

## Determination of Awareness and Nicotine Dependency Level Among Shisha Smokers in Malaysia

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### ABSTRACT

Globally smoking is considered as one of the major risk factors for cardiovascular disease and cancer which leads to cause premature deaths. In Malaysia, shisha smoking is an upcoming trend which attracts a large number of teenagers. The aim of the present study is to examine the awareness and nicotine dependence level of shisha smokers. In order to achieve the aim we included shisha smokers of age 18 years and above in our study. 150 participants were selected and self-administered questionnaire was distributed to them at restaurants which offer shisha smoking in petaling jaya. The most significant age group of shisha smokers observed in our study was 22-24 years. The participants who started to smoke at the age of 18 are the highest and the factors which influenced them to get addicted are stress, fun, style and friends. Most of them have a perception that shisha smoking is not harmful to health and may not harm passive smokers moreover it doesn't have the same health risk as cigarette or increase the risk of cancer. In fact shisha smokers are exposed to more carbon monoxide and smoke than are cigarette smokers. In the present study the percentage of dependency level shows 50% under low dependency, 20% under intermediate and 12% under high dependence level. Even though the percentage of high dependence is low, it will still have a major impact on the society as this number might increase unless an appropriate measure is taken to educate them as they lack the awareness of negative consequences of shisha smoke.

**Keywords:** Shisha smoke, Attitude, Self-administered questionnaire, Awareness, Dependence level.

### INTRODUCTION

Cancer and cardiovascular disease are smoking related diseases, which causes premature death globally<sup>1</sup>. The current global estimation of smokers is 1.3 billion and expected to increase to 1.6 billion by 2025, and the number of deaths due to smoking-related diseases is expected to reach 8.3 million by 2030, up from 4.8 million in 2006<sup>2</sup>. As developing countries comprise 73% of the world's smoker population, these countries will be more adversely affected by the health, economic and social impacts of smoking-related diseases<sup>3</sup>.

Smoking related diseases have been the primary cause of mortality for the past three decades in Malaysia. A representative sample of the Malaysian population was surveyed in the second National Health and Morbidity Survey (NHMS II) in 1996 and of the 32,991 participants 24.8% reported being active smokers. Almost half were currently smoking (49.2%), among males aged 18 years and older.

In Malaysia, shisha or hookah water pipe smoking is an upcoming trend which is picking up quite fast and also may be the next major risk factor for respiratory disorder. Many people are not aware that shisha smoking is much more dangerous compared to cigarette smoking<sup>4</sup>.

Shisha pipes have been in use for about 400 years, originating in India and Asia<sup>5</sup>. In the early 1600s, Hakim Abdul Fath, a physician from India invented the shisha, believing the health hazards of tobacco smoke would be minimized by passing it through water before inhalation<sup>5</sup>. In the 1990s, flavoured tobacco became popular in the Eastern Mediterranean countries, and shisha use grew out of that, spreading around the world<sup>5</sup>.

High levels of toxic compounds, such as tar, carbon monoxide, heavy metals and cancer causing chemicals (carcinogens) are found in shisha smoke<sup>6</sup>. In fact, shisha smokers are exposed to more carbon monoxide and smoke than are cigarette smokers<sup>6</sup>. Moreover, the amount of nicotine delivered during cigarette and shisha smoking are about the same, which lead to tobacco dependence<sup>6</sup>. Shisha smokers may actually inhale more tobacco smoke than cigarette smokers do because of the large volume of smoke they inhale in one smoking session, which can last as long as 60 minutes<sup>6</sup>.

Tobacco juices from hookahs irritate the mouth and increase the risk of developing oral cancers<sup>4</sup>. Hookah tobacco and smoke contain many toxic agents that can cause clogged arteries and heart disease<sup>7</sup>. Infections may be passed to other smokers by sharing a hookah<sup>7</sup>. Babies

Table 1: Demographic characteristics of the participants

	Frequency	Percentage
Age		
19-21	48	32.0
22-24	60	40.0
25-27	30	20.0
28-30	12	8.0
Gender		
Male	126	84.0
Female	24	16.0
Race		
Malay	71	47.3
Chinese	36	24.0
Indian	22	14.7
Other	21	14.00
Marital status		
Single	142	94.7
Married	6	4.0
Widowed	2	1.3
Education		
SPM	48	32.0
Certificate	6	4.0
Diploma	53	35.3
Degree	43	28.7
Occupation		
Student	87	58.0
Unemployed	10	6.7
Employed	53	35.3

Table 2: Attitude towards shisha smoking

	Frequency	Percentage
Type of smoke		
Cigarettes	39	26.0
Shisha	96	64.0
Hand-rolled	10	6.7
Cigars	5	3.3
Age started smoking		
<18	71	47.3
>18	79	52.7
Smoking area		
Restaurants	140	93.3
Home	10	6.7
Possession of shisha pipe at home		
Yes	25	16.7
No	125	83.3
Factors to start smoking shisha		
Stress	30	20.0
Fun or style	51	34.0
Reduce weight	5	3.3
Friends influence	32	21.3
Family member influence	5	3.3
Feel accepted by friends	3	2.0
Addiction	8	5.3
Satisfy craving	16	10.7

born to women who smoked water pipes every day while pregnant weigh less at birth (at least 3½ ounces less) than babies born to non-smokers<sup>8,9</sup>. Babies born to hookah smokers are also at increased risk for respiratory diseases<sup>9</sup>.

Table 3: Health knowledge about shisha smoking

	Frequency	Percentage
Shisha smoking is harmful		
True	35	23.3
False	51	34.0
Maybe	64	42.7
Shisha smoking may harm unborn babies, children or passive smokers		
True	32	21.3
False	56	37.3
Maybe	62	41.3
Shisha having same health risk as cigarettes smoking		
True	33	22.0
False	75	50.0
Maybe	42	28.0
Shisha producing nicotine		
Yes	43	28.7
No	69	46.0
Maybe	38	25.3
Shisha increase risk of cancer		
Yes	28	18.7
No	41	27.3
Maybe	81	54.0
Shisha smoking spread infections by sharing shisha pipe		
Yes	82	54.7
No	21	14.0
Maybe	47	31.3
An hour long shisha smoking session involves 200 puffs while smoking an average cigarettes involve 20 puff		
Yes	83	55.3
No	67	44.7
Smoking related condition		
Trouble breathing	11	7.3
Getting tired	6	4.0
Leg pain	21	14.0
Coughing	6	4.0
Tightness in chest	23	15.3
None	83	55.3

An hour-long hookah smoking session involves 200 puffs, while smoking an average cigarette involves 20 puffs<sup>10,7</sup>. The amount of smoke inhaled during a typical hookah session is about 90,000 millilitres (ml), compared with 500–600 ml inhaled when smoking a cigarette<sup>11</sup>. Hookah smokers may be at risk for some of the same diseases as cigarette smokers. These include oral cancer, lung cancer, stomach cancer, cancer of the oesophagus, reduced lung function, decreased fertility<sup>11</sup>. Second-hand smoke from hookahs can be a health risk for non-smokers. It contains smoke from the tobacco as well as smoke from the heat source (e.g. charcoal) used in the hookah<sup>12</sup>. Some sweetened and flavoured nontobacco products are sold for use in a hookah<sup>13</sup>. Labels and ads for these products often claim that users can enjoy the same taste without the harmful effects of tobacco<sup>13</sup>. Studies of tobacco-based shisha and “herbal” shisha show that smoke from both preparations contain carbon monoxide and other

Table 4: Nicotine dependence test

	Frequency	Percentage
Is it difficult to refrain from smoking		
Shisha in places where it is forbidden?		
Yes	55	36.7
No	95	63.3
How many times per week do you smoke shisha?		
<10	101	67.3
11-20	19	12.7
21-30	19	12.7
>31	11	7.3
Smoke shisha frequently day or night?		
Day	5	3.3
Night	107	71.3
Both	38	25.3
Smoke shisha even ill		
Yes	32	21.3
No	118	78.7
Tried to stop shisha		
Yes	26	17.3
No	124	82.7

Table 5: Nicotine dependent level test

Score	Frequency	Percentage
Low dependence (0-1)	80	53.3
Low to moderate dependence (2-3)	30	20.0
Moderate dependence (4-5)	21	14.0
High dependence (6+)	19	12.7

toxic agents known to increase the risks for smoking-related cancers, heart disease, and lung disease<sup>13,14</sup>.

The aim of the present study is to examine the awareness and nicotine dependence level of shisha smokers.

#### Research Questions

- Are there any correlation between the gender and shisha smoking?
- What are the main factors that influence or contribute to shisha smoking?
- Are there any correlation between the age and factors of shisha smoking?

#### RESEARCH METHODOLOGY

The present study is a cross-sectional, observational study in which questionnaires were distributed to participants at few selected shisha restaurants at Petaling Jaya. The research was conducted from December 2015 to February 2016. The inclusion criteria for this study are the participants who are Malaysian citizens and must not be under 18 years old whereas the Participants who are not Malaysian citizen and also under the age of 18 will be excluded from this study.

#### Sampling strategy

A convenience sampling method was used in this study; it is a type of non-probability sampling technique. Few advantages of using the sampling strategy are very easy to carry out with few rules governing how the sample should be collected, the relative cost and time required to carry out

a convenience sample are small in comparison to probability sampling techniques.

#### Survey instrument

The survey instrument was designed and modified following a review of earliest study. The questionnaire was adapted from WHO global adult tobacco survey and modified according to the study needs. This survey instrument is divided into 4 section which are section 1 would be socio-demographic where the age, gender, race, marital status, education level, current status, and monthly income. Section 2 about attitude towards shisha smoking where the participant will be asked why they smoke, age started to smoke, common place of smoking, possession of shisha bottle at home, and lastly the factors which contributes to smoke shisha. Section 3 is about the health knowledge on shisha smoking and to test participant knowledge whether they are aware that shisha is harmful for health, does it has the same health risk as cigarette smoking? Does shisha produce nicotine? Does shisha contributes to cancer formation? Can shisha spread infections like flu and fever, and any smoking related conditions? Section 4 about the Nicotine Dependence Test where the dependence of participant on shisha is tested with questions like how many times do they smoke per week, usual time of smoking, and have they tried to stop in the last 12 months. The instrument design consisted of page 4 with a total of 25 questions.

#### Data analysis

All statistical analysis was performed with SPSS for Windows version 20. The analysis used in this study is frequency table and also Chi-square test.

#### RESULTS

Table 1 show about the demographic data of 150 participants where their age, race, marital status, education, and occupation is tabulated and arranged according to their answer. The most significant age range will be between 22-24 years old. Table 2 is about the attitude of the participant towards shisha smoking.

Participants who started to smoke after the age of 18 are the highest compared to the participant who smoked before reaching the age of 18. The most preferred place to smoke is in restaurants. The last section of this table is about the factors that contribute to shisha smoking. The factors which arises the most are stress, for fun or style, and also friends influence. The knowledge of the participants about shisha smoking has been shown in table 3. Many of them mention shisha is not harmful to health and may not harm passive smokers. Majority of them said that shisha does not have the same health risk as cigarette or increase the risk of cancer. Many of them believed that shisha does not contain nicotine but most of them agreed that infection can be spread by sharing the shisha pipe. Fagerstrom nicotine dependence test was carried out and the results were presented in table 4. In which 63.3% of participant agreed that it is not difficult to refrain from smoking in no smoking area. Many of them smoke less than 10 times per week. The usual time to smoke shisha would be during night time. Finally 82.7% of participant mentioned that they didn't try to stop smoking shisha for the past 12

Table 6: Chi square gender vs factors

Factors	Gender			
	Male		Female	
	Frequency	(%)	Frequency	(%)
stress	25	19.8	5	20.8
fun or style	41	32.5	10	41.7
reduce weight	5	4	0	0
friends influence	27	21.4	5	20.8
family member influence	5	4	0	0
feel acceptance by friends	2	1.6	1	4.2
addiction	8	6.3	0	0
satisfy craving	13	10.3	3	12.5
p value	0.697			

months. Table 5 shows the score and frequency between the shisha smokers and their dependency level. 50% of the participant falls under the low dependence category and 20% of them fall under intermediate category. Only about 12% of participant are said to be high dependence in this study. Table 6 shows the correlation between the gender and the associated factors which contributes to shisha smoking. We did find statistically significant association between gender and the factors which influence the participant to smoke shisha.

## DISCUSSION

Shisha smoking is the latest trend being practiced by most of the youngsters lately. Most of them are deceived by the myth that shisha smoking is way better than cigarette smoking in terms of health and risk factors and the influence by the taste, fragrance, and price. Since now shisha is easily accessible, the number of shisha smokers have increased tremendously but unfortunately most of the shisha smokers are aged below 30 years old and are currently studying. Findings from a study done in Pakistan also show the prevalence of shisha smoking is high among youngsters<sup>15</sup>. In this study, less than half of the participants started smoking shisha below the age of 18. This can be due to family members influence or friends. More than 90% of the participant prefers to smoke shisha at the restaurant and only a minority of them possessed shisha pipe at home. In the present study, the most common factors which influence the individuals to smoke shisha were found to be fun, style followed by friend's influence and stress factor. Since most of the participants are youngsters, the fun and style factor can be due to peer pressure and the feeling of acceptance by others. Most of the studies say that shisha smoking has hazardous effect on brachial artery endothelial function. Unfortunately, most of the participants in this study are not aware that shisha smoking is harmful to health. This can be due to the lack of awareness on shisha smoking and misconception that shisha is harmless. Shisha smoking also has the same health risk as cigarette smoking but majority of participant in this study disagreed with that statement. The health risk mentioned is about the negative effect of shisha smoking where the participants are exposed to tobacco, nicotine, and tar just like cigarette smoking. Shisha increases the risk of developing cancer<sup>16</sup> but in this study the participants mostly mentioned that they are not sure about

it. Many of them agreed with the statement that shisha pipes can spread infections. They are aware that certain infections can spread easily. The last part is the nicotine dependence test where the participants have to answer few questions and based on that we can know their dependence level on shisha smoking. This question is adapted from Fagerstrom Nicotine dependence test and modified according to this study. The result from this test shows that more than 50% of the participants are in low dependence level. About 12% of the participants are in high dependence level and the rest are in moderate level.

### Implications of The Study

The results of this study indicated a need to place more importance on the awareness and dependence level of shisha. From the research conducted, results obtained from the study shows that participants' awareness towards shisha smoking is very low. Lack of awareness on this issue may lead to further complications of health and results in death.

## CONCLUSION

Shisha smoking is an emerging addiction problem in Malaysia and also worldwide. This survey shows poor knowledge of shisha smoking among the youngsters. This is partly due to the lack of adequate knowledge among the youngsters about shisha smoking. This survey also proves the need to educate the young people on shisha smoking. Shisha smoking is as harmful as cigarette smoking and the public should be made aware of this. As this study is done in a microscopic scale, it is suggested to conduct this study in a larger scale which could involve all the young people throughout the world. The health care professionals and others need to take the responsibility to educate the shisha smokers to arise awareness among them. With this implementation the prevalence of shisha dependent cases can be reduced.

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