FACTORS ASSOCIATED WITH ALCOHOL CONSUMPTION AMONG MALE HIGH SCHOOL STUDENTS IN CENTRAL THAILAND

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Abstract. A cross-sectional study was conducted to explore factors associated with alcohol consumption among male high school students in central Thailand. Five thousand one hundred eighty-four male students from central Thailand were classified into 2 groups according to alcohol consumption during the past year (yes = 916, no = 4,268). Data were collected by an anonymous self-reporting questionnaire which consisted of 2 parts: socio-demographic factors and alcohol drinking behavior during the previous year from December 2007 to February 2008. Descriptive statistics, a chi-square test and multiple logistic regression were used to analyze the data. Seventeen point seven percent of male high school students in this study reported consuming alcohol. Most of the students (73.4%) were 15 years old or younger. Univariate analysis revealed socio-demographic factors, such as age, educational level, residence, cohabitants, grade point average (GPA), having a job earning money and having family members with alcohol/drug problems were significantly associated with alcohol consumption ($p < 0.05$). Multiple logistic regression analysis, after adjusting for age, revealed five factors were associated with alcohol consumption: the educational level (OR MS3 = 2.69, 95% CI 2.07-3.49; OR MS5 = 5.50, 95% CI 4.25-7.13), cohabitants (OR Friends = 3.09, 95% CI 1.38-6.93), having a job earning money (OR = 1.37, 95% CI 1.13-1.66), having family members with alcohol/drug problems (OR = 1.33, 95% CI 1.11-1.60), and GPA (OR < 2 = 1.31, 95% CI 1.01-1.71; OR > 3 = 0.62, 95% CI 0.51-0.75). Approximately 38% drank more than 2 times a month, 35% drank more than 4 drinks each time, 60% experienced binge drinking, and 43% experienced drunkenness. These results suggest alcohol abuse preventive measures among male high school students should take into account education level, cohabitants, having a job earning money, family members with alcohol/drug problems and GPA. Education regarding the disadvantages of alcohol to risk groups could reduce the proportion of new and current drinkers.

Key words: alcohol consumption, high school students, associated factors, Thailand

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INTRODUCTION

The World Health Organization (WHO) estimates that there are about 2 billion people world wide who consume alcoholic beverages (WHO, 2004). There is

widespread agreement the health of young people can be threatened by alcohol use. In 2007, the National Statistical Office of Thailand found 29.3% of Thais ≥15 years old consumed alcohol. The proportions of those consuming alcohol by age group were 34.4, 21.9 and 15.6% for those aged 25-59, 15-24 years and >60 years, respectively (National Statistical Office, 2008). In males, the proportions of drinkers by age were 59.1, 39.2 and 29.4% for those aged 25-59, 15-24 years and >60 years, respectively. The proportions of male drinkers were 55.4% in 1996, 60.8% in 2003, 50.3% in 2006 and 51.0% in 2007 (Bureau of Policy and Strategy, 2008; National Statistical Office, 2008). During a ten-year period (1996-2006), the proportion of male drinkers has increased particularly among those aged 15-19 years (increasing from 20.8% to 24.2%) and aged 20-24 years (increasing from 56.0% to 58.1%) (Bureau of Policy and Strategy, 2008). The major alcoholic risk groups are working people and young people. Youth who drink have a greater risk to develop alcoholism when they become adults. In order to control alcohol use among adolescents, it is useful to know their drinking behavior and the factors related to their alcohol consumption in order to organize preventive activities, such as education campaigns.

The aim of this study was to determine possible factors for alcohol consumption among male high school students in central Thailand; we focused on the influence of socio-demographic factors on alcohol consumption among male high school students.

MATERIALS AND METHODS

Study population and data collection techniques

A cross-sectional study was conducted from December 2007 to February 2008 in order to determine the risk factors that contribute to alcohol consumption among some male high school students in central Thailand. The proposal was reviewed and approved by the Ethics Committee for Research in Human Subjects of Mahidol University (Ref.No. Mu 2007-243). A multistage sampling technique was used for selecting students from 10 provinces in central Thailand. These provinces were randomly selected and represent the socio-demographic characteristics of male adolescents in central Thailand. The selection of schools was based on a list of schools obtained from the Provincial Education Offices. In all, 5,184 students from Mathayomsuksa School (MS) levels 1, 3 and 5 participated in the study. In each school, 3 or fewer classes from each of these 3 educational levels were recruited into the study. If there were more than three classes per grade level, three classes with students of mixed academic performance were randomly selected by teachers. The study subjects were classified into 2 groups according to their alcohol intake in the past year (yes = 916, no = 4,268). Each subject signed a written consent form stating they were willing to participate in the present study. The anonymous self-reporting questionnaire, which consisted of 2 parts, socio-demographics and alcohol drinking behavior during the past year, was conducted by trained health staff. Socio-demographic factors were given as percentages, crude odds ratios, 95% CI for OR and p-values. Univariate analysis was performed using the Pearson's chi-square test for categorical variables. A multiple logistic regression was used to estimate the adjusted odds ratios and the 95% CI for OR as measures of associations, including identification and adjustment for confounding variables. Statistical significance for each

Table 1
Factors associated with alcohol drinking in male high school students.

Variables	No. drinker/total	% Drinker	Crude OR	95%CI	p-value [a]
Age group (yrs) (n = 5,184)					
≤ 15	499/3,807	13.1	1		
> 15	417/1,377	30.3	2.89	2.48-3.35	<0.001
Educational level (n = 5,184)					
MS 1	149/1,987	7.5	1		
MS 3	368/1,906	19.3	2.95	2.40-3.63	<0.001
MS 5	399/1,291	30.9	5.52	4.48-6.81	<0.001
Religion (n = 5,175)					
Buddhist	896/5,055	17.7	1		
Islam	4/33	12.1	0.64	0.39-1.92	0.400
Others	14/87	16.1	0.89	0.48-1.63	0.692
Residence (n = 4,674)					
House/Apartment of family	800/4,535	17.6	1		
School dormitory	25/98	25.5	1.60	1.01-2.59	0.044
Private dormitory	10/41	24.4	1.51	0.69-3.21	0.259
Cohabitants (n = 4,949)					
Parent	738/4,158	17.7	1		
Relative	96/643	14.9	0.81	0.64-1.03	0.079
Friend	29/84	34.5	2.44	1.51-3.94	<0.001
Alone	15/64	23.4	1.42	0.76-2.62	0.238
Grade point average (n = 4,462)					
< 2.0	138/535	25.8	1.38	1.10-1.73	0.004
2.0- 3.0	428/2,125	20.1	1		
> 3.0	244/1,802	13.5	0.62	0.52-0.74	<0.001
Job for earning money (n = 5,121)					
No	605/3,725	16.2	1		
Yes	299/1,396	21.4	1.41	1.20-1.65	<0.001
Family members with alcohol/drug problems (n = 4,403)					
No	430/2,608	16.5	1		
Yes	345/1,795	19.2	1.21	1.03-1.41	0.019

[a] Pearson's chi-square test, OR = odds ratio, CI = confidence interval.
MS 1, the first year of secondary school (equivalent to grade 7); MS 3, the third year of secondary school (equivalent to grade 9; MS 5, the fifth year of secondary school (equivalent to grade 11).

independent variable was set at $p < 0.05$.

RESULTS

The proportion of boy who reported alcohol consumption was 17.7% of the 5,184 male high school students. Most of the boys (73.4%) were 15 years old or younger. Their educational levels ranged from 38% in MS 1 to 25% in MS 5. The majority of study subjects had a Grade Point Average (GPA) of 2.0 - 3.0 (47.6%) or higher than 3.0 (40.4%).

Using univariate analysis, the factors significantly associated with alcohol consumption assessed by the Pearson's

Table 2
Multivariate analysis of factors associated with alcohol consumption among male high school students.

Variables	Crude OR	Adjusted OR[a]	95%CI	*p*-value
Educational level				
MS 1	1	1		
MS 3	2.95	2.69	2.07-3.49	<0.001
MS 5	5.52	5.50	4.25-7.13	<0.001
Residence				
House/apartment of family	1	1		
School dormitory	1.60	1.05	0.47-2.35	0.905
Private dormitory	1.51	1.18	0.72-1.95	0.505
Cohabitants				
Parents	1	1		
Relatives	0.81	0.76	0.56-1.02	0.067
Friends	2.44	3.09	1.38-6.93	0.006
Alone	1.42	1.87	0.95-3.72	0.072
Grade point average				
< 2.0	1.38	1.31	1.01-1.71	0.047
2.0 - 3.0	1	1		
> 3.0	0.62	0.62	0.51-0.75	<0.001
Job earning money				
No	1	1		
Yes	1.41	1.37	1.13-1.66	0.001
Family members with alcohol/drug problems				
No	1	1		
Yes	1.21	1.33	1.11-1.60	0.002

[a]Adjusted for age, educational level, residence, cohabitants, GPA, job earning money and family history of alcohol/drug problems were all entered into the model.

chi-square test ($p < 0.05$) were age group (group >15 years old OR = 2.89; 95% CI 2.48-3.35), educational level (MS3 OR = 2.95, 95% CI 2.40-3.63; MS5 OR = 5.52, 95% CI 4.48-6.81), residence (School dormitory OR = 1.60, 95% CI 1.01-2.59), cohabitants (Friend OR = 2.44, 95% CI 1.51-3.94), GPA (<2.0 OR = 1.38, 95% CI 1.10-1.73; > 3.0 OR = 0.62; 95% CI 0.52-0.74), having a job earning money (OR = 1.41, 95% CI 1.20-1.65) and having family members with alcohol/drug problems (OR = 1.21, 95% CI 1.03-1.41) (Table 1).

After adjusting for age, six factors were included in the multivariate analysis model, educational level, residence, cohabitants, GPA, having a job earning money and having family members with alcohol/drug problems. None of the statistically significant variables were excluded. After adjusting for potential confounders, only five variables were significantly associated with drinking. Males in grade levels MS 5 and MS 3 were 5.50 times (95% CI 4.25-7.13) and 2.69 times (95% CI 2.07-3.49), respectively, more at risk for

Table 3
Alcohol drinking during previous 12 months.

Characteristics	No.	%
Frequency of drinking during the past 30 days (n = 734)		
1-2	457	62.3
3-5	149	20.3
6-9	52	7.1
10-19	33	4.5
≥ 20	43	5.9
Quantity of drinks during the past 30 days[a] (n = 745)		
1-2	301	40.4
3-4	180	24.2
5-6	98	13.1
7-8	62	8.3
≥ 9	104	13.9
Place of drinking (n = 761)		
Party	364	47.8
House/dormitory	268	35.2
Shop near school	113	14.9
Garden/field	16	2.1
Number of drinks at one time, ≥ 5 drinks[a] within 2 weeks (n = 871)		
No	355	40.8
1-2	314	36.0
3-5	109	12.5
6-9	26	3.0
≥ 10	67	7.7
Frequency of drinking until intoxicated during the past 30 days (n = 875)		
No	501	57.3
1-2	256	29.3
3-5	66	7.5
6-9	21	2.4
10-19	17	1.9
≥ 20	14	1.6

[a]1 drink is equal to an 8-13 grams of ethanol.

drinking alcohol than males in grade MS 1. Boys living with friends were 3.09 times at greater risk for drinking (95% CI 1.38-6.93) than those living with parents. Students with a job earning money or having family members with alcohol/drug problems were 1.37 times (95% CI 1.13-1.66) and 1.33 times (95% CI 1.11-1.60), respectively, more likely to drink alcohol. Students with a GPA <2.0 were 1.31 times more likely to drink alcohol (95% CI 1.01-1.71) and those with a GPA > 3.0 were at lower risk for drinking alcohol (OR = 0.62; 95% CI 0.51-0.75) (Table 2).

The majority of boys drank alcohol less than 3 times a month (62.3%), they

each consumed less than 3 drinks during the past 30 days (40.4%). Nearly 40% of boys drank more than twice a month and 35% of them drank more than 4 drinks each time. Alcohol consumption was more common when joining a party (47.8%) but a high proportion of boys drank at home/dormitory (35.2%). Nearly 60% of respondents experienced binge drinking and nearly 43% admitted to being intoxicated during the past 30 days prior to being questioned (Table 3).

DISCUSSION

The majority of boys were 15 years old or younger (73.4%). The proportion of those drinking alcohol was 17.7%. Adolescence is associated with risk behaviors, such as alcohol consumption. This study confirms older boys drink more than younger boys (Takakura and Wake, 2003; Ramisetty-Mikler *et al*, 2006; Miller *et al*, 2007; Ozer and Fernald, 2008; Strauch *et al*, 2009). This study also confirms that higher education levels are associated with higher levels of alcohol consumption. This finding corresponds with the results of a study by Miller *et al* (2007) and Alikasifoglu *et al* (2004). Boys living with friends were more likely to drink than those living with parents. One reason may be they have a greater chance to drink since there are no parents or caregivers to watch their behavior. The frequency of peer drinking has an influence on drinking (Harford *et al*, 2002; Alikasifoglu *et al*, 2004; Almodovar *et al*, 2006; Yeh, 2006; Arria *et al*, 2008; Chuang *et al*, 2009). Modeling by best friends and perceived prevalence of alcohol use among same-age peers were strongly related to initiation of alcohol use (Jackson, 1997). Boys with a poor GPA had a greater chance of drinking than boys with an average GPA. A higher GPA was associated with lower risk for alcohol drinking. This is in accordance with a number of similar investigations (Ritchey *et al*, 2001; Paschall and Freisthler, 2003; Alikasifoglu *et al*, 2004; Almodovar *et al*, 2006; Chaveepojnkamjorn and Pichainarong, 2007; Miller *et al*, 2007). Boys with jobs earning money had a greater chance of drinking than those with none. This may be due to the affordability of alcohol. This finding corresponds with the results of studies by Dunn (2005), Gage and Suzuki (2006), and Ozer and Fernald (2008). It showed that working adolescents are more likely to be exposed to adults and peers who drink, which may be attributed in part to their work setting. One study found working conditions had little impact on drinking alcohol (Wakai *et al*, 2005). Families who had members with alcohol/drug problems do not set a good example for children or youngers, who are at greater risk of drinking. These findings are similar to those previously reported (Harford *et al*, 2002; Eaton *et al*, 2006; Kemppainen *et al*, 2008). Nearly 40% of subjects who drank in our study did so more than twice a month, 35% drank more than 4 drinks each time they drank, 60% admitted to binge drinking and nearly 43% had previously been drunk.

These results suggest preventive measures against alcohol abuse among male high school students should take into account education level, cohabitants, having a job earning money, having family members with alcohol/drug problems and GPA scores. Parents and schools have major roles in drinking control. Parents or caregivers should educate their children regarding avoiding alcohol and should be good examples of non-drinking. These study results point out risk groups in schools which should be targets for education regarding the problems caused by

alcohol use and abuse to reduce the number of new and current drinkers.

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