

# FACTORS INFLUENCING SMOKING BEHAVIOURS AMONG MALE ADOLESCENTS IN KUANTAN DISTRICT

M. Y. Rapeah, Y. Munirah, O. Latifah, K. Faizah, S. Norsimah, M. Maryana, R. Saub. Factors influencing smoking behaviours among male adolescents in Kuantan district. *Annal Dent Univ Malaya* 2008; 15(2): 77-81.

Original Article

## ABSTRACT

The aims of this study were to determine the prevalence and factors that influenced smoking behaviours among male adolescents in Kuantan, Pahang. A cross-sectional study was conducted among the form four male students in Kuantan District. Three hundred and twenty three students were randomly selected from eight secondary schools. A self-administered questionnaire was distributed to all the respondents. Almost half of the sample was smokers (45.8%) and half of them were Malays (53.1%). Students whose parents had lower level of occupation were more likely to smoke (58.8%). Among smokers, 34.5% of them smoked since primary school and a majority (91.7%) smoked 10 or less cigarettes per day. Half of them (53.4%) reported that they bought loose cigarettes and most of them used their school pocket money to purchase the cigarettes (81.7%). From the multivariate analysis, it was found that Non-Science Stream classes (OR=3.92, 95% CI= 2.10, 7.32), peers' smoking (OR=6.07, 95% CI= 2.32, 15.92), and attitude towards smoking (OR= 21.93, 95% CI= 9.71, 49.51) were significantly associated with smoking habit. The prevalence of smoking among male adolescents was considerably high in this population. It is recommended that antismoking activities in school be carried out regularly and should involve an active participation from the adolescents themselves since peers have great influence on smoking habits.

Key words: smoking behaviour, cross-sectional study, adolescent

## INTRODUCTION

It is well known that smoking is hazardous not only to the general health but also to the oral health. It is estimated that 10,000 deaths yearly in Malaysia were attributed to smoking (1). Studies have found that tobacco smoking is associated with an increase in oral cancer, periodontal disease and it also increases the likelihood of having a child with a cleft

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lip or palate (2). As such, dentists are also concerned with this habit.

The smoking prevalence in Malaysia is high especially among men and adolescents (3). The National Health and Morbidity Survey conducted nationwide in 1996 (4) reported that the prevalence of smoking among male adolescents in Malaysia was 30.7%.

Studies have estimated that the smoking initiation age is between the ages of 11 to 15 years old (5, 6). The younger the age they start to smoke, the more likely they are to become a regular smoker in adulthood (7). A report from the US Surgeon General (US Department of Health and Human Service, 1988) states that most people will remain as non smokers if they do not smoke during their high school years (5, 6). Thus, it is important for us to ensure that our adolescents do not start smoking at this critical age.

The prevalence of ever smokers in Pahang was reported to be the second highest (37.3%) after Kelantan (38.3%), especially among male adults aged 18 years old and above (8). Thus, it is a concern of health professionals including oral health professionals in Pahang to look into this matter seriously. In order to plan an effective programme to curb with this problem, information on the factors that influence people to smoke is required. Thus, this study was aimed to determine the prevalence, pattern of smoking, reason for smoking and to identify factors that influence smoking behaviour among male adolescents in Kuantan, Pahang.

## METHODS

A cross-sectional study using a self administered questionnaire was conducted in October 2006. The target population was Form four male students in Kuantan district. A set of self-administered questionnaire was designed based on a study done by Zhang *et al* (9). The questionnaire was face validated by two Dental Public Health Officers. Prior to actual data collection, pre testing was done on thirty subjects.

The questionnaire contained questions on respondents' background (race, location of school, class stream, parent's occupation), smoking status, pattern of smoking (when they start to smoke, number of cigarettes smoke per day, quantity of cigarette bought each time, source of money to buy cigarettes), reason to start smoking, knowledge on smoking (5 questions with three point likert scale) and attitude towards smoking (6 questions with 5 points likert scale). Composite score was calculated for knowledge and attitude.

The sample size was calculated using a single proportion formula, based on the adolescence smoking prevalence of 16.7% (4) and detectable difference estimated by 4%, which was based on medical expert opinion and allowing the alpha error at 0.05. The sample size required was 274.

The list of secondary schools in Kuantan district was obtained from Kuantan District Education Office and the list served as the sampling frame. A total of thirty five secondary schools were listed in this list. Boarding schools, Islamic Schools, Chinese School and Technical Schools were excluded from the list. These schools were excluded because they are special schools. After excluding these schools, due to cost and time constrains, only eight schools were randomly selected from the final list. Then, from each school, thirty percent of the male form four students were randomly selected. A total of 323 students were finally selected after considering 15% non-response rate.

Data collection was conducted in the school hall for each of the selected school. Prior to the distribution of the questionnaire, the purpose of the study was explained and the confidentiality was informed to the respondents. Students were assured that their smoking status will not be disclosed to parents or teachers.

The data was entered into SPSS version 11.0 software and analysed using STATA version 7.0. Univariate analysis, using simple logistic regression, was performed to assess the association between smoking status and socio demographic characteristics, knowledge on smoking, intrapersonal factors, and personal factors. Variables with significant associations were then analysed using multiple logistic regression to determine the association between these factors and smoking status.

## RESULTS

Table 1 shows the socio-demographic characteristics of the respondents by smoking status. The mean age of the total sample was 15.8 years (sd=0.4). The proportion of smokers and non smokers were almost equally distributed in both rural and urban schools.

Overall smoking prevalence was 45.8%. Slightly more than half (53.1%) of the Malay respondents were smokers. Higher proportion of students from non-science stream classes were smokers compared to students from Science Stream. Students whose parents had lower level of occupation (partly skilled and non-skilled) were more likely to smoke (58.8%).

Table 2 shows the smoking pattern of the respondents. About two third of the smokers started the smoking habit during their secondary schools. However, slightly more than one third of the

**Table 1.** Socio-demographic characteristics of the respondents

Variables	Smokers (n=148)	Non-Smokers (n=175)	Total
	n (%)	n (%)	
<b>Location of Schools</b>			
Urban	74 (43.0)	98 (57.0)	172
Rural	74 (49.0)	77 (51.0)	151
<b>Grade/stream of class</b>			
Science	28 (23.0)	94 (77.0)	122
Non-Science	120 (59.7)	81 (40.3)	201
<b>Race</b>			
Others	9 (14.8)	52 (85.2)	61
Malay	139 (53.1)	123 (46.9)	262
<b>Parents' Occupation*</b>			
Skilled	74 (37.6)	123 (62.4)	197
Partly skilled & below	67 (58.8)	47 (41.2)	114

\* Number do not add up due to missing data

**Table 2.** Pattern of smoking among respondents (n=148)

Variables	n (%)
<b>Started smoking*</b>	
Level 1 (primary school)	5 (3.4)
Level 2 (primary school)	46 (31.1)
Form 1 to 3	88 (60.3)
Form 4	7 (4.8)
<b>Number of cigarette(s) smoked / day*</b>	
1 – 5 sticks	99 (74.4)
6 – 10 sticks	23 (17.3)
11 – 20 sticks	9 (6.8)
Uncertain	2 (1.5)
<b>Quantity of cigarette(s) bought each time</b>	
Loose cigarettes	79 (53.4)
Box (es)	69 (46.6)
<b>Source of money to buy cigarette(s)</b>	
School pocket money	121 (81.7)
Part time work	3 (2.0)
Given free by someone	24 (16.2)

\* Number do not add up due to missing data

smokers started the smoking habit since primary school. Majority of the smokers smoked 10 or less cigarettes per day. About 53% of the smokers bought a loose cigarette and most of them used their school pocket money to buy it (81.7%).

The most common reason given by the respondents for starting smoking was "wanted to try" (68.9%) followed by "peers influence" (56.1%). However, almost 70% of the smokers did not agree that they smoked because they wanted to be trendy (Table 3).

Table 4 shows the univariate analysis, using a simple logistic regression, for all the independent variables included in the study. There were seven variables showed significant association with the smoking status; they were type of class stream, race, parents' occupation, fathers' smoking status, peers' smoking status, knowledge on smoking and attitude towards smoking.

Multiple Logistic Regression analysis showed that type of class stream, peers' smoking, and attitude towards smoking were significantly associated with the respondents smoking status. Hosmer-Lemeshow test for fitness of model was not significant (p-value= 0.285 at df = 8). Therefore, the

**Table 3.** Reasons for the respondents to start smoking (n=148)

Variables	Agreed n (%)	Not sure n (%)	Do not agree n (%)
Wanted to try	102 (68.9)	35 (23.6)	11 (7.4)
Peer influence	83 (56.1)	36 (24.3)	29 (19.6)
Adult influence	58 (39.2)	43 (29.1)	47 (31.8)
To reduce stress	54 (36.5)	41 (27.7)	53 (35.8)
To become trendy*	2 (1.7)	13 (11.0)	103 (87.3)

\* Number do not add up due to missing data

**Table 4.** Univariate analysis for association between factors and smoking status

Variables	Smokers (n=148) n (%)	Non-Smokers (n=175) n (%)	Unadjusted OR (95% CI)	LR Stat. <sup>1</sup> (df)	P- value
<b>Location of Schools</b>					
Urban	74 (43.0)	98 (57.0)	1.27 (0.82, 1.97)	1.16	0.282
Rural	74 (49.0)	77 (51.0)	1	(1)	
<b>Grade/stream of class</b>					
Science	28 (23.0)	94 (77.0)	1	43.05	< 0.001
Others	120 (59.7)	81 (40.3)	4.97 (2.99, 8.26)	(1)	
<b>Race</b>					
Others	9 (14.8)	52 (85.2)	1	32.23	< 0.001
Malay	139 (53.1)	123 (46.9)	6.53 (3.09, 13.80)	(1)	
<b>Parents' Occupation</b>					
Skilled	74 (37.6)	123 (62.4)	2.37 (1.48, 3.80)	13.14	< 0.001
Partly skilled & below	67 (58.8)	47 (41.2)	1	(1)	
<b>Fathers' smoked</b>					
No & Don't Know	56 (36.6)	97 (63.4)	1	10.20	0.002
Yes	92 (54.1)	78 (45.9)	2.04 (1.31, 3.19)	(1)	
<b>Mothers' smoked</b>					
No & Don't Know	145 (45.6)	173 (54.4)	1	0.41	0.522
Yes	3 (60.0)	2 (2.1)	1.80 (0.30, 10.86)	(1)	
<b>Relatives' smoked</b>					
No & Don't Know	54 (50.9)	52 (49.1)	1	1.67	0.197
Yes	94 (43.3)	123 (56.7)	0.74 (0.46, 1.17)	(1)	
<b>Peers' smoked</b>					
No & Don't Know	7 (10.0)	63 (90.0)	1	52.60	< 0.001
Yes	141 (55.7)	112 (44.3)	11.33(4.99, 5.71)	(1)	
<b>Teachers' smoked</b>					
No & Don't Know	96 (49.5)	100 (50.5)	1	2.79	0.095
Yes	50 (40.0)	75 (60.0)	0.68 (0.43, 1.07)	(1)	
<b>Knowledge (mean score)</b>	1.4 (0.32) <sup>2</sup>	1.3 (0.30) <sup>2</sup>	2.71 (1.32, 5.66)	7.48(1)	0.006
				(1)	
<b>Attitude towards smoking (mean score)</b>	1.9 (0.49) <sup>2</sup>	1.3 (0.30) <sup>2</sup>	27.87 (12.93, 60.05)	116.67	< 0.001
				(1)	

1=Simple Logistic Regression, 2=mean (s.d), Level of significant set at 0.05.

**Table 5.** Association between factors and smoking status among male adolescents using a Multiple Logistic Regression

Variables	Smokers No (%)	Non-Smokers No (%)	Adjusted OR (95 % CI)	LR stat. <sup>2</sup> (df)	P value
Grade / stream of classes					
Science	28 (23.0)	94 (77.0)	1		<0.001
Others	120 (59.7)	81 (40.3)	3.92 (2.10, 7.32)		
Peer's smoking					
No & Don't know	7 (10.0)	63 (90.0)	1	162.20	<0.001
Yes	141 (55.7)	112 (44.3)	6.07 (2.32, 15.92)	(3)	
Attitude towards smoking (mean score)	1.9 (0.49) <sup>1</sup>	1.3 (0.30) <sup>1</sup>	21.93 (9.71, 49.51)		<0.001

<sup>1</sup> mean (s.d)

model was fit. In this model the area under the curve was 0.874.

## DISCUSSION

The main aim of this study was to identify factors that contribute to smoking behaviour among adolescents in Kuantan District of Pahang. In Malaysia, studies on smoking among secondary students have been widely reported. Smoking prevalence in Pahang was reported to be the second highest (37.3%) after Kelantan (38.3%) (8). Since smoking habit was prevalent among the male adolescents, the present study was focused on this group of population.

In this study we found that the prevalence of smoking among the male adolescents in Kuantan, Pahang was higher (45.8%) than a similar study conducted in Kelantan (34.6%) by Naing *et al* (10). However, the finding was similar with the other study conducted by Fadhli *et al* (11) also in Kelantan (44.2%).

A systematic review of thirty-five studies concluded that smoking status was consistently related to school performance, educational aspirations, and commitment to school (10). Students who do well in school, who have high academic achievement, and who are highly committed to school are less likely to smoke than those who do not possess these characteristics (12). Study by Naing *et al* showed that the academic performance of the students was significantly associated with the smoking status of the students where smokers had poor academic performance than non-smokers (10). The present study also showed similar trend where non-science stream students were more likely to smoke than the science stream students. In the Malaysian education system, the science stream students are usually selected among those who have achieved excellent results in the lower secondary examination. As such, those in the science

stream could be considered as high academic achievers.

Adolescents are easily influenced by the environment where they live in and people surrounding them. The present study found that peer's influence was one of the importance factors to influence the respondents to smoke. Similar finding was also observed among adolescents in China (9), Taiwan (13) and in Kelantan, Malaysia (10).

Besides the influence of peers, Wen *et al* also found that parents played an important role in influencing the adolescents' smoking status and concluded that parental influence was more important than peer's influence in the Asian population (13). However, the study in Kelantan (10) and the present study reported that parental influences were not as important as the influence by the peers.

Our finding indicated that positive attitude towards smoking was strongly associated with smoking status. Similar finding was also observed by Zhang *et al* (9). It is not surprising that negative values contribute to bad habit such as smoking especially among adolescents despite knowing the hazards of smoking.

Smoking is known to contribute to many health problems. Thus, anti-smoking programme needs to be planned to prevent this habit. Perhaps, the school can play an important role in promoting anti-smoking habits since most of the adolescents' time is spent in school. It is recommended that antismoking activities in school be carried out regularly and should involve active participation from the adolescents themselves since peers have a great influence on smoking habits. Since there is an established school dental programme in Malaysia, dentists and dental nurses should incorporate anti-smoking campaign in their oral health education as well as offering smoking cessation advice for adolescents to stop smoking.

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