

# THE PREVALENCE OF ALCOHOL, SMOKING AND ILLICIT SUBSTANCE USE AMONG THAI UNIVERSITY STUDENTS AND ASSOCIATED SELECTED FACTORS

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**Abstract.** Alcohol, smoking and illicit substance use may be associated with morbidity and mortality among Thai university students. We aimed to determine the prevalence of alcohol, smoking and illicit substance use and factors associated with illicit substance use in order to inform prevention and control programs. This study was conducted during 1-30 September 2012 among first through fourth year Thai university students using a questionnaire that asked about alcohol, smoking and illicit substance use. A total of 8,992 students were included in this study; 67.6% females. The mean [ $\pm$  standard deviation (SD)] age of study subjects was 19.8 ( $\pm$ 1.5) years. The prevalences of lifetime alcohol, smoking and illicit substance use among study subjects were 50.0%, 8.0% and 4.6%, respectively. On multivariate analysis, the factors significantly associated with illicit substance use were alcohol drinking [Odds Ratio (OR)=2.52; 95% Confidence Interval (CI): 1.87-3.39], cigarette smoking (OR= 3.54; 95% CI: 2.67-4.53), street racing (OR= 1.45; 95% CI: 1.13-1.86), gambling (OR= 1.37; 95% CI: 1.09-1.71), being late to or absent from class without notice (OR= 1.64; 95% CI: 1.28-2.09), having pre-marital sex (OR= 1.34; 95% CI: 1.06-1.68) and being students in the sciences and technology (OR= 1.91; 95% CI: 1.35-2.69) or social sciences and humanities (OR= 1.77; 95% CI: 1.24-2.53). University students with these associated factors should be targeted by illicit substance use prevention programs.

**Keywords:** illicit substance, university student, risky behavior, prevalence

## INTRODUCTION

Alcohol, smoking and illicit substance use are major problems in Thailand, especially among adolescents (Assanangkornchai *et al*, 2009) and may

be associated with increased morbidity, mortality and social problems in this age group. Driving under the influence of alcohol results in higher risk for accidents (Bohning and Na Ayutha, 1997; NIAAA, 2006). Previous studies found that 10-60% of adolescents consume alcohol (Wakai *et al*, 2005; Assanangkornchai *et al*, 2009; Andrade *et al*, 2012). The prevalence of alcohol drinking is higher in males than females and alcohol drinking is often used to cope with stress or is used during social activities (Aseltine and Gore, 2000;

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Pedonnet *et al*, 2012; Pengpid and Peltzer, 2012).

The prevalence of cigarette smoking and illicit substance use among those aged 11-25 years has been reported to range from 5-35% (Arillo-santivan *et al*, 2005; Assanangkornchai *et al*, 2007; Berg *et al*, 2012; Sitdhiraksa *et al*, 2014). Illicit substance users may be more likely to be involved in violent crime, unsafe sex and risk for contracting sexually-transmitted diseases (STD) (Brady *et al*, 2008; Nalah and Audu, 2014; Ritchwood *et al*, 2015).

Alcohol, smoking and illicit substance use among university students can affect their health, learning ability leading to criminal/social problems (Mekonen *et al*, 2017; Bennett and Holloway, 2018). In our study, we aimed to determine the prevalence of lifetime alcohol, smoking and illicit substance use among Thai university students and to identify factors associated with illicit substance use.

## MATERIALS AND METHODS

We conducted this cross-sectional study during 1-30 September 2012 to evaluate the prevalence of lifetime alcohol drinking, cigarette smoking and illicit substance use, including marijuana, inhalants, Kratom (*Mitragyna speciosa* Korth.), derivatives of amphetamine, opioids and hallucinogens. The questionnaire asked about lifetime alcohol use and cigarette smoking and illicit substance use during the previous 3 months. Data was collected using a self-administered questionnaire administered to first through fourth year Thai university students.

The study was approved by the Narasuan University Ethics Committee for Research in Human Subjects. All respondents gave informed consent prior to participation in the study.

Statistical software (SPSS, version 17.0, IBM, Armark, NY) was used to calculate frequencies, percentages, means and standard deviations. Comparisons between two groups were carried out using the chi-square method. Calculation of the Odds Ratio (OR) that illicit substance was associated with selected factors, alcohol drinking and cigarette smoking was carried out using multiple logistic regression analysis, with backward stepwise progression with a 95% Confidence Interval (CI). Significance was set at a  $p$ -value < 0.05.

## RESULTS

A total of 8,992 Thai university students participated in this study; 6,078 (67.6%) were females. The mean  $\pm$  standard deviation ( $\pm$ SD) age of subjects was 19.8 ( $\pm$  1.5) years. Thirty-nine point three percent of subjects studied sciences and technology, 35.9% studied social sciences and humanities and 24.8% studied health sciences (Table 1).

The prevalences of lifetime alcohol use was 50.0%, cigarette smoking was 8.0% and illicit substance use was 4.6%.

During the previous 3 months, 55.6% of participants had experienced nightlife (the activity of or entertainment provided for pleasure-seekers at night), 50.6% were late to or absent from class without notice, 25.9% were exposed to pornography, 24.4% had gambled, 23.5% played online games, 19.6% experienced pre-marital sex and 13.8% participated in street racing.

On univariate analysis, illicit substance use was positively significantly associated with cigarette smoking (OR= 7.01; 95% CI: 5.61-8.74), alcohol drinking (OR= 4.31; 95% CI: 3.37-5.51), nightlife (OR= 2.07; 95% CI: 1.66-2.58), street racing (OR= 2.35; 95% CI: 1.87-2.95), gambling (OR= 2.43; 95% CI: 1.99-2.97), being late

Table 1  
Baseline characteristics of study subjects (N=8,992).

Characteristic	No. (%)
Sex	
Female	6,078 (67.6)
Age in years, mean ( $\pm$ SD)	19.8 ( $\pm$ 1.5)
Number of university students by faculty	
Sciences and technology	3,531 (39.3)
Social sciences and humanities	3,231 (35.9)
Health sciences	2,230 (24.8)
Risky behavior in the previous 3 months	
Nightlife	5,000 (55.6)
Street racing	1,238 (13.8)
Gambling	2,193 (24.4)
Being late to or absent from class without notice	4,546 (50.6)
Watching pornography	2,331 (25.9)
Pre-marital sex	1,764 (19.6)
Playing online games	2,112 (23.5)
Lifetime use of these substances	
Alcohol	4,497 (50.0)
Cigarette	718 (8.0)
Illicit substances including marijuana, inhalants, <i>Kratom</i> ( <i>Mitragyna speciosa</i> Korth.), derivatives of amphetamine, opioids and hallucinogens	414 (4.6)

SD, Standard deviation.

to or absent from class without notice (OR= 2.87; 95% CI: 2.29-3.59), having pre-marital sex (OR= 2.49; 95% CI: 2.03-3.07) and playing online games (OR= 1.63; 95% CI: 1.32-2.02) (Table 2).

On multivariate logistic regression analysis, illicit substance use was significantly associated with cigarette smoking (OR= 3.54; 95% CI: 2.67-4.53), alcohol drinking (OR= 2.52; 95% CI: 1.87-3.39), street racing (OR= 1.45; 95% CI: 1.13-1.86), gambling (OR= 1.37; 95% CI: 1.09-1.71), being late to or absent from class without notice (OR= 1.64; 95% CI: 1.28-2.09), having pre-marital sex (OR= 1.34; 95% CI: 1.06-1.68), studying sciences and technology (OR= 1.91; 95% CI: 1.35-2.69), and

studying social sciences and humanities (OR= 1.77; 95% CI: 1.24-2.53) (Table 3).

## DISCUSSION

This is the first study for a large group of Thai university students to determine the prevalence of lifetime alcohol drinking, cigarette smoking and illicit substance use. Our study found Thai university students had a higher prevalence of lifetime alcohol drinking (50.0%), than that reported previously (48.8%) (Wakai *et al*, 2005).

Other studies reported high prevalences of alcohol drinking among high school students in the previous 30 days

Table 2  
Unadjusted Odds Ratio with 95% Confidence Interval (CI) for illicit substance use.

Variable	Odds ratio	95%CI	<i>p</i> -value
Sex			
Female	1.00		
Male	1.46	0.68-3.17	0.334
Cigarette smoking			
No	1.00		
Yes	7.01	5.61-8.74	<0.001
Alcohol drinking			
No	1.00		
Yes	4.31	3.37-5.51	<0.001
Nightlife			
No	1.00		
Yes	2.07	1.66-2.58	<0.001
Street racing			
No	1.00		
Yes	2.35	1.87-2.95	<0.001
Gambling			
No	1.00		
Yes	2.43	1.99-2.97	<0.001
Being late to or absent from class without notice			
No	1.00		
Yes	2.87	2.29-3.59	<0.001
Pre-marital sex			
No	1.00		
Yes	2.49	2.03-3.07	<0.001
Playing online games			
No	1.00		
Yes	1.63	1.32-2.02	<0.001
University students in faculty of sciences and technology			
No	1.00		
Yes	1.63	1.34-1.99	<0.001
University students in faculty of social sciences and humanities			
No	1.00		
Yes	1.09	0.89-1.34	0.388
University students in faculty of health sciences			
No	1.00		
Yes	0.38	0.27-0.51	< 0.001

Table 3  
Adjusted odds ratio with 95% confidence interval (CI) for illicit substance use.

Variable	Odds ratio	95%CI	p-value
Cigarette smoking	3.54	2.67-4.53	<0.001
Alcohol drinking	2.52	1.87-3.39	<0.001
Street racing	1.45	1.13-1.86	0.003
Gambling	1.37	1.09-1.71	0.006
Being late to or absent from class without notice	1.64	1.28-2.09	<0.001
Pre-marital sex	1.34	1.06-1.68	0.015
University students in faculty of sciences and technology	1.91	1.35-2.69	<0.001
University students in faculty of sciences and humanities	1.77	1.24-2.53	0.002

(27.3-52.4%), past 12 months (9.5-14.8%) (Ceschini *et al*, 2009; Rudatsikira *et al*, 2009; Pengpid and Peltzer, 2012; Malta *et al*, 2014).

In our study the prevalence of cigarette smoking among study subjects was 8.0%, which is similar to a previous study among high school students in Thailand (10.8%) (Assanangkornchai *et al*, 2007). A study among adolescents from southern Thailand found a prevalence of cigarette smoking during the previous 30 days of 12.0% (Sitdhiraksa *et al*, 2014). A study of university students from Hong Kong reported a cigarette smoking prevalence of 13% (Abdullah *et al*, 2002). However, the prevalence of cigarette smoking in our study is lower than studies from Europe and the United States (23-35%) (Kracmarova *et al*, 2011; Berg *et al*, 2012; Tavalacci *et al*, 2013).

In our study, students who smoked or drank alcohol were more likely to use illicit substances, similar to a study from Mexico where an association was reported between alcohol drinking and substance use (Ariillo-santillan *et al*, 2005).

In our study, students who consumed alcohol, smoked, and had other risky behaviors were more likely to use illicit substances. It is important to understand the link between alcohol drinking, cigarette smoking risky/dangerous behavior, and illicit substance use. Although drinking alcohol and smoking cigarettes becomes legal at a certain age, it is associated with illicit substance use among our study subjects and therefore needs further investigation to develop methods to prevent the conversion from legal to illegal activities and prevent the diseases caused by these behaviors.

In conclusion, students with factors associated with illicit substance use should be targeted for prevention and treatment programs in order to prevent morbidity and mortality associated with these unhealthy behaviors.

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