Prevalence of Nicotine Dependence Among Youth Smokers (Cigarette and Shisha) in Malaysia

Muhammad Ikbal Baharudin, Waqar Al Kubaisy, Norsuhada Norden, Rinakartini Lairy, Nurain Anuar Yazid, Nur Liyana Mohammad Azlan, Nik Nairan Abdullah, and Zakaria Bannur

Abstract

Background: The usual explanation for why smoking produces dependence, focuses on the effects of nicotine on dopamine and other neurobiological explanations. It is evident that tobacco smoke contains nicotine that results in addictive stimulant. Smoking prevalence around the world has been increasing tremendously especially among youth. Identifying youth who may develop nicotine habit is an important step in preventing and controlling tobacco use. Unfortunately, to date no studies related to tobacco (shisha or cigarette) smoking dependence have been carried out in Malaysian particularly among youth.

Objectives: to identify the predominant type of smoking (cigarette, shisha or both), to detect the nicotine dependency among youth as well as comparing the nicotine dependence based on the type of smoking, and also to investigate the socio-demographic characteristic of the smokers.

Methodology: A cross sectional study was conducted, from April to July 2014 in Selangor (one of the states in Malaysia). Random sample of 500 tobacco smoker individuals at age 18-24 years old was collected. Each participant was interviewed face to face, using well-constructed questionnaire. The questionnaire contains socio-demographic characteristic and information about type of smoking (cigarette, shisha or both). In addition the 16 item related to signs and symptoms of tobacco dependence were included in this questionnaire. Using SPSS version 20, data analysis was conducted using chi square. Significantly consider when $p < 0.05$.

Result: Prevalence of cigarette smoking was the highest (58.4%) followed by both cigarette and shisha (31.8%), while only (9.8%) of our youth smoking shisha. Regarding the nicotine dependency, interestingly we found that those who are used to smoke both (cigarette and shisha) showing significantly higher rate of nicotine dependence in 10 out of the 16 item related to sign and symptom of dependency.

Conclusion and Recommendation: Smoking cigarette is the highest rate. Smoking nicotine leads to dependency. Combining both shisha and cigarette for smoking leads to higher dependency status of individual to nicotine. In respect to the nicotine dependency signs and symptoms, our study revealed that the participants who used to smoke both cigarette and shisha showed significantly the highest rates of nicotine dependency. Therefore anti-smoking campaign should be strength particularly among adolescent and youth.

Keyword: Tobacco, smoking, nicotine dependency, cigarette, shisha, youth.

I. INTRODUCTION

Smoke is a complex mixture of chemicals and the additives, produced by burning tobacco. Doll et al. (1994) stated that tobacco smoke contains nicotine and monoamine oxidase (MAO) inhibitor, both combined to result in an addictive stimulant and euphoriant properties [1]. Nicotine actually is an alkaloid that can be found abundantly in the tobacco plant and it is classified as central nervous system stimulant drug [2,3]. Belanger et al. (2008) stated that from all nicotine dependence symptoms, mental and physical addiction were among those most frequently reported by young novice smoker [4]. American Cancer Society (2009) confirmed that prolonged smoking causes a wide range of diseases leading to premature morbidity and mortality [5]. Smoking prevalence around the world has been increasing tremendously. Interestingly, Koushki and Bustan (2006) documented that there are increasing number of youths starting to smoke at an earlier age which is a major concern to public health [6]. People are more concerned about the health of nation's youth because they are future leaders and later this will affect the economy of the nations in the future. In recent years, the tobacco epidemic (shisha or cigarette) receive a striking attention around the world. In addition to cancer, smoking also can causes lung diseases (chronic bronchitis, emphysema, etc.), and increases the risk of cardiovascular disease (stroke, heart attack, aneurysm and etc.) [7,8]. Despite the well-known health risk of tobacco smoking, there are increasing numbers of youths starting to smoke at an early age. Studies, databases, and safety sheets reported that the killing dose for adults is 60 mg or less (30–60 mg), which means that ingestion of

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five cigarettes could kill an adult [9]. Several studies have shown that smoking initiation during adolescence decreases the chances of quitting. The ASH (Action on Smoking and Health) org. (2013) reported that the majority of the smokers want to stop smoking, yet the successful quit rate remains very low [10].

Smoking issue is also heated up among different segments of our Malaysian society. The Collaborative Funding Program for Southeast Asia Tobacco Control Research suggested that identifying subgroups of youth who may be at greater risk than others to develop nicotine habit is an important step forward in preventing smoking initiation, and controlling tobacco use [11]. Therefore, the morbidity and mortality attributable to smoking would decline in the future, as reductions in smoking prevalence will be observed [12]. Unfortunately, to date no studies related to tobacco (shisha or cigarette) smoking dependence have been carried out in Malaysia particularly among youth. Therefore we decided to study this issue among youth in Selangor aiming to identify the predominant type of nicotine smoking (cigarette, shisha or both), to detect the nicotine dependency among youth as well as comparing the nicotine dependence based on the type of smoking, and also to investigate the socio-demographic characteristic of the smokers.

II. METHODOLOGY

A pilot study was carried out to test the validity of the questionnaire. By using PS software version 3.9.14, the estimated sample size was 432 participant. Considering 10-20% as a defaulter rate, the final sample size calculated was 500. A cross sectional study was conducted in Selangor (one of the states in Malaysia), during a period of 4 months from April to July 2014. Ethical approval was obtained from the Faculty of Medicine, UiTM, Malaysia. Inclusion criteria were: both genders, aging 18-24 years old, can understand Malay or English language and have been smoking for not less than one month. While we excluded people who aged less than 18 or more than 24 years old, and have been smoking less than a month. A random sample of 500 youth smokers regardless of the type of tobacco they smoked (cigarette, shisha or both) was collected. Verbal consent was obtained from each participant. All the respondents were ensured that their information and participation are confidential. The information from the respondent was collected by face to face interview between the researcher and the respondent using well-structured and validated questionnaire. The questionnaire consists of two parts. The first part is basically pertaining to the respondents' socio-demographic information (gender, age, education, occupation and etc.), as well as their smoking behaviour which includes type of tobacco they consume (cigarette, shisha and both), duration of smoking, and the amount of tobacco they use (number of cigarette per day and shisha taken per week).The second part of the questionnaire consists of sixteen items related to the nicotine dependence symptoms which includes: *tried unsuccessfully to quit smoking, smoke even if ill and in bed most of the day, smoke now because hard to quit, addicted to tobacco, strong cravings to smoke, really need to smoke, strong need or urge to smoke, if not smoke they felt/experience; hard to concentrate, more irritable, nervous/restless/anxious, sad/blue or depressed; increase in appetite and weight gain, restlessness, sleep disturbances, increase in heartbeat.*

The 16 items were categorized into three domains; a psychological (mood and mental judgement), behaviour and unsuccessful quitting attempt. The psychological consist of nine items which is felt *like addicted to tobacco, if not smoke they felt/experience; hard to concentrate, irritable, nervous/restless/ or anxious, sad/blue or depressed, increase appetite or weight gain, restlessness, sleep disturbances, increase in heartbeat.* While behaviour consist of four items, *smoke even if ill and in bed most of the day, felt; strong cravings to smoke, need to smoke, strong need or urge to smoke*. The remaining domains which is unsuccessful quitting attempt consist of three items *smoking because it really hard to quit, underwent unsuccessful quitting attempt, felt difficult to refrain from smoking in places where it is forbidden.*

The collected data was analysed by using the SPSS 20. Descriptive statistic (frequency and percentage) was calculated. In addition, chi square test was done to compare the dependency rate between different type of tobacco (cigarette, shisha and both) using $P < 0.05$ as a significant value. The amount of tobacco used was categorized into two groups for each type of tobacco (cigarette and shisha), for a cigarette; up to 20 sticks/day or more than 20 sticks/day, for shisha; smoke once per week or more than one per week. Similarly the age of respondents were categorized into two groups (18-21 years old) and (22-24 years old). While the duration of smoking were categorized into three (less than 1 year, 1-5 years and more than 5 years) groups.

III. RESULTS

The socio-demographic profiles of the participants are shown in Table 1. The majority of the participants were Malay (92%), male (94.6%), and unmarried (89%) person. Students constitutes about (64.4%) of our respondent. According to level of education, the tertiary level of education (university or college) shows the highest rate (68%). More than half (57.6%) of the participants were in the age group of 18-21 years old.

TABLE I: Socio-Demographic Characteristics of Youth Tobacco Smoker (Cigarette and Shisha), Selangor, Malaysia, 2014

Characteristics Profile of respondents		Total N=500		Types of Smoking					
		No	(%)	Cigarette N=292		Shisha N=49		Both N=159	
				No	%	No	%	No	%
Gender	Male	473	94.6	277	58.6	42	8.9	154	32.6
	Female	27	5.4	15	55.6	7	25.9	5	18.5
Age(years)	18-21	288	57.6	156	53.4	31	63.3	101	63.5
	22-24	212	42.4	136	46.6	18	36.7	58	36.5
Level of Education	Primary	13	2.6	9	69.2	1	7.7	3	23.1
	Secondary	147	29.4	105	71.4	4	2.7	38	25.9
	Tertiary	340	68.0	178	52.4	44	12.9	118	34.7
education of/parents / guardian	Primary	70	14.0	39	55.7	5	7.1	26	37.1
	Secondary	254	50.8	167	65.7	15	5.9	72	28.3
	Tertiary	176	35.2	86	48.9	29	16.5	61	34.7
Occupation	Student	322	64.4	163	50.6	37	11.5	122	37.9
	Worker	172	34.4	125	72.7	12	7.0	35	20.3
	Others	6	1.2	4	66.7	0	0	2	33.3
Marital status	Married	55	11.0	4	72.7	3	5.5	12	21.8
	Unmarried	445	89.0	252	56.6	46	10.3	147	33.0
Ethnicity	Malay	460	92.0	271	58.9	42	9.1	147	32.0
	Chinese	22	4.4	12	54.5	2	9.1	8	36.4
	Indian	12	2.4	6	50.0	3	25.0	3	25.0
	Others	6	1.2	3	50.0	2	33.3	1	16.7
Duration of smoking	< 1 year	54	10.8	28	51.9	13	24.1	13	24.1
	1-5 years	248	49.6	154	62.1	21	8.5	73	29.4
	> 5years	198	39.6	110	55.6	15	7.6	73	36.9
Amount of cigarette/ day	0	49	9.8	-	-	49	100	-	-
	<20 stick	338	67.6	217	64.2	-	-	121	35.8
	≥20 stick	113	22.6	75	66.4	-	-	38	33.6
Amount of shisha/ week	0	292	58.4	292	100	-	-	-	-
	<2 times	141	28.2	-	-	3	22.0	110	78.0
	≥2 times	67	13.4	-	-	18	26.9	49	73.1

TABLE II: Nicotine Dependency and Its Relation to Type of Smoking Among Youth in Malaysia

Characteristics Profile of respondents		Total N=500	Types of Smoking			X^2	p value
		No (%)	Cigarette N=292 (%)	Shisha N=49 (%)	Both N=159 (%)		
Feel difficult to refrain from smoking in places where it is forbidden	Yes	198(39.6)	112(38.36)	10(20.41)	76(47.88)	12.203	0.002
	No	302(60.4)	180 (61.64)	39(79.59)	83(52.12)		
Smoke even if ill and in bed most of the day.	Yes	134(26.8)	84 (28.77)	6 (12.24)	44(27.67)	5.929	0.052
	No	366(73.2)	208(71.23)	43(87.76)	115(72.3)		
Have tried unsuccessfully to quit smoking	Yes	350(70.0)	211(72.26)	23(46.94)	116(72.96)	13.781	0.001
	No	150(30.0)	81 (27.74)	26(53.06)	43(27.04)		
Smoking now because it really hard to quit	Yes	336(67.2)	204(69.86)	16(32.65)	116(72.96)	29.862	0.000
	No	164(32.8)	88 (30.14)	33(67.35)	43(27.04)		
Feel like an addicted to tobacco	Yes	280(56.0)	166(56.85)	14(28.57)	100(62.89)	18.113	0.000
	No	220(44.0)	126(43.15)	35(71.43)	59(37.11)		
Feel strong cravings to smoke.	Yes	249(49.8)	154(52.74)	11(22.45)	84(52.83)	16.256	0.000
	No	251(50.2)	138(47.26)	38(77.55)	75(47.17)		
Feel really needed a cigarette or shisha	Yes	278(55.6)	166(56.85)	11(22.45)	101(63.52)	26.041	0.000
	No	222(44.4)	126(43.15)	38(77.55)	58(36.48)		
Feel strong need or urge to smoke	Yes	224(44.8)	136(46.58)	12(24.49)	76(47.80)	9.124	0.010
	No	276(55.2)	156(53.42)	37(75.51)	83(52.20)		
If not smoke hard to concentrate	Yes	241(48.2)	149 (51.03)	5(10.20)	87(54.72)	31.973	0.000
	No	259(51.8)	143(48.97)	44(59.80)	72(45.28)		
If not smoke feel more irritable	Yes	180(36.0)	105(35.96)	10(20.41)	65(40.88)	6.814	0.033
	No	320(64.0)	187(64.04)	39(79.59)	94(59.12)		
If not smoke feel nervous or,restless or anxious	Yes	187(37.4)	104(35.62)	9(18.37)	74(46.54)	13.653	0.001
	No	313(62.6)	188(64.8)	40(81.63)	85(53.46)		
If not smoke feel sad, blue,or depressed.	Yes	128(25.6)	71(24.32)	8(16.33)	49(30.82)	4.738	0.094
	No	372(74.4)	221(75.68)	41(83.67)	110(69.18)		
If not smoke experience increase appetite or weight gain.	Yes	124(24.8)	76 (26.02)	9(18.37)	39(24.53)	1.329	0.514
	No	376(75.2)	216(73.98)	40(81.63)	120(75.47)		
If not smoke experience restlessness	Yes	109(21.8)	56 (19.18)	13(26.53)	40(25.16)	2.872	0.238
	No	391(78.2)	236(80.82)	36(73.47)	119(74.84)		
If not smoke experience sleep disturbance	Yes	97 (19.4)	54 (18.49)	6(12.24)	37(23.30)	3.281	0.194
	No	403(80.6)	238(81.51)	43(87.76)	122(76.7)		
If not smoke feel heart beat increases	Yes	203(40.6)	120(41.10)	22(44.9)	61(38.36)	0.735	0.693
	No	297(59.4)	172 (58.90)	27 (55.1)	98 (61.64)		

In this research we have categorized the type of smoking into three different groups which are; exclusively cigarette smokers, exclusive shisha smokers, or both (cigarette and shisha) smokers). As shown in Table 2, youths who are exclusively cigarette smokers constitute the highest rate (58.4%) while exclusive shisha smokers constitute the lowest rate (9.8%). On the other hand, the respondents who mix cigarette and shisha for smoking constitute 31.8%. Meanwhile our study found that (451) 90.2% of the smokers were used to consume cigarette. This obtained by adding those (292) who were exclusively cigarette smokers with those (159**)** who used mixed smoking (cigarette and shisha). Similarly, we found that (208) 41.6% were used to consume shisha. All of the socio-demographic characteristics except (the gender),in respect to type of smoking, show that the highest rate goes to the exclusively cigarette smokers followed by both (cigarette and shisha) while the lowest rate was exclusively shisha smokers. Interestingly, females show second highest in exclusively shisha instead of both (cigarette and shisha).

Regarding the duration of smoking, we found that the participants were used to smoke tobacco in a ranging period of time between 2 months- 10 years. Almost half (49.7%) of the participants have been smoking for a period 1-5 year. While 39.6% had been started smoking since more than 5 years. Interestingly, only 9% were started to smoke in a less than one year period of time. In respect to the amount of smoking, those participant who used to smoke cigarette less than 20 sticks per day, or smoke shisha less than one time per week were constitute as 67.6% and 67.8%.

Regarding the tobacco dependency issues, based on the 16 items which reflect the dependency symptoms. As shown in Table 2, the rates of positive citation for the 16 items were ranging from 19.4% (*if not smoke experience sleep disturbances*) to 70.0 % (*tried unsuccessfully to quit smoking*). More than 50% of the individuals were cited positively to four items of dependence symptoms which includes, in sort of descending order starting with, *tried unsuccessfully to quit smoking* (70.0 %), *still smoking because it really hard to quit* (67.2%), *feel addicted to tobacco* (56.0%), *feel really need to smoke* (55.6%). On the other hand, less than (25%) of the respondents were cited positively to the other following three items, *if they are not smoking they experienced; increases of appetite or weight gain* (24.8%), *restlessness* (21.8%), *sleep disturbances* (19.4%).

Taking into accounts of which type of tobacco the respondents use to smoke (cigarette, shisha and both) and its relation to the dependency symptoms. The rates of dependence symptoms were used as a dependent variable against the type (cigarette, shisha, or both) of tobacco (independent) they take to smoke as independent variable (cigarette, shisha, or both). Astonishingly, participants who used to smoke both cigarette and shisha showed the highest rate in most of the dependence symptoms.

Our study revealed that out of the sixteen items of nicotine dependence, twelve showed higher rates among youth who used to mix both cigarette and shisha. The remaining four items of dependency symptom consist of; two item which showed higher rates among respondents who smoke cigarette exclusively as follow *(continue to smoke regardless of illness or becoming unproductive)* and *(increases of appetite or weight gain when they are not smoking)*. As for the other two items *(experience restlessness without smoking)* and *(experience the increases of heart rates without smoking)* were higher among the respondents who smoke shisha exclusively. Surprisingly, all the twelve items that show significantly higher rates among youth who used to mix both tobacco (cigarette and shisha) were significant except for two items of dependency *(feel sad, blue, or depressed because they could not smoke)* and *(if not smoke they experience sleep disturbance)*. The item that shows the significant among youth who used to mix both tobacco (cigarette and shisha) are ranging from 40.88% *(feel irritable if they cannot smoke)* to 72.96% *(tried unsuccessfully to quit smoking)* and *(still smoke because it really hard to quit).*

In general all those ten items were as followed in descending trend ; *tried but failed to quit smoking* (72.96%, $x^2 = 13.8$, p= 0.001), *continue to smoke because it is real hard to quit* (72.96% , $x^2 = 29.9$, p= 0.0001) , *feel they really need to smoke* (63.52 %, $x^2 = 26.0$, p= 0.0001), *feel addicted to tobacco* (62.89%, $x^2 = 18.1$, p= 0.0001), *having difficulties to concentrate without smoking* (54.72%, $x^2 = 32.0$, p= 0.0001), *feel strong craving to smoke* (52.83%, $x^2 = 16.3$, p=0.0001), *difficult to refrain from smoking in places where it is forbidden* (47.88%, $x^2 = 12.2$,p= 0.02), *feel strong need or urge to smoke* (47.80%, $x^2 =9.1$, p = 0.01), *feel nervous ,restless and anxious without smoking* (46.54%, $x^2 = 13.7$, p= 0.01) , *feel more irritable without smoking* (40.88%, $x^2 = 6.8$,p =0.03). The rest of the nicotine dependence items are not significant.

IV. DISCUSSION

The majority of the respondents in this study were males. A research done by University of Wisconsin Centre for Tobacco Research and Intervention stated that the male tends to smoke because it is a habit [13]. Lim et al (2013) in his research found that, men were more likely than women to grab a cigarette if they felt angry, anxious or sad, therefore men smoke to reduce anger and sadness [14]. In addition, as documented by Rick et al. (2012) smoking in males may be related to testosterone level

[15]. Besides that, tobacco smoking among females in Malaysia still considered as taboo or social stigma, and this may be the reason why the numbers of tobacco smokers among females are lower. Our study also revealed that most of the participants (89.0%) are unmarried. This finding strengthen Marina Ashades (2013), who reported that, Canadian men and women who are married are significantly less likely to smoke [16]. This most probably related to financial, psychological or behavioral issues. Malays constitute highest rate in smoking compare to other races in Malaysia (Chinese and Indians). In concurrence with other studies, Redhwan et al. (2012) and National Heath Morbidity Surveys (NHMS 1997), Malay people showed the highest rate in smoking compared to other ethnicity [17,18].

The highest tobacco method used was cigarette followed by both (shisha and cigarette). Cigarettes are more favorable by youth compared to shisha because of the easy accessibility, affordable, mobile and pocket friendly compare to shisha. In addition, shisha is prohibited in some states in Malaysia. In respect to the quantity of smoking, most of our respondent (67.6%) smokes less than 20 sticks cigarette per day. This is in consistence with Sallehudin *et al.* (2013), who detected that, the mean number of cigarettes smoked daily among Malaysian smokers was 11.3 sticks per day [19]. Surprisingly, our study also found that the youths were smoking shisha more frequent compared to Saudi Arabia in which 67.8% smoke shisha once per week while study done in Saudi Arabia showed that only 41% smoke shisha once every two week, despite of Saudian peoples having their own shisha set at home [20]. This may be due to the fact that shisha smoking is considered as trend and the use of it has increase in popularity worldwide and in Malaysia particularly among youth.

More than half (57.6%) of youth smoker were at the age of 18-21. When we calculate the duration of smoking, we found that about half of them (49.6%) were smoking for 1-5 years. This means that those smokers at age of 18-21 years old were most probably started to smoke when they were at the age of 13 to 18 years old. This findings supported sumarni et al. (2010) and hadzrik et al. (2005) who stated that most of the smokers started to smoke at adolescent age [21, 22]. Interestingly, most of the smokers were having tertiary (college and university) education, although one would expect a lower prevalence among the highly educated person but smoking rate among such group was alarming high. Most probably that peer influence among university students may increase the number of smokers among university student. Moreover, based on the study done by Waqar et al. (2014) and Yusoff et al. (1994), who stated that university students living away from their parents may be subject to a higher degree of peer influence and psychological impairment as well as environmental stress compared with those living with their parents [23,24].

Nicotine dependence also called tobacco dependence is an addiction to tobacco products caused by the drug nicotine. Active ingredient for addiction is nicotine, a naturally occurring drug found in the tobacco [3]. According to WHO (2010), addiction is a term commonly applied to maladaptive drug-seeking behavior, often performed despite knowledge of negative health consequences [3]. An addicted smoker usually has withdrawal symptom that occurs when they tried to abruptly stop smoking. Neuroadaptation occurs when the brain has adapted to the presence of nicotine and needs nicotine in order to function normally, thus when nicotine is not available (such as when a smoker stops smoking), the brain function becomes disturbed, resulting in withdrawal symptom [25]. Based on this study, the effect of nicotine dependence or addiction can be categorized into psychological (mood and mental judgment), behavior and unsuccessful quitting attempt.

The psychological effect of addiction towards nicotine is an alteration of moods of the smokers. It is scientifically evident, that nicotine acts on the chemistry of the brain and central nervous system, affecting the smoker's mood and create pleasant feelings that make the smoker want to smoke more [26]. From our study, 36% of the participants feel more irritable and 37.4% feel nervous, restless or anxious if they do not smoke. This is because regular use of cigarettes leads to an increase in the number of cholinergic receptors and changes in the sensitivity of these receptors which may lead to nicotine tolerance. Thus smokers then need to maintain a regular supply of nicotine to maintain normal brain function and the habit becomes addictive [27]. Our study revealed that 25.6% feeling like sad, blue or depressed when they do not smoke. This finding supported Boden et al. (2010), who documented that there is a cause and effect relationship between smoking and depression in which cigarette smoking increases the risk of symptoms of depression [28]. Peter et al (2006) stated that smokers often have withdrawal symptoms that affect their mood; for example, they will feel irritability, anxiety, depression/dysphoria, restlessness, sleep disturbance, and increased appetite [29]. All those symptoms or mood changes happen when smokers tried to quit. Our study confirmed Peter et al. (2006) study, in which more than 15% responded said that they felt nervous/restless or anxious, felt sad/blue or depressed, experience increase in appetite and weight gain, and experience sleep disturbances if not smoke.

Another effect of nicotine addiction or withdrawal symptoms is behavioral changes. As mentioned by Peter et al. (2006) one of the behavioral changes is that smokers may feel urge or craving to smoke [29]. This is proven in

our study where about half of the participants said that they feel strong craving to smoke (49.8%) and felt strong need or urge to smoke (44.8%). This finding could be explained by the fact that smokers usually get used to have a certain level of nicotine in their body and they control that level depending on the amount that they smoke and the type of tobacco they use. Therefore, when they attempt to quit, cravings develop as their body wants nicotine and it takes time to break free from nicotine addiction, thus when there are triggers or people smoking in front of them they may get nicotine cravings [30]. Between one episodes of smoking with another, a chronic smoker maintains a high enough concentration of nicotine, it then leads to desensitization of the receptors and slow down their recovery and this is why smokers develop a tolerance to nicotine and experience reduced pleasure from it [31]. Other psychological effect is the impairment of the mental judgment as nicotine produces changes in brain function and structure in long term complication [32]. Often smokers do not admit that they are addicted, astonishingly in this study, 56.0% admit that they felt like addicted to tobacco. In addition, our study found that, about half of the respondents (48.2%) said that they felt hard to concentrate when they do not smoke. This might be due to the effect of nicotine that causes the body to release the hormone epinephrine a fight or flight hormone and it activates the sympathetic nervous system, by increasing the respiratory rate, heart rate and blood pressure, subsequently makes a person feel awake and alert, while later doses make them feel calm and relaxed [31]. However later, the smokers started to experience the agitation and discomfort that leads them to smoke another cigarette.

Tobacco contains nicotine, which is highly addictive, making the process of quitting often very prolong and difficult [33]. Meanwhile, in our study, we detected that 67.2% smokers felt really hard to quit, and 70.0% underwent unsuccessful quitting attempt. This is in agreement with previous studies done by Cummings et al., (1997) who stated that although most smokers had a strong desire to stop smoking, majority of them, especially the most dependent heavy smokers, struggled unsuccessfully to achieve their goal [34]. This may be due to the neuro-adaptation that develops with repeated exposure to nicotine, resulting in tolerance to many of the effects of nicotine. In addition more than quarter of our respondents (39.6%) facing difficulty to abstain from smoking in places where it is forbidden (e.g. mosque, malls, restaurant and etc.). This confirms the study done by Peter et al, they found that it is difficult for a person to spend more than a few hours in forbidden places, because withdrawal symptoms emerge within 3 hours after the last cigarette, with the earliest appearing within the first 30 min of abstinence [29].

The results also showed that those who are used to mix both cigarette and shisha have greater nicotine dependence compare to exclusive cigarette or shisha smokers. This may be due to the fact that when smokers mix two or more type of tobacco, they increase the frequency of smoking per day and subsequently increase their nicotine level in the blood. As we all know the higher the nicotine level the greater the dependence and withdrawal symptoms.

V. CONCLUSION AND RECOMMENDATIONS

There was a high prevalence (58.4%) of exclusive cigarette smoking among youth in both genders, in Selangor (one of the states in Malaysia). Mixing tobacco (shisha & cigarette) is not uncommon in Malaysia constituted almost one third (31.8 %.) of youth smokers. Prevalence of Shisha smoking is (41.6%) high in Malaysia. In females exclusive shisha smoking showed second highest rate (25.9). Interestingly, 10/16 of nicotine dependence items showed significantly higher rates among youth who used to mix both tobacco, particularly that related to failure attempt to quit smoking (72.96%). Additionally psychological (mood and mental judgment) as well as behavioral, affect were significantly detected. Hence combination of both (cigarette and shisha) leads to greater nicotine addiction and dependency. Therefore, anti-tobacco campaign should be strengthen through several ways. Increasing cigarette excise taxes could be a major tobacco control policy in discouraging cigarette smoking among youth. In addition, legislation and reinforcement of law should be considered. Education programs on how to educate people about the risk and danger of smoking as well as banned smoking in public places is strongly recommended specifically among adolescent and youth.

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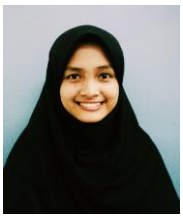
AUTHOR'S PROFILE

Muhammad Ikbal bin Baharudin, finished tertiary education in UiTM Foundation of Science. Currently he is taking Bachelor of Medicine and Surgery in UiTM, Malaysia (2012-2017).

Dr. Waqar Abd Alqahar Alkubaisy is an Assistant Professor of Medicine UiTM Sg Buloh, Malaysia. She obtained PhD in Epidemiology of Communicable and Non communicable Diseases, MPH (Master of Public Health) Maternal Health Faculty of Medicine Baghdad University Baghdad Iraq 1981, Diploma of Public Health MCH Faculty of Medicine, Baghdad University Baghdad Iraq 1978, and M B Ch B In Medicine and Surgery Faculty of Medicine, Baghdad University Baghdad Iraq 1971. Her research interests lie in Epidemiology of communicable and non-communicable diseases, women health, and adolescent health.

Norsuhada binti Norden, started tertiary education in Matriculation Programme at Johor Matriculation College (2011-2012) and continue taking Bachelor of Medicine and Surgery in UiTM Faculty Sungai Buloh and Selayang (2012-2017).

Rinakartini Binti Lairy, started tertiary education in UiTM Foundation of Science .Currently, she is taking Bachelor of Medicine and Surgery in Uitm, Malaysia (2012-2017).



Nurain Binti Anuar Yazid, started tertiary education in UiTM Foundation of Science, and currently she is taking Bachelor of Medicine and Surgery in UiTM, Malaysia (2012-2017).

Nur Liyana Izzati is a Medical Student in MARA Technology University. Her research interest is in nicotine dependence among youth.

Nik Nairan Abdullah obtained Bachelor of Medicine and Bachelor of Surgery (MBChB) from University of Otago,Dunedin,New Zealand in year 2000 and Master of Public Health (Family Health) from University of Malaya in 2009. Her major field of study is public health (family health).

Zakaria Bannur M.B., B.S, obtained Bachelor Degree in Medicine & Surgery from Tripoli University, Libya, in 2007, and Master in Science (Medicine), from Universiti Teknologi MARA (UiTM), Malaysia, 2014. His major field of study: Ophthalmology, molecular medicine, genomics, metabolomics and personalized medicine