all voluntarily willing participants. Only complete questionnaires were considered. Strict confidentiality was maintained during data handling.

ANALYSIS

The researcher has used a number of statistical methods to analyse the collected data. These included quantitative techniques. The data were analysed by each question asked. The researcher used frequencies, tables, percentages and suitable diagrams.

Data entry was done in Microsoft Excel sheet regularly. To ensure the quality of the data, each completed questionnaire was manually checked for completeness and consistency before it was tabulated in Microsoft Excel. The analysis was done using SPSS 15.0 software.

RESULT AND OBSERVATIONS

The results of the discussed in detail as below presented in tabulation and bar charts.

Table 1. Distribution of Gender participation

Gender	Frequency	Percentage
Male	472	89.4
Female	56	10.6
Total	528	100.0

The table 1 reveals the gender wise distribution of participation in survey. About 472 males and 56 Females responded the questionnaire corresponds to 89.4% and 10.6 % respectively.

Table 2. Distribution of Age group participation

Age Group	Frequency	Percentage
< 20	306	58.0
20 - 29	209	39.6
30 - 39	9	1.7
40 - 49	4	0.8
Total	528	100.0

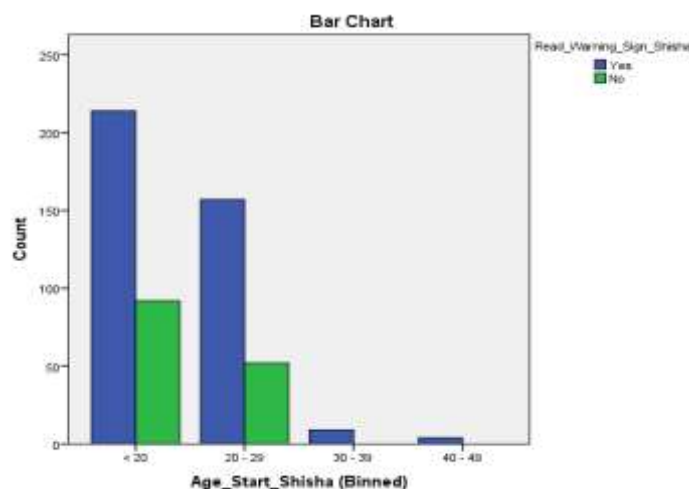
The table 2 reveals the age wise distribution of participation in survey. About 306 were in the age group of <20 years, 209 were in 20-29 age group, 9 were in 30-39 age group and 4 are from 40-49 age group. The Age wise percentage corresponds 58.0%, 39.6%, 1.7% and 0.8% for <20 years, 20-29 age group, 30-39 age group and 40-49 age group respectively.

Table 3. Distribution of age group with read warning Sign Shisha

Age Group		Read Warning Sign Shisha		Total
		Yes	No	
< 20	Frequency	214	92	306
	Percentage	55.7%	63.9%	58.0%
20 - 29	Frequency	157	52	209
	Percentage	40.9%	36.1%	39.6%
30 - 39	Frequency	9	0	9
	Percentage	2.3%	0.0%	1.7%
40 - 49	Frequency	4	0	4
	Percentage	1.0%	0.0%	0.8%
Total	Frequency	384	144	528
	Percentage	100.0%	100.0%	100.0%

The table 3 reveals the age wise distribution with reading warning sign on shisha. About 214 from the age group of <20 years, 157 from 20-29 age group, 9 from 30-39 age group and 4 from 40-49 age group say yes to reading warning sign on shisha with corresponding to 55.7%, 40.9%, 2.3% and 1 % respectively. About 92 from the age group of <20 years and 52 from 20-29 age group says 'no' to reading warning sign on shisha corresponds to 63.9%, and 36.1% respectively. The bar chart shows the age wise number of participants who say 'yes' & 'no' to reading warning sign on shisha.

Fig.1. Distribution of age group with read warning sign Shisha



Tale 4. Distribution of age group with Quit Shisha

Age group		Quit Shisha			Total
		Yes	No	Maybe	
< 20	Frequency	118	78	110	306
	Percentage	50.4%	66.7%	62.1%	58.0%
20 - 29	Frequency	108	39	62	209
	Percentage	46.2%	33.3%	35.0%	39.6%
30 - 39	Frequency	6	0	3	9
	Percentage	2.6%	0.0%	1.7%	1.7%
40 - 49	Frequency	2	0	2	4
	Percentage	0.9%	0.0%	1.1%	0.8%
Total	Frequency	234	117	177	528
	Percentage	100.0%	100.0%	100.0%	100.0%

The distribution of Age group with response to quitting shisha is shown in table no.4. It reveals that about 118 from the age group of <20 years, 108 from 20-29 age group, 6 from 30-39 age group and 2 from 40-49 age group say yes to quitting

shisha with corresponding to 50.4%, 46.2%, 2.6% and 0.9 % respectively. About 78 from the age group of <20 years and 39 from 20-29 age group says ‘no’ to quitting shisha corresponds to 66.7%, and 33.3% respectively. Furthermore, about 110 from the age group of <20 years, 62 from 20-29 age group, 3 from 30-39 age group and 2 from 40-49 age group say ‘may quit’ shisha with corresponding to 62.1%, 35.0%, 1.7% and 1.1 % respectively. The bar chart shows the age wise number of participants who say ‘yes’ ‘no’ & ‘maybe’ for quitting shisha.

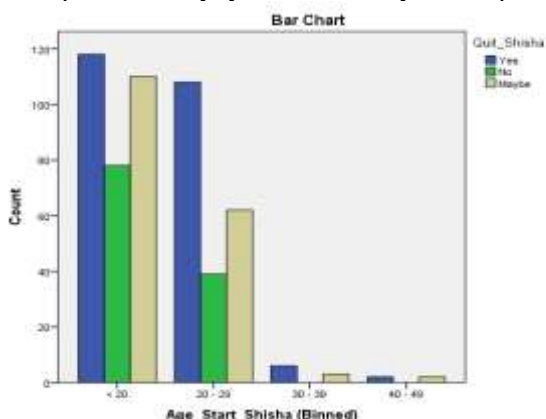


Fig.2. Distribution of Age Group with Quit Shisha

Table 5. Distribution of age group with reasons to start Shisha

Age group		Reason to use Shisha					Total
		Nice smell	Aromatic effect	Smooth taste	Bubbling sound	Addiction	
< 20	Frequency	54	14	45	4	189	306
	Percentage	54.5%	56.0%	65.2%	57.1%	57.6%	58.0%
20 - 29	Frequency	41	11	23	3	131	209
	Percentage	41.4%	44.0%	33.3%	42.9%	39.9%	39.6%
30 - 39	Frequency	2	0	0	0	7	9
	Percentage	2.0%	0.0%	0.0%	0.0%	2.1%	1.7%
40 - 49	Frequency	2	0	1	0	1	4
	Percentage	2.0%	0.0%	1.4%	0.0%	0.3%	0.8%
Total	Frequency	99	25	69	7	328	528
	Percentage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The distribution of reasons to start shisha with Age wise is presented in table no.5. It reveals that about 54 from the age group of <20 years, 41 from 20-29 age group, 2 from 30-39 age group and 2 from 40-49 age group say Nice smell to start shisha with corresponding to 54.5%, 41.4%, 2.0% each respectively. About 14 from the age group of <20 years and 11 from 20-29 age group says aromatic effect for using shisha corresponds to 56. %, and 44% respectively. Smooth taste for starting use of shisha accounts to 45 from the age group of <20 years, 23 from 20-29 age group, and one from 40-49 age group with corresponding to 65.2%, 33.3% and 1.4 % respectively. The bubbling sound reason accounts to 4 and 3 from < 20years and 20-29 years’ age group with 57.1% and 42.9% respectively. The reason of addiction for the use of shisha accounts to 189 from the age group of <20 years, 131 from 20-29 age group, 7 from 30-39 age group and one from 40-49 age group with corresponding to 57.6%, 39.9%, 2.1% and 0.3% respectively. The bar chart shows the age wise number of participants who say reasons to start shisha with opinions of Nice smell, Aromatic effect, Smooth taste, Bubbling sound and addiction.

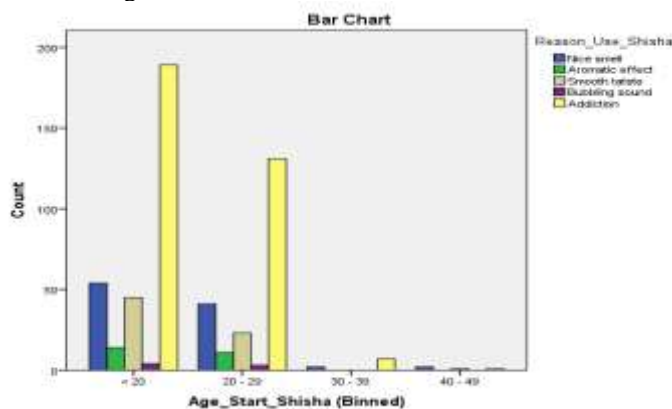


Fig. 3. Distribution of age group with reasons to start Shisha

Table 6. Distribution of age group with motivation factor to Use Shisha

		Motivation Factor to Use Shisha			Total
		Friends	Relative	Social	
< 20	Frequency	224	30	52	306
	Percentage	57.6%	63.8%	56.5%	58.0%
20 - 29	Frequency	155	17	37	209
	Percentage	39.8%	36.2%	40.2%	39.6%
30 - 39	Frequency	7	0	2	9
	Percentage	1.8%	0.0%	2.2%	1.7%
40 - 49	Frequency	3	0	1	4
	Percentage	0.8%	0.0%	1.1%	0.8%
Total	Frequency	389	47	92	528
	Percentage	100.0%	100.0%	100.0%	100.0%

The motivation factor to use shisha with Age wise is presented in table no.6. It reveals that about 224 from the age group of <20 years, 155 from 20-29 age group, 7 from 30-39 age group and 3 from 40-49 age group say motivation by friends to use shisha which comprises to 57.6%, 39.8%, 1.8% and 0.8% respectively. About 30 from the age group of <20 years and 17 from 20-29 age group says motivation is from relatives for using shisha corresponds to 63.8%, and 36.2 % respectively.

Social factors for use of shisha accounts to 52 from the age group of <20 years, 37 from 20-29 age group, 9 from 30-39 age group and 4 from 40-49 age group with 56.5%, 40.2%, 2.2% and 1.1% respectively. The bar diagram shows frequency distribution of Age Group with Motivation Factor to Use Shisha are from friends, relatives and Social factors.

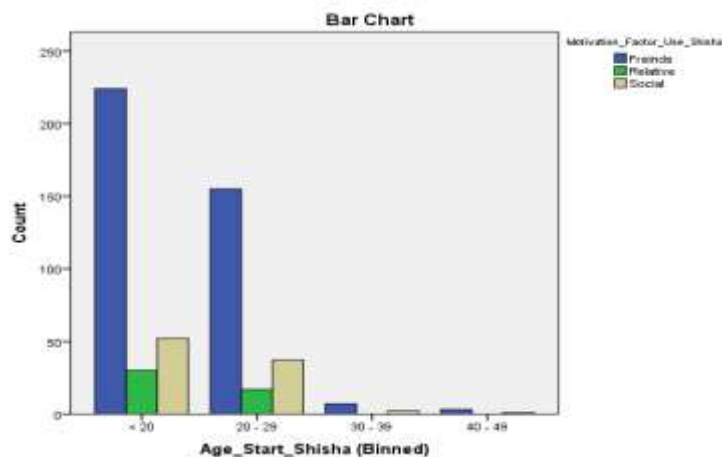


Fig 4. Distribution of Age Group with Motivation Factor to Use Shisha

Table 7. Distribution of age group with duration to use Shisha

Age Group		Shisha Frequency			Total
		Daily	Weekly	Monthly	
< 20	Frequency	142	95	69	306
	Percentage	57.3%	58.6%	58.5%	58.0%
20 - 29	Frequency	99	65	45	209
	Percentage	39.9%	40.1%	38.1%	39.6%
30 - 39	Frequency	5	2	2	9
	Percentage	2.0%	1.2%	1.7%	1.7%
40 - 49	Frequency	2	0	2	4
	Percentage	0.8%	0.0%	1.7%	0.8%
Total	Frequency	248	162	118	528
	Percentage	100.0%	100.0%	100.0%	100.0%

Distribution of Age Group with duration to use Shisha is presented in table 7. It reveals that about 142 from the age group of <20 years, 99 from 20-29 age group, 5 from 30-39 age group and 2 from 40-49 age group say use shisha daily which comprises to 57.3%, 39.9%, 2.0% and 0.8% respectively. Weekly use of shisha is about 95 from the age group of <20 years, 65 from 20-29 age group and 2 from age group 30-39 corresponds to 58.6%, 40.1% and 1.2 % respectively.

Monthly use of shisha accounts to 69 from the age group of <20 years, 45 from 20-29 age group and 2 each from 30-39 and 40-49 age group with 58.5%, 38.1% and 1.7% each respectively. The bar diagram shows frequency distribution of

Distribution of Age Group with frequency of daily , weekly and monthly Shisha.

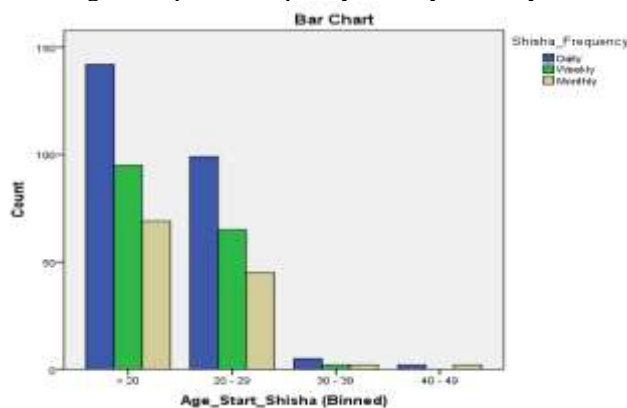


Fig. 5. Distribution of age group with duration to use Shisha

Table 8. Distribution of age group with time spent in Shisha

Age Group		Time Spent in Shisha				Total
		30 minute	1 hour	2 hours	Other	
< 20	Frequency	48	132	82	44	306
	Percentage	44.0%	59.7%	60.3%	71.0%	58.0%
20 - 29	Frequency	57	81	53	18	209
	Percentage	52.3%	36.7%	39.0%	29.0%	39.6%
30 - 39	Frequency	2	6	1	0	9
	Percentage	1.8%	2.7%	0.7%	0.0%	1.7%
40 - 49	Frequency	2	2	0	0	4
	Percentage	1.8%	0.9%	0.0%	0.0%	0.8%
Total	Frequency	109	221	136	62	528
	Percentage	100.0%	100.0%	100.0%	100.0%	100.0%

Distribution of Age Group with Time Spent in Shisha is presented in table no.8. It reveals that about 48 from the age group of <20 years, 57 from 20-29 age group, 2each from 30-39 and 40-49 age group say use shisha for 30min, comprises to 44.0%, 52.3%, 1.8% each respectively. Use of shisha for 1hour is about 132 from the age group of <20 years, 81 from 20-29 age group, 6 from age group 30-39 and 2 from 40-49 age group corresponds to 59.7%, 36.7%,2.7% and 0.9 % respectively.

Use of shisha for 2hours accounts to 82 from the age group of <20 years, 53 from 20-29 age group, and one from 40-49 age group with 60.3%, 39.0% and 0.7% respectively. Furthermore, about 44 from the age group of <20 years and 18 from 20-29 age group have given other as reason for using shisha corresponds to 71.0%, and 29.0 % respectively. The bar diagram shows frequency distribution of Distribution of Age Group with time spent on Shisha to 30 minute,1 hour,2 hours &Other.

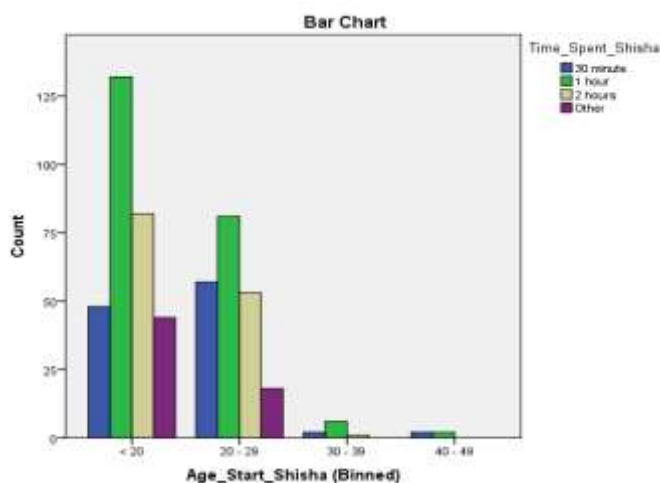


Fig. 6. Distribution of age group with time spent in Shisha

DISCUSSION

Shisha smoking has recently been identified as a global public health risk [24]. The recent global epidemic of shisha (water pipe) smoking involves tobacco that has been processed, flavoured, and indirectly heated by charcoal [25]. Shisha smoking exposes the smoker to high levels of toxins such as nicotine, volatile aldehydes, CO, aromatic hydrocarbons, and tar [26]. From our study it has been observed that the participation of males is 78.8% more compared to female, our finding coincides with the finding of Al-Delaimy AK et al., [23].

Though the percentage of female is less it shows that shisha is not only exclusively used by males. As age wise concerned the frequency of <20 years stands first followed by 20-29 & meagre participation of 30-39 & 40-49 age group. This shows use of shisha in younger generation of up to 29 years of age group constitutes to 96.7%. Further study has been forwarded within age group study with the remaining variables [27].

More than 50 percent of the age group participants read warning signs on shisha & all the participants from age group 30-49 compulsorily read it. About 44% want to quit shisha, whereas 33.5% are still in dilemma of quitting and remaining don't want to quit it. Besides this the frequency of < 20-year age group willing to quit more among all. Reason to use shisha is addiction (>50%) followed by nice smell, smooth taste, aromatic effect & bubbling sound. Nice smell & smooth taste are equally contributing factors to use shisha [28]. Motivation to use shisha is by friends (73.6%), followed by social factors and relatives. It proves that the habits of participants are more influenced by their friend's circle, whereas relatives have less impact, it is due to self-respect [29]. Most of the participants use it daily (46.9%), weekly (30.6%) & monthly (22.3%) respectively. More than 50% of participants are in weekly and monthly which is a good step toward quitting shisha. Time spent on shisha by most participants 1 hour, 2 hours & 30 min respectively in order. Spending more hours on shisha may have an adverse effect on health which should have to be reduced gradually [30]. From all the above it can be concluded that <20 years & 20-29 age group need more awareness regarding health risks of using it & should gradually reduce time spent on it. The awareness will help those who are still in dilemma of quitting it. Further, there is a need of study on how it impacts one's health & economic status by all means and directions which help those who don't want to quit it.

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