A Community-based Study on the Prevalence and Factors Affecting Smoking in Terengganu State, Malaysia, 2004

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ABSTRACT

Introduction: It is estimated that 4.9 million people worldwide died in 2000 as a result of their addiction to nicotine, about half of them prematurely. This huge death toll is rising rapidly, especially in low and middle income countries where most of the world s 1.2 billion tobacco users live. **Objectives:** This study aimed to determine (i) the prevalence of smoking among the community aged 18 and above in Terengganu state, and (ii) the relationship between smoking and age, sex, educational level, family and peer influence. **Methods:** A cross-sectional study design was used in this study and data was collected using a standardised pre-tested structured questionnaire. **Results:** The overall mean age of the respondents was 38.9 (95% CI= 37.7 ˘ 40.2) years. The majority of the respondents were Malays (99.1%). Of the 653 respondents, 32.2% and 23.6% were ever and current smokers respectively. Of this, 211 ever smokers, 199 (94.3%) were males and only 12 (5.7%) were females. The prevalence of ever and current smokers for males was 73.2% and 53.7% respectively compared to the females (3.1% and 2.1% respectively). There was a significant association between smoking status and sex ($p<0.001$). The prevalence of ever smokers was lowest amongst respondents with college or university educational level. However, for current smokers, those with college or university education had the highest prevalence. The overall mean initiation age of ever smokers was 19.7 years (95% CI = 18.8 ˘ 20.7). The mean initiation age for the males (19. 1 years) was significantly lower compared to 29.8 years for the females ($p<0.001$). The mean duration of smoking for the current smokers was 21.6 (95% CI= 19.1 ˘ 24) years. There was also no significant difference in the mean duration of current smoking for males compared to the females ($p = 0.5$). The majority (93.4%) of the ever smokers started either because their friends asked them to try or they were trying for fun. The quit ratio was 27%. **Conclusion :** The prevalence of ever and current smokers in males is very high (73.2% and 53.7% respectively) compared with the females (3.1% and 2.1% respectively). The mean initiation age for the males (19. 1 years) was significantly lower compared to 29.8 years for the females ($p<0.001$).

Key words: Smoking, prevalence, initiation age, duration, Terengganu state

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INTRODUCTION

According to the most recent estimate by the World Health Organisation (WHO), 4.9 million people worldwide died in 2000 as a result of their addiction to nicotine, about half of them prematurely This huge death toll is rising rapidly, especially in low and middle income countries, where most of the world s 1.2 billion tobacco users live.[1] Smoking causes cancer of the lung, oral, larynx, esophagus, stomach, bladder, kidney, pancreas and cervix. It also causes cardiovascular diseases such as coronary heart disease, cerebrovascular disease, arteriosclerosis and abdominal aortic aneurysm. Cigarette smoking is the most important of the causes of chronic bronchitis. Sexual and reproductive health is also affected. Women who smoke have increased risk of conception delay and of both primary and secondary infertility. [2] Environmental exposure to tobacco smoke is a serious hazard and one that is easily avoidable. It causes and increases the risk of lung cancer, [3] and ischaemic heart disease.[4] In Malaysia, the prevalence of current smokers in 1996 among males was 49.2% and 3.5% in females in 1996.[5] Rampal *et al* [6] conducted a community-based national study on the prevalence and factors associated with smoking in Malaysia in 2004. The study results showed that of the 18,805 respondents interviewed, 43.4% of the males and 2.8% of the females (overall 22.7%) were current smokers.This study is part of the National Cardiovascular Disease Risk Factors joint research project between Universiti Putra Malaysia, Ministry of Health Malaysia, Universiti Sains Malaysia and University of Malaya. The aim of phase one of the project was to determine the prevalence of the important risk factors of cardiovascular diseases. The data was also analysed in detail for Terengganu state to determine the prevalence of smoking and associated related factors.

MATERIALS AND METHODS

A cross-sectional study design was used in this study. The sampling was carried out by the Statistics Department Malaysia. The state of Terengganu was divided into artificially created, contiguous geographical areas called Enumeration Blocks (EBs). An EB consisted of 80-120 living quarters with specified boundaries (either natural or artificial) that do not straddle administrative boundaries. Geographically, the survey covered the whole of Terengganu state. A two-stage stratified design with proportional allocation was used for this study. Allocation of sample within the enumeration blocks was based on the number of Living Quarters (LQs) in the stratum. About 8 LQ were selected from a sampled EB; the actual number was determined by the size of the EB based on the latest listing exercise. Samples were drawn independently within each level of the secondary stratum. The first stage units of sample selection were the EBs while the second stage units were living quarters (LQs) within the selected EB. Samples were drawn independently within each level of the secondary stratum. Visits were made by fixing an appointment before arrival of the interviewer.

All eligible adult members (15 years and above), upon receiving verbal consent were interviewed personally. A structured pre-tested questionnaire produced in three languages (English, Malay and Chinese) was used to collect the data. Statistical Package for Social Sciences was used to analyse the data. The statistical tests employed were the chi-square test and *t*-test. *P*-value of < 0.05 was considered as significant.

Table 1. Characteristics of respondents (n = 653)

	Frequency	Percent
Sex		
Male	272	41.7
Female	381	58.3
Total	653	100.0
Age		
15 ˘ 19.99	111	17.0
20 ˘ 29.99	102	15.6
30 ˘ 39.99	136	20.8
40 ˘ 49.99	120	18.4
50 ˘ 59.99	93	14.2
60	91	13.9
Total	653	100.0
Ethnicity	647	99.1
Malay	3	0.5
Chinese	1	0.2
Indian	2	0.4
Others	653	100.0
Total		

RESULTS

Table 1 shows the characteristics of respondent by age, sex and ethnicity. Of the 653 respondents interviewed, 272(41.7%) were males and 381 (58.3%) were females. The overall mean age of the respondents was 38.9 (95% CI= 37.7 ˘ 40.2) years with a standard error of 0.6 years. The median age was 38 years and ranged from 15 to 83 years. The mean age for the males was 39.9, compared to 38.3 years for the females. The difference in the mean age was not statistically significant (t = 1.2, df = 651, p=0.23). The majority of the respondents were Malays (99.1%).

Table 2 shows prevalence by age, sex and race. Of the 653 respondents, 32.2% and 23.6% were ever and current smokers respectively. Of the 211 ever smokers, 199 (94.3%) were males and only 12 (5.7%) were females. The prevalence of ever and current smokers for males was 73.2% and 53.7% respectively. For the females, the prevalence of ever and current smokers was 3.1% and 2.1% respectively. There was a significant association between ever smokers and sex ($p<0.001$) and current smokers and sex ($p<0.001$). Table 3 shows that the prevalence of ever smokers was highest among those with primary education (41.4%) or no formal education (33.8%). The lowest prevalence was among those with college or university educational level (27.5%). However, for current smokers, those with college or university education had the highest prevalence (25.5%).

Table 2. Prevalence of ever smokers by age and sex

Age /Sex/Race	Total	Ever smokers (%)	Current smokers (%)
Age (Years)	111	23(20.7)	20(18.0)
15 ˘ 19	102	35(34.3)	28(27.5)
20 ˘ 29	136	37(27.2)	26(19.1)
30 ˘ 39	120	33(27.5)	25(20.8)
40 - 49	93	36(38.7)	25(26.9)
50 - 59	91	47(51.6)	30(33.0)
e*f* 60	653	211(32.3)	154(23.6)
Total			
Sex			
Male	272	199(73.2)	146(53.7)
Female	381	12(3.1)	8(2.1)
Ethnicity			
Malay	647	209(32.3)	152(23.5)
Chinese	3	1(33.3)	1(33.3)
Indian	1	0	0
Others	2	1(100.0)	1(50.0)
Total	653	211(32.3)	154(23.6)

Table 3. Prevalence of ever smokers and current smokers by education level

Education level	Total number	Ever smokers (%)	Current smokers (%)
No formal education	77	26 (33.8)	19 (24.7)
Primary	186	77 (41.4)	44 (23.7)
Secondary/ Certificate Skills Course	339	94 (27.7)	78 (23.0)
College/University	51	14 (27.5)	13 (25.5)
Total	653	211 (32.3)	154 (23.6)

Table 4 shows that the majority of respondents (60.1%) started smoking before the age of 20 and more than 83% started before the age of 25. The overall mean initiation age of ever smokers was 19.7 years (95% CI = 18.8 ˘ 20.7) years with a median of 18 years. The overall initiation age ranged from the age of 9 years to 60 years. The mean initiation age for the males was 19.1 compared to 29.8 years for the females. The difference between the mean initiation age between male and female ever smokers was statistically significant (t =5.5, df = 209 and p<0.001).

Table 5 shows the duration of smoking. The mean duration of smoking amongst the ever-smokers was 23.4 (95% CI= 21.2 ˘ 25.6) years with a median duration of 21 years. It ranged from less than one year to 62 years. There was no significant difference in the mean duration of smoking for males (23.5 years) compared to 22.3 years for females (p= 0.8). The majority (75.4%) of the ever smokers had smoked 10 years or more. Of the ever smokers,

Table 4. Age started smoking by sex amongst ever and current smokers

Age started smoking (Years)	Male	Female	Total
Ever smoker			
< 10	2(1.0)	0	2(0.9)
10 ˘ 14.99	26(13.1)	1(8.3)	27(12.8)
15 ˘ 19.99	95(47.7)	3(25.0)	98(46.4)
20 ˘ 24.99	48(24.1)	0	48(22.7)
e*f*25	28(14.1)	8(66.7)	36(17.1)
Total	199(100.0)	12(100.0)	211(100.0)
Current Smoker			
< 10	1(0.7)	0	1(0.6)
10 ˘ 14.99	18(12.3)	0	18(11.7)
15 ˘ 19.99	71(48.6)	3(37.5)	74(48.1)
20 ˘ 24.99	33(22.6)	0	33(21.4)
e*f*25	23(15.8)	5(62.5)	28(18.2)
Total	146(100.0)	8(100.0)	154(100.0)

Table 5. Duration of smoking in years among ever and current smokers

Duration smoked (Years)	Ever smokers		Current smokers	
	Number	%	Number	%
< 1 year	4	1.9	3	1.9
1 - 4.99	26	12.3	23	14.9
5 -9.99	22	10.4	16	10.4
10 -14.99	26	12.3	22	14.3
15 -19.99	19	9.0	13	8.4
20 -24.99	26	12.3	18	11.7
e*f*25	88	41.7	59	38.3
Total	211	100.0	154	38.3

42% had smoked for 25 years or more. For the current smokers, the mean duration of smoking was 21.6 (95% CI= 19.1 ˘ 24) years with a median duration of 19.5 years. It ranged from less than 1 year to 54 years. The majority (72.8%) of the current smokers had smoked 10 years or more. Of the current smokers, 38% had smoked 25 years or more. There was also no significant difference in the mean duration of current smoking between males and females, i.e., 21.3 years compared 25.5 years for females (p= 0.5).

Table 6 shows that of the 211 ever smokers, the majority (93.4%) had friends who smoked compared to only 31% among the non-smokers. The results show that there was a significant association between ever smoking status and friends smoking status ($p<0.001$). However, the results show that of the 211 ever smokers, only 55% had family members who smoked compared to 67% among the non-smokers. This difference was statistically significant ($p<0.01$).

Table 6. Peer and family influence in cigarette smoking

Peer/Parents	Smoking Status	Ever Smokers		Total
		Yes (%)	No (%)	
Friends	Smoker	197(93.4)	137(31.0)	334(51.1)
	Non-smoker	14(6.6)	305(69.0)	319(48.9)
	Total	211	442	653
Parents	Smoker	116(55.0)	297(67.2)	413(63.2)
	Non-smoker	95(45.0)	145(32.8)	240(36.8)
	Total	211	442	653

Table 7. Percent distribution of ever smokers why they started smoking*f*

Reason why respondent started smoking	Ever Smokers		Cum. %
	Number	%	
1.Friend asked to try	142	67.3	67.3
2.To try for fun	55	26.1	93.4
3.My parents smoke, so I smoke	5	2.4	95.8
4.To release tension	3	1.4	97.2
5.Think it is stylish to smoke	2	0.9	98.1
6. Others	4	1.9	00
Total	211	100.0	

Table 8. Percent distribution of ever smokers why they quit smoking*f*

Reasons why respondents stopped smoking	Number	%	Cum.%
1. Health life	20	35.1	35.1
2. Ill	12	21.0	56.1
3. Friend s advice	3	5.3	61.4
4. Feel nice for not smoking	3	5.3	66.7
5. Parents asked to stop	2	3.5	70.2
6. Others	17	29.8	100.0
Total	57	100	

Table 7 shows that the majority (93.4%) of the ever smokers started either because their friend asked them to try or they were trying for fun. Only 2% stated, because my parents smoke, I started smoking*f*. It is noted that of the 211 ever smokers, only 57 (27%) were able to quit.

Table 8 shows that the majority (56.1%) stated that they quit smoking because they chose to live a healthier life or because they had become ill. Table 9 shows the distribution of current smokers by intensity (number of cigarettes smoked per day) and sex. The table shows that males smoked more than females.

Table 9. Distribution of current smokers by intensity (number of cigarettes smoked per day) and sex

Number of cigarettes	Sex		Total (%)
	Male	Female	
d*f* 10	75 (51.4)	6 (75.0)	81 (52.6)
11 ˜ 20	63 (43.2)	1 (12.5)	64 (41.6)
e*f*21	8 (5.5)	1 (12.5)	9 (5.8)
Total	146 (100.0)	8 (100.0)	154 (100.0)

DISCUSSION

The prevalence of ever and current smokers especially among the males is high in Terengganu State. Smoking cessation methods should not only be encouraged but also organised and supported extensively. New appropriate methods should be explored. Training for both the government and non-government health staff on different suitable and cost-effective methods of smoking cessation for every target group should be provided. The role of every individual, family, community and society in encouraging smokers to give up smoking should be identified. There is evidence that many smokers are not fully aware of the high probability of disease and premature deaths that their choice entails. [7] This is the major private cost of smoking and the children and teenagers may not have the capacity to properly assess any information that they possess about the health effects of smoking. The new recruits to smoking may seriously underestimate the future costs associated with addiction to nicotine.[7] These future costs may be thought of as the costs of adult smokers of being unable to alter a youthful decision to smoke, even if desired, because of addiction.[7]

Canada has accomplished a great deal in tobacco control and has much to be pleased about. Part of the success is the result of particularly effective campaigns led by health advocates, both inside and outside the government, and supported by a large number of important organisations. Also important were comprehensive tobacco control strategies at all levels of government, including prevention, protection and cessation initiatives as well as bold action by many politicians. Coordinated efforts in the 1980s to increase taxes and so reduce the affordability of tobacco products have contributed to significant declines in smoking in 1965: 50 % of Canadians aged 15 and older smoked but by 2001, the rate had dropped to 22%. [8] The achievements are impressive. We need to learn from some of these successful examples and apply to our local needs and conditions. This study provides several important findings which the State could use to plan its strategies to reduce the problem.

The study results show that the overall mean initiation age of ever smokers was 19.7 years with a median of 18 years. The prevalence of ever smokers was highest among those with primary education or no formal education. The majority (93.4%) of the 211 ever smokers had friends who smoked compared to only 31% among the non-smokers. The majority (93.4%) of the ever smokers started either because their friends asked them to try or they were trying for fun. The implication is that we need to have a school- and workplace-based prevention activity combined with intensive community level anti-smoking campaigns for

adults which should include an intensive mass media component. These have been shown to have long-term positive effects. [9,10]

There is definitely a need for a Smart Partnership between the government agencies involved, researchers and the community, including NGOs, to find solutions to the problem. The Ministry of Education could form Action on Smoking and Health*f* (ASH) clubs in schools. These clubs can than arrange activities, which highlight hazards of smoking. For students who smoke, these clubs can arrange for counseling sessions on how to stop smoking. It is very important to select those who are good role models and have peer support to lead these clubs. They can then act as mentors.

CONCLUSION

The prevalence of ever and current smokers in Terengganu state was 32.2% and 23.6% respectively. The prevalence of ever and current smokers was significantly higher in males compared to the females ($p < 0.001$). The prevalence of ever smokers was highest among those with primary education or no formal education. The overall median initiation age for smoking was 18 years. The mean initiation age for males was significantly lower than the females ($t = 5.5$, $df = 209$ and $p < 0.001$). The median duration of smoking was 21 years. The quit rate was 27%.

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