

## ORIGINAL ARTICLE

# SMOKING HABITS AMONG MEDICAL STUDENTS IN A PRIVATE UNIVERSITY

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## ABSTRACT

Comparison of rates of smoking across countries revealed that students are more likely to begin smoking in medical school than to give it up and increase their cigarette consumption rather than decrease it. A cross-sectional survey of all consenting medical students in a private medical university in north Malaysia was conducted in 2008 to determine the prevalence and smoking habits among them. A self administered questionnaire which was returned to the investigators in a sealed envelope was used. Results were tabulated and analysed with SPSS version 13.0 software. The response rate was 83.3% (508/610). The prevalence rate for current smokers was 5.3% (27/508) and for ever smokers 9.3% (47/508). Factors significantly associated with smoking were gender ( $p<0.001$ ), age group ( $p<0.001$ ) and family income ( $p=0.003$ ). The odds of being a smoker was 14 folds high when a family member smoked and the odds of being an ever smoker was almost 6 folds more when a family member smoked. Friends were the most common influence to start smoking and the most common reason to stop smoking among ever smokers. The reasons for not smoking among the never smokers were health concerns and the distasteful smell of cigarettes. A module on how to help medical students to stop smoking should be included in the curriculum of every medical school. This will not only help them become good educators but will prevent them from picking up the habit. Educational intervention should also include family members who smoke.

**Key words:** smoking, medical students, university, Malaysia

## INTRODUCTION

Smoking is the largest preventable cause of disease and premature death. About a third of the adult male global population smoke cigarettes<sup>1</sup> and most of them live in developing countries<sup>2</sup>. While smoking rates have decreased in developed countries over the past years, there has been a corresponding 50% increase in smoking rates in developing countries.<sup>3</sup> The Western Pacific region has the highest smoking rate with nearly two thirds of men smoking<sup>1</sup>. Statistics show that every day more than 50 teenagers below the age of 18 start smoking and most of them become hard core smokers<sup>2</sup>.

The Malaysian adult per capita consumption of cigarette had increased from 1970 to 1985 by 57%<sup>4</sup>. However the recent Malaysian National Health and Morbidity survey III<sup>5</sup> reported a decline in the prevalence of smoking since 2004. According to this survey, 27.0% had ever smoked, 21.5% were current smokers and 5.4% had quit smoking. Malaysian smokers consume an average of 13.3 cigarettes per day, with over 60% reporting to smoke over 10 cigarettes per day<sup>6</sup>. As future physicians who will witness the continued burden of smoking-related diseases among their patients, attitudes of medical

students towards smoking is important. Nevertheless, substance use remains fairly common in this group<sup>7</sup> and a superior knowledge of smoking-related risks does not correlate with a lower rate of smoking among senior medical students<sup>8</sup>. Smoking rates among students have been shown to vary widely from country to country<sup>9</sup>. A comparison of rates across countries revealed that medical education fails to bring about a decrease in smoking rates. Medical education and knowledge about the harmful effects of smoking have relatively little impact on smoking among medical students<sup>10</sup>. As such, many researchers have historically investigated tobacco smoking rates among this demographic group.

The objective of this study was to determine the prevalence of smoking and its associated factors among medical students in a private university in Malaysia which has no learning module on smoking.

## METHODOLOGY

### Setting

The study was conducted in a private university located in north Malaysia. The five year medical programme conducted in this institution is the flagship of the university. Most students from this

universities are self-sponsored though some are loan recipients. This institution does not have a teaching module for smoking.

#### **Study design**

A cross-sectional study design was chosen to achieve the objective of the study.

#### **Sampling**

There were a total of 610 medical students pursuing the medical programme at the time of the study. All those who agreed to participate were included and those who refused were excluded.

#### **Tools**

A self-administered questionnaire especially prepared to meet the objective of this study was used. The questionnaire contained questions pertaining to the smoking habits and influences. The respondents were free to answer all or part of the questionnaire. No personal identifier information was collected. The filled-in questionnaire was returned to the investigators in a sealed envelope.

#### **Analysis**

The outcome investigated was cigarette smoking - current and ever smokers. An "ever smoker" was

defined as a person who has smoked cigarettes during his or her life and a "current smoker" as an ever smoker who is currently smoking daily or some days. Analysis was done using SPSS version 13.0. Chi-square test was used to compare the variables. When the values were fairly small, a correction for continuity known as Yates Correction was applied and Fisher's Test gave the exact p value. Odds ratio was used to estimate the risk for current and ever smokers.

#### **Ethics**

Informed consent of the participants was obtained. All data obtained was anonymous at source. Subjects were given a unique identifier number which was used in all handling of data.

## **RESULTS**

Table 1 shows the summary of the results. Out of the 610 eligible medical students, 508 responded giving a response rate of 83.3% (508/610). There were more female participants as compared with males and the mean age of the participants was 22 years old. Indians were the majority followed by Chinese and other races. Most of the participants were in the first year of medical school.

**Table 1. Factors associated with smoking**

	Variables	Current smokers n=27/f (%)	Ever smokers n=47/f (%)	Never smokers n=461/f (%)	Chi squared value/p value
Gender	Female (n= 291)	2 (0.7%)	9 (3.1%)	280 (96.2%)	50.388 / <0.001
	Male (n=244)	25 (10.2%)	38 (15.6%)	181 (74.2%)	
Age group	<= 20 (n=145)	2 (1.4%)	9 (6.2%)	134 (92.4%)	24.985 / <0.001
	21 - 23 (n=263)	14 (5.3%)	23 (8.7%)	226 (85.9%)	
	24 - 26 (n=108)	8 (7.4%)	9 (8.3%)	91 (84.3%)	
	>26 (n=19)	3 (15.8%)	6 (31.6%)	10 (52.6%)	
Race	Chinese (n=157)	4 (2.5%)	8 (5.1%)	145 (92.3%)	6.198 / 0.087
	Indian (n=360)	22 (6.1%)	36 (10%)	302 (83.9%)	
	Others (n=18)	1 (5.6%)	3 (16.6%)	14 (77.8%)	
Religion	Buddhist (n=105)	4 (3.8%)	6 (5.7%)	95 (90.5%)	12.508 / 0.129
	Christian (n=79)	0 (0.0%)	2 (2.5%)	77 (97.5%)	
	Hindu (n=316)	21 (6.6%)	33 (10.4%)	262 (82.9%)	
	Muslim (n=14)	1 (7.1%)	3 (21.4%)	10 (71.4%)	
	Others (n=21)	1 (4.8%)	3 (14.3%)	17 (80.9%)	
	Yr in medical school	1 <sup>st</sup> year(n=223)	5 (2.2%)	13 (5.8%)	
	2 <sup>nd</sup> year (n=122)	8 (6.6%)	14 (11.5%)	100 (81.9%)	
	3 <sup>rd</sup> year (n=119)	10 (8.4%)	13 (10.9%)	96 (80.7%)	
	4 <sup>th</sup> year (n=36)	3 (8.3%)	4 (11.1%)	29 (80.6%)	
	5 <sup>th</sup> year (n=35)	1 (2.9%)	3 (8.6%)	31 (88.6%)	
Source of funding	Family (n=124)	4 (3.2%)	8 (6.5%)	112 (90.3%)	5.832 / 0.443
	Loan (n=226)	16 (7.1%)	24 (10.6%)	186 (82.3%)	
	Loan/family (n=184)	7 (3.8%)	15 (8.2%)	162 (88%)	
	Scholarship (n=1)	0 (0.0%)	0 (0.0%)	1 (100%)	
Family income	<= RM 2000 (n=152)	7 (4.6%)	15 (9.8%)	130 (85.6%)	15.866 / 0.003
	RM 2001 - 4000 (n=228)	8 (3.5%)	10 (4.4%)	210 (92.1%)	
	> RM 4000 (n=155)	12 (7.7%)	22 (14.2%)	121 (78.1%)	
Cigarettes per day	<=10 (n=49)	15 (30.6%)	34 (69.4%)	-	1.107 / 0.575
	10 - 20 (n=17)	8 (47.1%)	9 (52.9%)	-	
	>21 (n=8)	4 (50%)	4 (50%)	-	

The prevalence of current smokers was 5.3% (27/508) and ever smokers 9.3% (47/508). Among the ever smokers 42.6% (20/47) have quit smoking. Among the current smokers 25 smoked conventional cigarettes with filters and 2 smoked hand-rolled cigarettes.

There were more male compared to female current and ever smokers ( $p < 0.001$ ). The prevalence of smokers increased with age ( $p < 0.001$ ). Most

smokers were among those who received loans for their education and the highest proportion of smokers was found among those with high family income bracket ( $p = 0.003$ ).

As shown in table 2, the odds of being a current smoker was almost 14 times more when a family member smoked and the odds of being an ever smoker was almost 6 times more when a family member smoked.

**Table 2. Family history of smoking as a risk factor to smoking**

Variable	Current Smokers (n=27) f (%)	Non smokers (n=481) (never smokers 461 + smokers who quit =20) f (%)	OR (95% CI)
With family history of smoking (n=30)	10 (33.3%)	20 (66.7%)	13.6 (5.03;36.44)
With no family history of smoking (n=478)	17 (3.6%)	461 (96.4%)	
	Ever smokers n=47 f (%)	Never smokers n= 461 f (%)	
With family history of smoking (n=30)	10 (33.3%)	20 (66.7%)	5.9 (2.40;14.64)
With no family history of smoking (n=478)	37 (7.7%)	441 (92.3%)	

The current smokers were asked what influenced them to start smoking. The most common answer was friends 74.1% (20/27), followed by curiosity 11.1% (3/27), advertisement 7.4% (2/27), family 3.7% (1/27) and style 3.7% (1/27) as shown in Table 3. They were also asked to state three reasons why they still continue smoking. As shown in Table 4 the four most common responses were stress 27.1% (22/81), friends 24.7% (20/81), addiction 22.2% (18/81) and style 17.3% (14/81). They were also asked what would help them to stop smoking; Table 5 shows the three most common responses which were willpower 37% (10/27), family 18.5% (5/27) and education 14.8% (4/27).

**Table 3. Factors influenced current smokers to smoke**

Influence to smoke among current smokers	N =27 n (%)
Friends	20 (74.1%)
Curiosity	3 (11.1%)
Advertisement	2 (7.4%)
Family	1 (3.7%)
Style	1 (3.7%)

**Table 4. Reasons current smokers continue to smoke**

Three reasons for continuing to smoking	N=81 n (%)
Stress	22 (27.1%)
Friends	20 (24.7%)
Addicted	18 (22.2%)
Style	14 (17.3%)
Loneliness	4 (4.9%)
Media	2 (2.5%)
Parents	1 (1.2%)

**Table 5. Factors help current smokers to stop smoking**

Factors that can help current smokers to stop smoking	N=27 n (%)
Will power	10 (37%)
Family	5 (18.5%)
Education	4 (14.8%)
Unsure	4 (14.8%)
Friends	2 (7.4%)
God	2 (7.4%)

Past smokers were asked what influenced them to smoke. As shown in Table 6 the most common responses were friends 55% (11/20) and curiosity 35% (7/20). They were also asked why they stopped smoking; Table 7 shows the most common responses were concerns about health 25% (15/60), financial cost 15% (9/60), the distasteful smell of cigarettes 15% (9/60) and willpower 13.3% (8/60).

**Table 6. Factors influenced past smokers to smoke**

Factors that influenced past smokers to smoke	N=20 n (%)
Friends	11 (55%)
Curiosity	7 (35%)
Family and friends	2 (10%)

**Table 7. Reasons past smokers stopped smoking**

Three reasons why past smokers stopped smoking	N=60 n (%)
Health	15 (25%)
Cost	9 (15%)
Smell of cigarettes	9 (15%)
Willpower	8 (13.3%)
Health campaigns	7 (11.7%)
Family	7 (11.7%)
Friends	5 (8.3%)

The never smokers were asked what factors influenced them not to smoke. As shown in Table 8 the most common responses were health concerns 29.7% (137/461), family influence 27.3% (126/461), smell of cigarettes 15.6% (72/461) and willpower 9.8% (45/461). They were also asked how they felt about the effects of the smoke on the environment, most answered that they felt uneasy 58.1% (268/461), they worried about their health 18.2% (84/461), the smell is irritating 14.5% (67/461) but some responded that it did not bother them 12.8% (59/461).

**Table 8. Factors influenced never smokers not to smoke**

Factors influenced never smokers not to smoke	N = 461 n (%)
Health	137 (29.7%)
Family	126 (27.3%)
Smell	72 (15.6%)
Willpower	45 (9.8%)
Health campaigns	41 (8.9%)
Religion	16 (3.5%)
Money	13 (2.8%)
Gender	8 (1.7%)
Friends	3 (0.7%)

## DISCUSSION

Malaysia's National Health and Morbidity survey II (1996/97) found that the total prevalence of smoking was 24.8%. The prevalence of smoking was found to be higher among young people who were unemployed or not in school than those in school<sup>5</sup>. The National Health and Morbidity survey III conducted in 2006 found 27.0% had ever smoked, 21.5% were current smokers and 5.4% had quit smoking<sup>5</sup>. In a report by the Ministry of Education, the prevalence of smoking among students was 0.38% for the years 1991 to 1994<sup>11</sup> and in a more recent study among a group of form six students in Malaysia the prevalence of smoking was found to be 22.8%<sup>12</sup>.

In this study the prevalence of smoking was less than 10% with 5.3% current smokers, 9.3% ever smokers and 42.5% had quit smoking. Similar, less than 10% smoking prevalence rates among medical student population were shown to occur in Australia (4-6%), China (6%), India (7%), Thailand (7%), the United States (7%) and Malaysia (9%)<sup>13</sup>. A review of studies on cigarette smoking among medical students in universities in Malaysia found the prevalence to be 10 % in University of Malaya in 1987<sup>14</sup>, 10.6% in National University of Malaysia<sup>15</sup> and 2.4% in University Putra Malaysia<sup>16</sup>.

In the World Health Organization's Western Pacific region, being born a male is the single greatest risk marker for tobacco use<sup>17</sup>. The Malaysian National Health and Morbidity surveys II and III<sup>5</sup> found the smoking rates among men were higher than in women. In the USA and Japan, smoking rates among male medical students were 3 and 58% respectively<sup>13</sup>. In Bahrain an increasing trend to smoke among male students in a medical school was also reported by Hamadeh<sup>18</sup>. Similarly in this study there were more current and ever smokers among the males as compared to the females. Although cigarette smoking was rare among women in the early 20<sup>th</sup> century, but this is beginning to change as young elite women are starting to smoke in greater numbers as seen in China and India<sup>19,20</sup>. Though smoking is still not socially sanctioned in Malaysia, but more urban professional women are smoking<sup>17</sup>. In this study there were both current and ever female smokers. A similar finding was shown in a study among medical students of the National University of Malaysia<sup>15</sup>.

Worldwide there is a disturbing trend for smoking rates to increase during the time at medical school.

In a medical school in Bahrain there were no smokers in the first year, but the prevalence rose to 45.5% by the final year.<sup>18</sup> Similarly in the present study, most current and ever smokers were among the third and fourth year medical students. However these differences were not statistically significant.

We found there were more current and ever smokers among those whose family members smoked. Similar finding was found in a study in University Putra Malaysia where the percentage of respondents who had at least one family member who smoked was significantly higher among ever smoked than never smoked<sup>16</sup>.

Economic condition of the student is an influencing factor in smoking. There were more current and ever smokers among those with a family income of more than RM4000 and the most common reason for stopping cigarette smoking among the ever smokers was the financial cost of smoking. This suggests that those more affluent are more likely to continue smoking as the cost does not affect them.

There is a significant association between smoking and peer influence, family influence and media influence<sup>16</sup>. Advertising and media paints a glamorizing picture of smoking, equates it with attaining maturity and renders it normative<sup>19</sup>. This could be why one of the common reasons given for the continued habit of smoking in this study besides friends influence was 'style'.

Among the past smokers and non smokers the common reason for stopping and not smoking was concerns about health suggesting constant messages about the negative effects of smoking on health does help. Unfortunately, some of the non-smokers responded that they did not mind the smoke environment although being a medical student they should know that passive smoking is a major health issue.

## CONCLUSION

If future medical practitioners are to be involved in active preventive education against smoking they should act as role models themselves. It is imperative that they acquire the skills and knowledge which will allow them to educate others. Medical students should receive sufficient knowledge of the determinants of smoking and

specific training on how to help patients to stop smoking, and a tobacco module should be included in the curriculum of every medical school.<sup>10</sup> This will not only help them become good educators but will also stop them from picking up the habit or stop smoking among those already smoking. Education intervention for smoking cessation should also include family members especially if there is a family member who smokes as this study has shown that a smoker in the family is an influencing factor for starting and continuing to smoke.

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