Risk Factors of Tobacco use Among Thai Adolescents: Finding from International Tobacco Control Policy Survey Southeast Asia (ICT-SEA)

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Objective: *To determine the risk factors of tobacco use among Thai adolescents.*
Material and Method: *A cross-sectional study was conducted among 706 adolescents sampled from 5 regions of Thailand using stratified multistage sampling. Participants were asked to complete self-administered questionnaires about tobacco use and psychosocial factors. A logistic regression model of risk factors for tobacco use was estimated using backward stepping.*
Results: *The prevalence of smoking in Thai adolescent was 15 percent (27.8% in males, 2.3% in females). Older age (OR = 1.25, 95% CI = 1.02-1.51), number of close friend smoking (OR = 1.61, 95% CI = 1.35-1.93), number of older sibling smoking (OR = 1.44, 95% CI = 1.01-2.04), heavy alcoholic consumption (OR = 3.99, 95% CI = 1.87-8.49), low self-worth (OR = 3.16, 95% CI = 1.71-5.84) were risk factors of smoking in Thai adolescents. Females (OR = 0.10, 95% CI = 0.04-0.24), currently studying in school (OR = 0.33, 95% CI = 0.18-0.59) and religious beliefs guide actions (OR = 0.41, 95% CI = 0.22-0.77) were protective factors against smoking.*
Conclusion: *Male adolescents are target group for tobacco control in Thailand. The strong correlation between smoking and alcoholic consumption indicate that anti-smoking campaign should be done in parallel with anti-alcohol campaign.*

Keywords: *Adolescent, Risk factors, Smoking*

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Adolescents are a major target group of tobacco companies. Tobacco companies spend a lot of money to promote smoking in adolescents. World Health Organization (WHO) is also concerned about adolescents smoking. The slogan of year 2008 Tobacco Free Day was "Tobacco-Free Youth". In Thailand, adolescents are considered the primary target for smoking prevention by the government. Previous studies in Thailand indicate the decline of smoking prevalence among adults. However, smoking prevalence among adolescents increased from 9.8% in 2005 to 15% in 2006[1]. Many studies in different countries have shown the influence of psychosocial factors on adolescents tobacco use. Research on American youth reported that parental smoking cessation, parenting style and smoking-specific parenting practices had an effect on adolescence smoking[2,3]. In China, Chen and colleagues found that smoking among influential others and attitudes towards smoking influenced adolescents' smoking both directly and indirectly[4]. A recent study in Japan suggested that self-assertive efficacy to resist peer pressure, parental involvement, school adjustment, and deviant peer influence were

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the potentially important factors associated with smoking among early Japanese adolescents[5].

The purpose of this study is to determine the risk factors for tobacco use among Thai adolescents to inform more effective prevention programs and policies.

Material and Method

Participants

Participants were adolescents aged 13-19 years.

Procedure

International Tobacco Control Policy Survey is a population-base, national survey undertaken in 14 countries. In Thailand, the survey has been done in August and September, 2006. Adolescents were sampled from five regions of Thailand using stratified multistage sampling. These regions were Bangkok, central, north, south and north-east. Bangkok was automatically included in the sample. In each of the other four regions two provinces were selected with the probability of selection being proportional to the population size of the province. Chiang Mai and Phrae were selected from the North, Nong Khai and Nakhorn Ratchisima from the Northeast, Nakhorn Pathom and Samut Sakhorn from the Central region and Nakorn Si Thammarat and Songhla from the South. Participants were asked to complete self-administered questionnaires. Country-specific questionnaires consist of a core set of questions and unique country-specific questions. Final Thai questionnaires were translated by Thai research team into Thai language and were back-translated to check for accuracy.

Definition

Smoker-adolescent self-report smoked in the past 30 days before the survey.

Measure

The self-administered questionnaires included measures of tobacco use and psychosocial variables. These variables include sociodemographic characteristics (age, gender, students status), smoking-related family, peer smoking, older siblings being smokers, alcoholic consumption, self-esteem, self worth, feeling of sadness, opinion about smoking and religious beliefs guide action. The survey also assessed measures related to tobacco control environment, including places where smoking allowed at home, number of media outlets seen tobacco advertisement and number of media outlets seen information about danger of smoking.

Statistical analysis

A logistic regression model of risk factors for smoking was estimated using backward stepping.

Results

Sample characteristics and smoking prevalence

Table 1 includes sample characteristics for participants. Seven hundred and six adolescents participated in the survey. The mean age of the total sample was 16.1 years at baseline with a standard deviation of 1.4. Of the total sample, 49.9 percent were boys and 51.1 percent were girls. In term of the academic level, 27.7 percent were in the 10th grade, 31.3 percent in the 11th grade and 36.3 percent in the 12th grade or higher. The prevalence of smoking was 15 percent. Prevalence of male adolescents smoking was more than 10 times higher than that of female adolescents (27.8%, 2.3% respectively).

Logistic regression analysis

The determinants of smoking are shown in Table 2. The variables that have the greatest impact on smoking were the socio-demographic variables. Older adolescents had higher risk of smoking than the younger one (OR = 1.25, 95% CI = 1.02-1.51). Females were less likely to smoke than males (OR = 0.10, 95% CI = 0.04-0.24). In Thailand this means that anti-smoking programs should continue to focus on males. Adolescents who currently studying in school were

Table 1. Sample characteristics

Characteristics	Respondents (n = 706)
Mean age (%)	16.1 (SD = 1.4)
Gender	
Male (%)	49.9
Female (%)	50.1
Urban versus rural status	
Urban (%)	27.3
Rural (%)	72.7
Educational level	
Grade 6 and lower (%)	0.3
Grade 7 (%)	0.1
Grade 8 (%)	5.2
Grade 9 (%)	3.1
Grade 10 (%)	23.7
Grade 11 (%)	31.3
Grade 12 or higher (%)	36.3

Table 2. Adjusted odds ratio of risk factors of smoking

Variable	Adjusted odds ratio (95% CI)
Age	1.25 (1.02-1.51)
Sex	
Boys	1.00
Girls	0.10 (0.04-0.24)
Urban/rural	
Urban	1.00
Rural	1.10 (0.62-1.94)
Students status	
Non-student	1.00
Student	0.33 (0.18-0.59)
Number of close friends smoking	1.61 (1.35-1.93)
Number of household members smoke	1.44 (1.01-2.04)
Older sibling smoke	2.34 (1.23-4.48)
Drink in last month	
Never	1.00
1-5 times	2.55 (1.36-4.79)
More than five times	3.99 (1.87-8.49)
Where is smoking allowed at home	
Allowed everywhere	1.00
Not allowed anywhere	1.43 (0.60-3.38)
Allowed someplace/times	0.73 (0.34-1.56)
Opinion about smoking	
Very bad	1.00
Bad	0.75 (0.41-1.37)
Normal	1.93 (0.83-4.39)
Feeling about self	
Like myself	1.00
Do not like myself	1.88 (0.59-6.01)
Hate myself	1.08 (0.50-2.34)
Feeling about self-worth	
Do most things ok	1.00
Do some things wrong	3.16 (1.71-5.84)
Do everything wrong	2.78 (0.75-10.35)
Feeling of sadness in last 2 weeks	
Not sad at all	1.00
Sad once in a while	1.05 (0.56-1.97)
Sad many times	1.36 (0.36-5.15)
Sad most of the time	1.72 (0.49-6.12)
Religious beliefs guide actions	
Almost never	1.00
Sometimes	0.41 (0.22-0.77)
All the time	0.57 (0.22-1.49)
Number of media outlets seen tobacco advertisement	0.97 (0.86-1.10)
Number of media outlets seen information about danger of smoking	0.95(0.83-1.09)

less likely to smoking than non-students (OR = 0.33, 95% CI = 0.18-0.59). There were no statistically significant differences in the odds of smoking between adolescents in rural and urban area after controlling for other variables.

Both peers and family members appear to be an important influence on adolescent smoking. Each additional close friend who smoke increased risk of smoking (OR = 1.61, 95% CI = 1.35-1.93). At the same time, each additional household members who smoke increased risk of smoking (OR = 1.44, 95% CI = 1.01-2.04). Adolescents who have older brother or sister smoke were more likely to smoke than those do not have (OR = 2.34, 95% CI = 1.23-4.48). However, level of smoking restriction at home did not have a significant impact on smoking.

Alcoholic consumption had a large and statistically significant relationship on smoking. Young people who drink alcohol more than 5 times in the month before the survey were more likely to smoke than those who did not drink alcohol (OR = 3.99, 95% CI = 1.87-8.49). Even young people who drink moderate amounts of alcohol (1- 5 times in the month) were still at high risk for smoking (OR = 2.55, 95% CI = 1.36-4.79).

Feelings about self-worth were related to smoking. Those who said that they "do some things wrong" in the previous two weeks were more likely to smoke than those young people who said that they "do most things ok" (OR = 3.16, 95% CI = 1.71-5.84). Apart from feelings about self-worth, most of the attitudinal variables such as opinion about smoking, feeling about self, feeling of sadness did not significantly increase risk of smoking.

Finally, religious belief was a protective factor against smoking. Young people who said that religious beliefs guide their actions sometimes were less likely to smoke than those who said that religious rarely guided their actions (OR = 0.41, 95% CI (0.22-0.77).

Neither exposure to tobacco advertisements, measured as the number of media outlets in which tobacco advertisement had been seen, nor exposure to warnings about the dangers of smoking, measured as the number of forms of media in which the respondent had observed information about the dangers of smoking, had a statistically significant relationship with smoking.

Discussion

Data from this analysis indicated that females, currently studying in school, and religious beliefs guide actions were protective factors against smoking. On the other hand, peer-smoking, older siblings smoking, alcoholic consumption and low self-worth were risk

factors of adolescents smoking. This is consistent with the previous research conducted in Thailand with different subjects. Benjakul S and colleagues found that gender and drug addiction (except cigarette) have an impact on adolescence smoking[6]. Gender differences have a strong effect on smoking in most of Asian countries. Prevalence of males smoking was higher than females. The previous study revealed that Thai society accepted males smoking more than females smoking[7]. Peer pressure had strong influence on adolescent behaviors. Adolescents who have many close friends who smoked tend to smoke because they want to be accepted from their peers. Parents and older siblings are considered as role model for adolescents. Adolescents who saw their parents and older siblings smoked might perceive smoking as a social norm and follow this behavior.

Smoking had a strong relation with other risk behaviors such as drug use, alcoholic consumption. Research conducted in Romania found that alcohol and cigarette use were linked reciprocally and this interrelationship differed across genders. Among girls smoking predicted alcohol use better than the converse, while for the boys it was the other way around[8]. The findings suggest that prevention of tobacco use may be more successful if it is linked closely to the prevention of alcohol use, and vice versa.

Much research has documented the effects of psychological distress[9] including depressed mood[10], low self-esteem[11], body dissatisfaction[12] and high level of rebelliousness on smoking[13]. From our study, only self-worth had shown a significant impact on smoking but depressed mood and low self-esteem did not shown any significance.

Neither the number of media outlets with tobacco advertisement, nor the number of media outlets seen information about danger of smoking show a significant effect on smoking. This is probably due to anti-tobacco advertising campaign in Thailand was so effective in preventing exposure of both smoker and non-smoker adolescents to direct tobacco advertisement in various forms. From our previous study, more than 80 percent of adolescents already knew the effect of smoking on their heath[14], so knowledge from the media did not have a significant impact on smoking.

This study had several limitations that should be noted. First, the definition of smoking in this study is adolescent self-report smoking in the past 30 days before the survey. Under-reporting of smoking behavior in young adolescents is common. We tried to minimize this by stressing the confidentiality of the finding. Second, this study is a cross-sectional study and therefore can not evaluate the risk factors of youth-initiating smoking. However, the ICT-SEA project is longitudinal survey, another cohort study should be done to examine this issue.

Conclusion

Male adolescents are in a target group for tobacco control in Thailand. The strong correlation between smoking and alcoholic consumption indicates that anti-smoking campaigns should be done in parallel with anti-alcohol campaign.

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ปัจจัยที่มีอิทธิพลต่อการสูบบุหรี่ของวัยรุ่นไทย

ทวิมา ศิริรัศมี, บุปผา ศิริรัศมี, อารีย์ จำปากลาย, รอน โบแลนด์, เจฟฟรีย์ ฟ่ง

วัตถุประสงค์*: เพื่อศึกษาปัจจัยเสี่ยงต่อการสูบบุหรี่ของวัยรุ่นไทย*

วัสดุและวิธีการ*: การศึกษาครั้งนี้เป็นการสำรวจภาคตัดขวาง (cross sectional study) ซึ่งเก็บรวบรวมข้อมูลจากโครงการสำรวจนโยบายควบคุมการบริโภคยาสูบ (International Tobacco Control Policies Survey) กลุ่มประชากรที่ศึกษาคือ วัยรุ่นจำนวน 706 คน ที่ได้จากการสุ่มตัวอย่างแบบหลายขั้นตอน (Stratified multistage sampling) โดยการแบ่งเป็น 5 ภาคได้แก่ กรุงเทพมหานคร ภาคเหนือ ภาคกลาง ภาคตะวันออกเฉียงเหนือ และภาคใต้ กลุ่มตัวอย่างจะตอบแบบสอบถามแบบให้ตอบด้วยตนเอง (self administered questionnaires) การวิเคราะห์ข้อมูลใช้ค่าความถี่และร้อยละอธิบายลักษณะทั่วไปของกลุ่มตัวอย่างและใช้สถิติ Logistic regression ทดสอบปัจจัยที่มีอิทธิพลต่อการสูบบุหรี่ของวัยรุ่น*

ผลการศึกษา*: ความชุกของการสูบบุหรี่ของวัยรุ่นไทยเท่ากับร้อยละ 15 โดยวัยรุ่นชายสูบบุหรี่มากกว่าวัยรุ่นหญิง (ร้อยละ 27.8 และ ร้อยละ 2.3 ตามลำดับ) ปัจจัยเสี่ยงต่อการสูบบุหรี่ของวัยรุ่นไทยได้แก่ อายุที่เพิ่มขึ้น (OR = 1.25, 95% CI = 1.02-1.51), จำนวนเพื่อนสนิทที่สูบบุหรี่ (OR = 1.61, 95% CI = 1.35-1.93), จำนวนพี่ชายหรือพี่สาวที่สูบบุหรี่ (OR = 1.44, 95% CI = 1.01-2.04), การดื่มสุรา (OR = 3.99, 95% CI = 1.87-8.49) และความภูมิใจในตนเอง (OR = 3.16, 95% CI = 1.71-5.84)*

สรุป*: วัยรุ่นชายเป็นกลุ่มเป้าหมายที่สำคัญในการรณรงค์เพื่อลดการบริโภคยาสูบ นอกจากนี้การรณรงค์ เพื่อลดการบริโภคยาสูบ ควรทำควบคู่ไปกับการรณรงค์เพื่อลดการบริโภคสุรา เนื่องจากพบความสัมพันธ์กันอย่างชัดเจนระหว่างการดื่มสุราและการสูบบุหรี่ในวัยรุ่นไทย*