

SMOKING BEHAVIOR AMONG ADOLESCENTS IN THAILAND AND MALAYSIA

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Abstract. The objective of this study was to examine the smoking behavior among adolescents in Thailand and Malaysia. Population-based, national surveys were conducted among 1,704 adolescents between the ages of 13 and 18 from Thailand ($n = 927$) and Malaysia ($n = 777$). Respondents were selected using multistage cluster sampling. Respondents were asked to complete self-administered questionnaires. Approximately 5% of Thai and Malaysian adolescents were current smokers, while an additional 8.6% of Thai and 8.1% of Malaysian adolescents reported being beginning smokers. On average, Thai smokers reported first smoking a whole cigarette at 14.6 years old ($SD = 1.9$), while Malaysian smokers at age 13.9 years ($SD = 2.2$). More than half of Thai smokers (60.4%) reported they bought cigarettes themselves and 29.9% got cigarettes from friends. In Malaysia, most smokers (68.3%) reported they bought cigarettes themselves, only 20.7% got cigarettes from friends. Seventy-six percent of Thai adolescent smokers smoked factory-made brands as their usual brand compared to 27.7% of Malaysian adolescent smokers. Eight percent of Thai adolescents and 10% of Malaysian adolescents reported smoking hand-rolled cigarettes. Approximately half of Thais and more than 40% of Malaysian smokers reported they tried to quit smoking within the past month. The smoking prevalence of Thai adolescents is close to that of Malaysian adolescents. Factory-made cigarette consumption is an important problem in Thai adolescents and needs to be targeted.

Keywords: smoking, adolescent, Thailand, Malaysia

INTRODUCTION

Tobacco use is the leading preventable cause of death worldwide. Half of regular smokers die prematurely of tobacco-related disease. Studies of tobacco-related

mortality in China show that smoking accounts for 800,000 deaths annually (Yang *et al*, 2004). Although the prevalence of youth smoking in some Western countries has shown a steady decline, smoking prevalence in many developing countries has increased (Nelson *et al*, 2008). Approximately 70,000 adolescents in developing countries begin smoking every day; about 40% of experimental smokers will become regular smokers (Vathesatogkit, 2009). Both Thailand and Malaysia are situated

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in Southeast Asia, one of the critical regions for tobacco consumption. The Thai National Statistic Office reported the prevalence of smoking among adolescents aged 15 to 18 has increased from 4.29% in 2004 to 4.45% in 2006 (Tobacco Control Research and Knowledge Management, 2009). In Malaysia, a study conducted in 2005 reported the prevalence of smoking among secondary school students was 14.0% (Lee *et al*, 2005).

The objective of this study was to examine smoking patterns among Thai and Malaysian adolescents, to compare product use and purchasing patterns, and to examine quit attempts among Thai and Malaysian smokers.

MATERIALS AND METHODS

One thousand seven hundred and four adolescents between the ages of 13 and 18 from Thailand ($n=927$) and Malaysia ($n=777$) participated in the study. The survey used face-to-face recruitment of participants from a sample area of households. The sample of households was selected using a stratified multistage sampling design. The study areas consisted of Bangkok and four regions in Thailand (North, Northeast, Central, and South) and six zones of Malaysia. In Thailand, respondents were selected from Bangkok and two provinces in each of the four regions (Chiang Mai, Phrae, Nakhon Ratchasima, Nong Khai, Nakhon Pathom, Samut Sakhon, Nakhon Si Thammarat, and Songkhla). In Malaysia, respondents were selected from 1 state in each of the country's six zones (Kedah, Selangor, Johor, Terengganu, Sabah, and Sarawak). In both countries, the geographic area was also stratified into urban and rural areas. Households were selected using simple random sampling in Thailand and systematic sampling in Malaysia.

Respondents were asked to complete a self-administered questionnaire. Parental permission and adolescent consent were obtained prior to participation. In Thailand, all respondents completed surveys in the Thai language. In Malaysia, surveys were available in English and Malay. The self-administered questionnaires included demographic characteristics, smoking status, frequency of smoking, purchasing patterns and quit attempts. Respondents were instructed to complete the survey in a private area to ensure privacy from family members. Both surveys were conducted between July and September, 2006. The study was approved by an institutional review board at the Institute for Population and Social Research, Mahidol University (Ref 0517.191/1003, Approval date: July 13, 2006) and an ethics board at the University Sains, Malaysia.

Definitions

The following criteria were used to define smoking status (Health Canada, 2005): 1) non-smoker: respondents who had not smoked in the past 30 days; 2) beginning smoker: respondents who smoked at least one day in the past 30 days and smoked between one and 100 cigarettes during the person's lifetime; and 3) current smoker: respondents who smoked at least one day in the past 30 days and smoked more than 100 cigarettes during the person's lifetime.

Analysis

All data were analyzed using SPSS software. Chi-square tests were used to examine associations of categorical variables and *t*-tests were used to compare means from continuous measures.

RESULTS

Sample characteristic

Table 1 includes sample characteris-

Table 1
Demographic characteristics by country.

Demographic characteristic	Thailand N (%)	Malaysia N (%)	p-value
Age (years)			
13	221 (23.8)	146 (18.8)	<0.001 ^a
14	239 (25.8)	158 (20.3)	
15	201 (21.7)	167 (21.5)	
16	157 (16.9)	148 (19.1)	
17	109 (11.8)	158 (20.3)	
Mean age (SD)	14.7 (1.3)	15.0 (1.4)	<0.0001 ^b
Gender			
Male	486 (52.4)	363 (46.7)	0.019 ^a
Female	441 (47.6)	414 (53.3)	
Residential area			
Urban	325 (35.1)	460 (59.2)	<0.001 ^a
Rural	602 (64.9)	317 (40.8)	
Educational status			
Non-student	89 (9.6)	32 (4.2)	<0.001 ^a
Student	836 (90.4)	731 (95.8)	

^aP-value of the chi-square test for percentages; ^bP-value of independent samples *t*-test for mean age.

tics of adolescents in Thailand and Malaysia. Overall, the Thai sample was significantly younger, with a greater proportion from a rural residential area and fewer student respondents, compared to the Malaysian sample.

Smoking status

Table 2 shows the smoking status for each country. More than 85% of Thai and Malaysian adolescents were non-smokers. However, approximately 5% of Thai and Malaysian adolescents were current smokers and an additional 8.6% of Thai and 8.1% of Malaysian adolescents reported being beginning smokers.

Mean age of first smoking a whole cigarette

On average, Thai smokers reported first smoking a whole cigarette at 14.6 years

Table 2
Smoking status by country.

Smoking status	Thailand N (%)	Malaysia N (%)
Non-smoker	793 (85.6)	676 (87.0)
Beginning smoker	80 (8.6)	63 (8.1)
Current smoker	54 (5.8)	38 (4.9)

old (SD = 1.9), and Malaysian smokers at age 13.9 years (SD = 2.2) (Table 3).

Frequency of smoking during the previous week

More than 80% of Thai and Malaysian smokers reported they did not smoke during the previous week. Among adolescents who reported they smoked during the previous week, 7.7% of Thai and 6.0% of Ma-

Table 3
Smoking behavior by country.

Variables	Thailand	Malaysia
Mean age of first smoking a whole cigarette (SD)	14.6 (1.9)	13.9 (2.2)
	N (%)	N (%)
Frequency of smoking in last week		
Not at all	804 (86.7)	683 (87.9)
Puffs only	11 (1.2)	12 (1.6)
1-5 cigarettes	71 (7.7)	47 (6.0)
6-10 cigarettes	27 (2.9)	10 (1.3)
> 10 cigarettes	14 (1.5)	25 (3.2)
Product use		
Factory made cigarettes	102 (76.1)	28 (27.7)
No usual brand	22 (16.4)	63 (62.4)
Hand-rolled cigarettes	10 (7.5)	10 (9.9)
Light or mild cigarettes use		
No	22 (16.4)	28 (27.7)
Yes	68 (50.8)	30 (29.7)
Don't know / smoked hand-rolled cigarettes	44 (32.8)	43 (42.6)
Sources of cigarettes		
I buy them	81 (60.4)	69 (68.3)
Someone buys for me	10 (7.5)	4 (4.0)
From friends	40 (29.9)	21 (20.7)
From home	2 (1.5)	4 (4.0)
Another way	1 (0.7)	3 (3.0)
Purchase location		
Street vendor	16 (12.0)	17 (16.8)
Convenience store	89 (66.4)	45 (44.6)
Supermarket	5 (3.7)	9 (8.9)
Coffee shop/restaurant	5 (3.7)	8 (7.9)
Other	5 (3.7)	11 (10.9)
Never bought cigarettes	14 (10.5)	11 (10.9)
Smoking with parents		
Never	60 (44.8)	78 (77.2)
Sometimes	62 (46.3)	17 (16.8)
Often	12 (8.9)	6 (6.0)
Quit attempt		
Within past month	68 (50.7)	44 (43.6)
Within past year	26 (19.4)	17 (16.8)
More than 1 year ago	13 (9.7)	14 (13.9)
Never tried to quit	27 (20.2)	26 (25.7)

Malaysian smokers reported having smoked one to five cigarettes. Only 1.5% of Thais and 3.2% of Malaysians reported having smoked more than 10 cigarettes (Table 3).

Types of cigarettes used (Table 3)

In Thailand, 76.1% of current and beginning smokers reported a factory-made cigarette was their usual brand, 7.5% re-

ported smoking hand-rolled cigarettes, and 16.4% reported having no usual brand. In Malaysia, more than half (62.4%) of current and beginning smokers reported having no usual brand; 27.7% reported a factory-made cigarette was their usual brand, and 9.9% reported smoking hand-rolled cigarettes. Thai adolescents smoked factory-made cigarettes more frequently than Malaysian adolescents. Half of Thai adolescents reported they smoked light or mild cigarettes, whereas only 29.7% of Malaysian adolescents did.

Sources of cigarettes (Table 3)

More than half (60.4%) of Thai current and beginning smokers bought cigarettes for themselves; 7.5% said someone bought the cigarettes on their behalf, and only 1.5% got cigarettes from someone at home. Most Malaysian current and beginning smokers (68.3%) bought cigarettes themselves; 4% got cigarettes from someone at home and 4% said that someone bought cigarettes on their behalf. Approximately 30% of Thai current and beginning smokers got cigarettes from a friend compared to 20.7% of Malaysians.

Purchase location (Table 3)

In Thailand, the most common cigarette purchase location was a convenience store (66.4%), followed by a street vendor (12.0%), a coffee shop or restaurant (3.7%), and a supermarket (3.7%). In Malaysia, a convenience store (44.6%) was also the most common cigarette purchase location, followed by a street vendor (16.8%), a supermarket (8.9%), and a coffee shop or restaurant (7.9%).

Smoking with parents (Table 3)

Almost half of Thai adolescents reported they sometimes smoked with their parents, 44.8% reported they never smoked with their parents and 8.9% reported they often smoked with their par-

ents. In Malaysia, most adolescents (77.2%) reported they never smoked with their parents.

Quit attempt (Table 3)

Approximately half of Thai and more than 40% of Malaysian smokers reported they tried to quit smoking within the past month. Approximately 20% of Thai smokers reported they tried to quit smoking within the past year, compared to 16.8% of Malaysian smokers. Twenty point two percent of Thai smokers and 25.7% of Malaysian smokers reported they never tried to quit smoking.

DISCUSSION

Results from this analysis reveal the prevalence of current smoking among Thai adolescents is closed to that of Malaysian adolescents. The prevalence of current smokers in our recent study was lower than that reported in previous studies carried out in this region. The prevalence of current cigarette smokers among youth in Southeast Asia is 4.9-11.8%, according to a Global Youth Tobacco Survey (Centers for Disease Control and Prevention, 2007). Ruangkanhasetr *et al* (2005) studied 2,311 adolescents in Bangkok, Thailand, and found that 5.4% smoked cigarettes. The age of smoking initiation is an important predictor of long-term tobacco use. Our study found that Thai and Malaysian adolescent smokers reported first smoking a whole cigarette at an average age of 14 years. This result is consistent with previous studies in Malaysia and other countries in Asia (Choe *et al*, 2004; Lee *et al*, 2005). This finding indicates smoking prevention programs should target students in early primary school.

More than 70% of Thai and 28% of Malaysian youth smoked factory-made cigarettes. Most Malaysian adolescents

reported no usual brand. Only a few adolescents reported they smoked hand-rolled cigarettes. This finding shows that factory-made cigarette consumption is an important problem in Southeast Asia. However, the consumption of hand-rolled tobacco should be closely monitored. A tax policy which leads to an increase in the price of factory-made cigarettes may shift the type of tobacco used from factory-made cigarettes to hand-rolled cigarettes. The proportion of Malaysian adolescents who reported they bought cigarettes for themselves was higher than the proportion of Thai adolescents. Since 1992, Thailand has banned cigarette sales to persons under 18 years old. However, more than half of Thai adolescents reported they bought cigarettes themselves. The most common cigarette purchase location for adolescents was a convenience store. The results from the current study imply that this law should be better enforced, with a special focus on convenience stores. Our previous study showed that peer pressure has a strong influence on adolescent smoking (Sirirassamee *et al*, 2009). The present study found friends were the second most common source of cigarettes. Adolescents should be taught to refuse cigarettes from friends in order to prevent them from initiating smoking and becoming regular smokers in the future. Family smoking influences both initiation and intensification of child smoking behavior (Bricher *et al*, 2006). It is noteworthy that more than half of Thai adolescents and 23% of Malaysian adolescents reported they smoked with their parents. To prevent or stop adolescents from smoking, parents should be encouraged to be a good role model. The government should educate the public about the problems caused by smoking at home.

This study had some limitations. First, the definition of smoking in this study is

adolescent self-reported smoking during the 30 days prior the survey. Under-reporting of smoking behavior in young adolescents is common. The survey team tried to minimize under-reporting by stressing the confidentiality of the data. Second, this study was a cross-sectional study; adolescent smoking behavior may change over time. A longitudinal study should be done to monitor smoking behavior among Thai and Malaysian adolescents.

In summary, smoking prevalence among Thai adolescents was close to Malaysian adolescents. Factory-made cigarette smoking is an important problem that needs to be addressed.

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