

## RESEARCH ARTICLE

# Prevalence of Cigarette Smoking and Associated Factors among Secondary School Teachers in Malaysia

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### Abstract

**Objective:** The smoking prevalence in Malaysia is high, especially among men and adolescents. This study aimed to determine the prevalence and associated factors towards cigarette smoking among school teachers in Malaysia. **Methodology:** This study was a school-based cross-sectional study conducted among 495 secondary school teachers. The questionnaire used in this study consisted of 29 questions categorized into two sections: socio-demographic characteristics and smoking behaviour. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) program 13.0. ANOVA; t-tests were used in univariate analysis; multiple linear regression was applied for multivariate analysis. **Results:** The majority of the participants were female (81.6%), in the age group ranged between 30-39 years (44%), Malay (90.1%), married (89.7%), degree holders (85.1%), with monthly income ranged between 3000-3999 Ringgit Malaysia (33.5%), from urban areas (94.7%), their specialty is social studies (33.9%) and with no family history of cancer (83.6%). The prevalence of smoking among school teachers in Malaysia was found to be 7.8%. Regarding reasons to start smoking among school teachers: the major reason was found to be relaxation (33.3%), followed by stress-relief (28.2%). Univariate analysis showed that sex, educational status, monthly income and residency were significantly associated with smoking among school teachers ( $p < 0.001$ ,  $p = 0.004$ ,  $p = 0.031$ ,  $p = 0.010$ ; respectively). Multivariate analysis showed that gender and marital status were significantly associated with smoking among school teachers ( $p < 0.001$ ,  $p = 0.033$ ; respectively). **Conclusion:** The prevalence of smoking among school teachers in Malaysia was found to be relatively low. Sex, marital status, educational status, monthly income and residency were significantly associated with smoking among school teachers.

**Keywords:** Cigarettes smoking - prevalence - associated factors - school teachers - Malaysia

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### Introduction

The association between smoking and risk of the development of cancer is well established (Hymowitz, 2011; Duaso and Duncan, 2012; Durkin et al., 2012; Jensen et al., 2012; Mao et al., 2012; Mitchell et al., 2012). Tobacco related deaths involve more than 5 million people yearly; and it is expected to exceed 8 million by the year 2030 (WHO, 2009). Tobacco use is recognized as the major cause of preventable death (WHO, 2009; Russo et al., 2011). It has been reported that tobacco smoking is the number one cause of cancer (Trichopoulos et al., 1996; Hymowitz, 2011; Schroeder, 2012) and that tobacco smoking is an important risk factor with respect to non-cancer diseases (Ministry of Health and Welfare, 1993). The risk of death due to a variety of diseases has been reported to increase the younger a person starts smoking (Hirayama, 1990, WHO, 2009).

In Malaysia, it is estimated that 10,000 deaths yearly

in Malaysia were attributed to smoking (Ministry of Health, 2004). The smoking prevalence in Malaysia is high especially among men and adolescents (Morrow and Barraclough, 2003). The National Health and Morbidity Survey (1999) conducted nationwide reported that the prevalence of smoking among male adolescents in Malaysia was 30.7% (Abdulah, 2009). Hospital data from Peninsular Malaysia showed that mortality from Cardiovascular Diseases increased from 15.6% in 1975 to 18.3% in 1991 (Ministry of Health Malaysia, 1997). According to the available data, the prevalence of smoking in the population is still considerably high, with half of the adult male population in this country are smoking. It is among the highest in the region (WHO, 2003). Besides the adverse effects of smoking on smokers' health, the economical costs incurred are also substantial. In Malaysia, it has been estimated that 2.9 billion Ringgit Malaysia (RM), is spent on treating three major diseases related to smoking, namely lung cancer, Ischemic heart

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disease and chronic obstructive pulmonary disease (COPD) (Ministry of Health Malaysia, 2006).

Majority of the people believe that tobacco consumption is a wasting of money and hazardous to health (Jacobson, 1983; Kumar et al., 1996; Sah, 2007). It is commonly accepted that teachers are highly respected in the communities as they influence the evolution for each aspect of life. Teachers and administrators are role models for students, conveyors of tobacco prevention curricula, and key opinion leaders for school tobacco control policies (The GTSS Collaborative Group, Tobacco Control, 2006). School teachers and administrators have daily interaction with students and thus represent an influential group for tobacco control (The GTSS Collaborative Group, Tobacco Control, 2006). Teachers' smoking behavior also increases risk of smoking among adolescents especially their students by 2.51 times (Zhang et al., 2000). The important role to be played by teachers in anti-smoking education has been mentioned in several studies (Frydman et al., 1993; Osaki et al., 1993; Minowa, 1995). Studies on smoking behavior among school teachers in Malaysia are lacking, so far. Obviously, such a study needs to understand the magnitude and factors influencing the smoking behavior among the school teachers, in order to plan for more effective strategies and interventions to curb this issue. The present study was undertaken in order to fill the gap in the existing literature. The study was carried out to determine the prevalence and associated factors cigarettes smoking among school teachers.

## Materials and Methods

This study was a school-based cross-sectional study conducted on secondary school teachers from 10 schools, in Shah Alam area which includes male and female teachers. The response rate was 82.5%.

This study was conducted in 10 randomly selected secondary schools around Shah Alam area. The schools are situated in different sections in Shah Alam including the following randomly selected sections: Section 2, Section 7, Section 9, Section 11, Section 16, Section 17, Section 18, Section 19, and Section 24. Those schools are Sekolah Menengah Sultan Salahuddin Abdul Aziz, SMK TTDI Jaya, SMK Seksyen 7, SMK Seksyen 9, SMKA Tengku Ampuan Jemaah, SMK Seksyen 16, SMK Seksyen 18, SMK Seksyen 19, SMK Seksyen 24 (1) and SMK Seksyen 24 (2).

A total of 495 secondary school teachers in Shah Alam (males and females) were involved in this study. The teachers were from different races, Malay, Chinese, Indian and others in which Malay is the major race. They were from various specialties in teaching: Science, Religion studies, Language and Social studies.

Questionnaire developed by were used as the instrument for the approach of this study. They were composed of 29 questions, categorized into 2 sections, including socio-demographics characteristics and smoking behavior. In the questionnaires, consent letters were included, as to obtain the respondents permission to get involved in the research. The questionnaires were left at the schools management to be distributed to the teachers.

The choosing of sample was done by using random sampling. There are a total of 24 secondary schools in Shah Alam but the study was randomly conducted only in 10 schools. Those schools were choose randomly by writing the names of 24 schools in 24 small pieces of papers then close the small pieces of papers then put it in a container then ask somebody to choose ten pieces randomly. Before the distribution of the questionnaires, permission was obtained from the ethics committees of Management and Science University (MSU) and the Malaysia Ministry of Education and Jabatan Pelajaran Selangor. After that, the distribution started as the distributor went to about 3 schools per day. The questionnaire distribution process took three weeks due to the permission and the like matters. Then, the questionnaires were handed to the schools management because the researcher was not allowed to enter the teachers' room. Each school was given 60 questionnaires. So, the management was responsible to hand the questionnaires to the teachers randomly. The schools were given 2 weeks to answer the study instruments. Follow up with the schools is done in order to remind them about the questionnaires. The distributor went to the schools for the second time to collect the instruments. This study was conducted in almost 3 months from February 2012 until April 2012. Such time includes process of obtaining permission to conduct the researcher in schools, distribution of questionnaires and lastly collecting them.

Subjects included were male and female teachers from the chosen 10 secondary schools; teachers who were smokers or non-smokers; participants that agreed to participate; participants who could speak and read the English language. The exclusion criteria were this: participants that refused to participate; participants who could not speak and read the English language.

### Data analysis

Data was documented and analyzed using the Statistical Package for the Social Sciences (SPSS) program 13.0. ANOVA and t-tests were used in univariate analysis and multiple linear regression was used for multivariate analysis.

## Results

A total number of 495 school teachers were participated in this study. The majority of the participants were females (81.6%), their age group ranged between 30-39 years (44%), Malay (90.1%), married (89.7%), degree holders (85.1%), with a monthly income ranged between 3,000-3,999 Ringgit Malaysia (33.5%), from urban areas (94.7%), with no family history of cancer (83.6%); their specialty was social studies (33.9%) (Table 1). Regarding the associated factors towards smoking among school teachers in Malaysia, sex, educational status, monthly income and residency, were found to be significantly associated with smoking among school teachers ( $p < 0.001$ ,  $p = 0.031$ ,  $p = 0.010$ ; respectively) (Table 1).

Regarding the reasons to start smoking among school teachers, the main reason for start smoking was found to be a need for relaxation (33.3%), followed by stress-relief

**Table 1. Socio-Demographic Characteristics and Associated Factors towards Smoking among School Teachers (n=495)**

Variable	Categorize	Number (%)	p-value
Sex	Male	91 18.40%	<0.001*
	Female	404 81.60%	
Age	20-29	86 17.40%	0.440**
	30-39	218 44.00%	
	40-49	144 29.10%	
	50-50	47 9.50%	
	Missing	2 0.40%	
Race	Malay	446 90.1	0.390**
	Chinese	11 2.2	
	Indian	34 6.9	
	Others	4 0.8	
Marital Status	Single	40 8.10%	0.816**
	Married	444 89.70%	
	Engaged	2 0.40%	
	Divorced/widowed	9 1.80%	
Educational status	Diploma	22 4.4	0.004**
	Degree	421 85.1	
	Master	50 10.1	
	PhD	2 0.40%	
Monthly income (RM)	<2000	15 3.00%	0.031**
	2000-2999	129 26.10%	
	3000-3999	166 33.50%	
	4000-4999	77 15.60%	
	>5000	43 8.70%	
	Missing	65 13.1	
Residency	Urban	469 94.7	0.010*
	Rural	26 5.3	
Specialty	Science	149 30.10%	0.828**
	Religion studies	59 11.90%	
	Language	119 24.00%	
	Social studies	168 33.90%	
Family history of cancer	Yes	81 16.4	0.475*
	No	414 83.6	

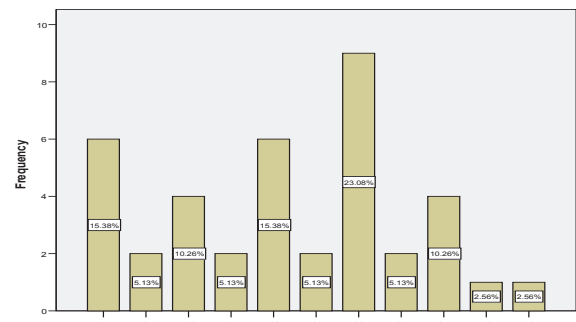
\*t-test; \*\*ANOVA test

**Table 2. Reasons for Starting Cigarette Smoking among School Teacher Smokers (n=39)**

	N	%
Relaxation	13	33.3
Stress-relief	11	28.2
Concentration	3	7.7
Habit	2	5.1
A break	2	5.1
Nothing	8	20.5

**Table 3. Predictive Model for Factors Associated with Smoking Among School Teachers by Multiple Linear Regression (n=495)**

	B	SE	Beta	p-value
(Constant)	1.316			
Gender				
Male	Ref.	Ref.	Ref.	<0.001
Female	0.591	0.045	0.509	
Marital status				
Ever-married	Ref.	Ref.	Ref.	0.033
Single	0.134	0.063	0.083	
Family history of cancer				
Yes	Ref.	Ref.	Ref.	0.099
No	0.078	0.047	0.064	

\*F=59.17, R<sup>2</sup>=0.26, p <0.001**Figure 1. Age of the Smokers When they Started to Smoke**

(28.2%). The less important reasons for start smoking were found to be habit and need for a break (5.1% for both) (Table 2).

Multiple linear regression was used because the dependent variable was continuous (many groups: always smoke, sometimes smoke and never smoke). The model can account for 26% of the variation in smoking status and the following variables were excluded from the model (age, race, educational status, monthly income, residency and specialty). Since F was 59.17 and p<0.001 we can consider that our regression model was significantly related to smoking status. Being male and ever-married is significantly were found to be associated with smoking (Table 3).

The prevalence of smoking among school teachers in Malaysia was determined to be 7.8%. The age of onset of smoking in this study was 19.63±6.63 years (range from 14-41 years) for the teachers (Figure 1).

## Discussion

In this study the prevalence of smoking among school teachers in Malaysia was found to be 7.8%. A quite similar finding was reported in a study from Bahrain in which the prevalence of smoking among Bahraini teachers was 8.7% (Alnasir, 2004). Higher prevalence was reported by a study in Bangladesh in which the prevalence of smoking among secondary school teachers was 17% (Rahman et al., 2011). Much higher prevalence was reported in a study from Nepal, which found that 57.1% of the school teachers used any form of tobacco (Sah, 2007). Barrueco et al. (2000) reported that 29.7% of Spanish teachers were smokers. A higher prevalence was reported in a Syrian study which found that the smoking rate of school teachers was 52.1% in males and 12.3% in females (Maziak et al., 2000). A markedly higher prevalence was reported by Sorensen et al. (2005) who found that 78% of teachers in Bihar and 31% from Maharashtra were current tobacco users. Similarly, Sinha et al. (2003) reported that among school personnel in eight North-eastern states of India, cigarette was the most prevalent form of smoking (range 41-55%). High prevalence smoking rates were reported among teachers in Japan, Romania, India and in Turkey as 37.2%, 44.7%, 33.0%, 20.0%, 21.4%, and 43% respectively (Mihaltan et al., 1994; Kumar et al., 1996; Coogan et al., 1998; Ohida et al., 2000).

The age of onset of smoking in the present study

was 19.63±6.63 years (range from 14-41 years) for the teachers. A previous study showed that individuals who started smoking before age 13 were less likely to stop smoking than those who started after age 13 (Coogan et al., 1998). Therefore, we believe that early identification of these high-risk group is very important.

In the present study, the main reason for starting smoking was desire (or need) for relaxation, followed by stress-relief and concentration. Another study found that the exposure to factors was significantly associated with the initiation of tobacco use; these were 70.8% for relief stress and tension; 24.2% family problem; 81.7% as a part of "social culture"; 70% as it was easily available; 21.7% for improving performance; 76.7% for fun or entertainment; 28.3% to relieve toothache; 16.7% due to dissatisfaction of profession (Sah, 2007). Similarly, Pandey et al. (2001) reported that common reasons given for tobacco consumption were curiosity (37.9%), to be social (22.0%), enjoyment (21.2%), to relieve stress (8.17%) and improving performance (5.8%) (Pandey et al., 2001).

In the present study, the gender was found to be significantly associated with smoking among school teachers. Our previous study among university students found that gender was significant predictors of smoking among university students (Al-Naggar et al., 2011). Similar finding reported that gender is a statistically significant predictor for smoking among the secondary school teachers in Bangladesh (Rahman et al., 2011). In the present study, smoking was higher among males than that among females. A similar study reported that smoking was higher among males than in females (Adetunji et al., 2008). This finding is consistent with other findings of high proportion of male tobacco user (Bin Y and Bin H, 1994; Blackford et al., 1994; Ismail and Mohammand, 1994; Sinha, 2006; Choudhury et al., 2007; Sah, 2007; Siziya et al., 2007; Sreeramareddy et al., 2008). It is worth to noting here that Malaysian society in general does not accept smoking by females. This is supported by WHO (2003) that there are less female smokers than males, especially in developing countries, probably related to the social norm that has been long formed in many societies. Nevertheless, amongst possible reasons why females smoke may be named the following reasons: smoke to control weight, and found it difficult for them to quit smoking due to weight gaining upon quitting.

In this study, cigarette smoking was found to be associated with marital status. Similar findings were reported by several (Choudhury et al., 2007; Djibuti et al., 2007; Siziya et al., 2007; Sreeramareddy et al., 2008; Yang et al., 2008). Consistent with the available publication reports (Yang et al., 2003; Liu et al., 2006), the present indicated that married or divorced/widowed men were more likely to smoke than unmarried persons. This finding is in contrast to a study of Unger et al. (2003) who reported that there was no association between smoking and marital status.

In the present study, cigarette smoking was associated with educational status, monthly income and residency. Previous research reported tobacco consumption habit is associated with education level (Choudhury et al., 2007;

Djibuti et al., 2007; Siziya et al., 2007; Sreeramareddy et al., 2008; Yang et al., 2008). Study by Naing et al. (2004) showed that the academic performance of students was significantly associated with the smoking status of the students (smokers had poor academic performance than non-smokers). A previous research consistently reported that tobacco consumption habit is associated with income (Choudhury et al., 2007; Djibuti et al., 2007; Siziya et al., 2007; Sreeramareddy et al., 2008; Yang et al., 2008).

Thus, the present study determined the current prevalence of smoking among school teachers in Malaysia. Apart from reporting the factual data about the prevalence of smoking among school teachers to the international community, the data obtained in the present study the might help to develop effective strategies and interventions to curb this social issue in Malaysia. Obviously, our study is not without limitation. Even though anonymity was emphasized and effort has been made to assure the teachers that their responses would be confidential, a possibility remains that some teachers may have under-reported their smoking status.

In conclusion, we wish to reinforce a vision that, in view of the long term effects of smoking on the health and socio-economic development of the country (Ministry of Health, 2004), there is an urgent need of public health interventions, with special attention to the determinants of their smoking behavior. It is important to involve teachers in smoking prevention program in schools and increase their awareness of hazardous smoking as well to discourage them to smoke in school places.

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