YOUTH AND ALCOHOLIC BEVERAGES: DRINKING PATTERNS AMONG HIGH SCHOOL STUDENTS IN CENTRAL THAILAND

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Abstract. The objective of this study was to determine the drinking patterns of high school students in central Thailand. Eleven thousand three hundred sixty high school students from central Thailand were divided into 2 groups (drinkers and nondrinkers) according to their alcohol consumption. Information was obtained by an anonymous self-reporting questionnaire which consisted of 2 parts: general characteristics, and characteristics of alcohol drinking behavior. Data were analyzed using descriptive and inferential statistics by a computerized statistical package. The socio-demographic factors related to the student's alcohol consumption during the previous 12 months were: age > 15 years old, male sex, grades 9 and 11 education level, living in a private dormitory, staying with a relative or a friend, having a grade point average <2.0 or >3.0, having a job earning money and having family members with alcohol/drug problems ($p<0.05$). Drinking patterns were classified into 5 categories: life time drinking, drinking during the previous year, drinking during the previous 30 days, binge drinking during the previous 30 days and drinking until intoxication during the previous 30 days. A higher proportion of drinking was reported by boys than girls. The prevalence of drinking increased in proportion to the educational level. The 3 main drinking places were parties (48.5%), at home or in the dormitory (37.5%) and in shops around the school (12.4%). Boys drank alcohol on average 1-2 times per month in 59.8% and 1-2 standard drinks per time in 38.6%. Eighty point one percent of girls drank alcohol 1-2 times per month and 1-2 standard drinks per time in 55.6%. Drinking alcohol among high school students should be controlled by limiting access to alcoholic beverages in order to reduce accidents, injuries, violence and alcohol-related health problems among young people.

Key words: drinking patterns, high school students, central Thailand

INTRODUCTION

Alcohol consumption is widespread in many age groups. Alcohol drinking among adolescents may continue into adulthood. The World Health Organization (WHO) reported approximately 2,000 million people worldwide consume alcoholic beverages (WHO, 2004). The proportion of adolescents below age 15 who already started drinking alcohol has increased, and adolescent alcohol consump-

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tion is often associated with drug dependence and results in alcohol dependence after they become adults (WHO, 2002). The proportion of alcohol consumption among Thais ≥15 years old was 29.26% in 2007 and the percents of those drinking alcohol age 25-59 years old was 34.44%, 15-24 years old was 21.93% and >60 years old was 15.65% (National Statistical Office, 2008). In comparison to a survey conducted in 2006 (National Statistical Office, 2006) the proportion of alcohol consumption for each aged group was slightly lower. Alcohol consumption increased among both sexes among adolescents from 1996 to 2006 (Bureau of Policy and Strategy, 2008).

The objective of this study was to determine the drinking patterns of high school students in central Thailand. The information will be useful for controlling alcohol consumption in this group to avoid alcohol related health problems, such as motor vehicle injuries.

MATERIALS AND METHODS

This study was conducted among male and female high school students using a multistage sampling technique sampling students from 10 provinces in central Thailand. Each province was represented by 3 schools. The selection of schools was based on a list of schools obtained from the Provincial Education Offices. Sampling considered the area of the schools whether it was urban or rural, government or non-government, the male/female ratio, and the education level (mathayomsuksa 1, 3, 5) (grades 7, 9 and 11). Class rooms were randomly selected by education level (3 rooms/1 level) from each school. If there were more than three classes, three classes with students of mixed academic performance were randomly selected by teachers. Information

was obtained by self administered questionnaire from each student in each class. The total number of students was 11,360. The inclusion criteria were willingness to participate, giving informed consent and being enrolled during the 2007 academic school year. The exclusion criteria was having incomplete questionnaire information (data missing >30%). Alcoholic beverage was defined as wines, beers, and distilled spirits such as brandy or whisky. A standard drink was defined as have an ethyl alcohol volume of 10 grams, such as a can (330 cc) of beer, a glass (100 cc) of wine, or a small glass (30 cc) of whisky or spirits. Binge drink was defined as drinking ≥ 5 standard drinks on an occasion.

Methodology

Permission to conduct the study was obtained from the Ethics Committee for Research in Human Subjects of Mahidol University (Ref.No. Mu2007-243) and agreed with the Helsinki declaration. Permission was also obtained from the Director of Academic Affairs, and 10 school directors from each province. The study was conducted from December, 2007 to February, 2008. A multistage sampling technique was used to select the 11,360 students from grades 7, 9, and 11 within the academic zones 5, 6, and 12. Selected schools could refuse to participate in the study. The school directors were informed about the project face to face and an outline of the project was mailed to the parents. Information was collected by a self administrated questionnaire with the help and supervision of research assistants. Individual answers were kept confidential. The self-administered questionnaires covered general characteristics and drinking patterns during the previous 12 months.

Statistical analysis

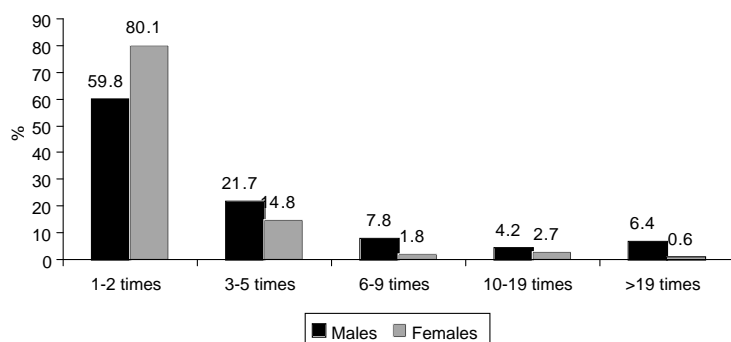SPSS 17.0 statistical software was used

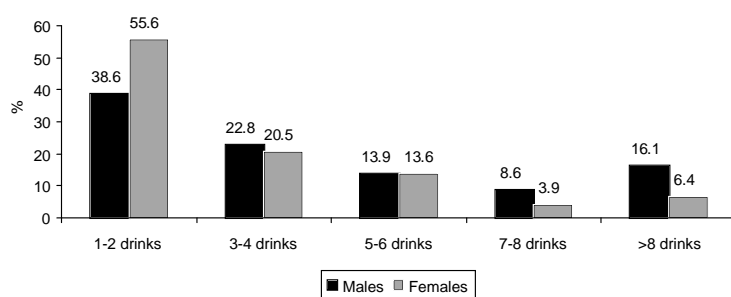Fig 1–Drinking frequencies during the previous 30 days.

Fig 2–Drinking quantities each time during the previous 30 days.

14.76 ± 1.74 years. The majority of students were ≤ 15 years old (67.1%); 34.8% of students were in grade 7, and 33.7% in grade 9; nearly all them (98.0%) were Buddhists, most (98.1%) lived in their family home and stayed with parents (91.5%). Forty-nine percent had a GPA > 3.0, and 23.1% had a job earning money. The demographic patterns among the boys and girls were nearly the same. Thirty-eight point three percent of the males were in grade 7 and 36.8% were in grade 9. Thirty-seven point one percent of girls were in grade 11 and 31.8% were in grade 7. Forty-seven point six percent of the boys had a GPA of 2 to 3 and 40.4% had a GPA >3, 56.1% of girls had a GPA >3, and 39.8% had a GPA of 2-3. The factors associated with alcoholic drinking during the previous 12 months were age >15 years old, male sex, grade 9 or 11, living in a private dormitory, staying with relatives or friends, having a grade point average <2.0 or >3.0, having job earning money and having family members with alcohol/drug problems ($p < 0.05$) (Tables 1-2).

More boys drank alcohol than girls. Drinking prevalence was higher among students with a higher educational level than in students with lower education levels. The most common places to drink were a party (48.5%), in the home/dormitory (37.5%) and in shops near the school (12.4%) (Tables 3-4).

Fifty-nine point eight percent of boys drank 1-2 times during the previous month,

for data management and statistical evaluation. Evaluations were made for general characteristics, socio-demographic variables, alcohol drinking patterns such as prevalence of alcohol consumption, frequency and quantity of alcohol consumed during the previous 30 days, and common drinking places. Percentages, means, standard deviations, minimums, maximums and the *p*-values of Pearson's chi-square test were calculated. Univariate analysis was performed using the Pearson's chi-square test to differentiate the proportional exposure between drinkers and nondrinkers for categorical variables.

RESULTS

The youngest student was 10 and the oldest 21 years old. The mean age was

Table 1
Socio-demographic factors of study subjects.

Variables	Males		Females		Total	
	No.	%	No.	%	No.	%
Age group (yrs) ($n = 11,360$)						
≤ 15	3,807	73.4	3,817	61.8	7,624	67.1
> 15	1,377	26.6	2,359	38.2	3,736	32.9
Mean (SD)	14.58 (1.67)		14.91 (1.77)		14.76 (1.74)	
Min-Max	10-21		11-21		10-21	
Education level ($n = 11,360$)						
MS 1	1,987	38.3	1,963	31.8	3,950	34.8
MS 3	1,906	36.8	1,919	31.1	3,825	33.7
MS 5	1,291	24.9	2,294	37.1	3,585	31.5
Religion ($n = 11,333$)						
Buddhism	5,054	97.7	6,052	98.3	11,106	98.0
Islam	33	0.6	44	0.7	77	0.7
Other	87	1.7	63	1.0	150	1.3
Residence ($n = 10,233$)						
Home of family	4,534	97.0	5,503	99.1	10,037	98.1
School dormitory	98	2.1	33	0.6	136	1.3
Private dormitory	41	0.9	19	0.3	60	0.6
Persons who stayed with ($n = 10,880$)						
Parent	4,157	84.0	5,050	98.8	9,207	91.5
Relative	643	13.0	-	-	643	6.4
Friend	84	1.7	30	0.6	114	1.1
Alone	64	1.3	32	0.6	96	1.0
Grade point average ($n = 9,833$)						
< 2.0	535	12.0	224	4.1	759	7.7
2.0- 3.0	2,125	47.6	2,136	39.8	4,261	43.3
> 3.0	1,801	40.4	3,012	56.1	4,813	49.0
Mean (SD)	2.81 (0.69)		3.08 (0.59)		2.96 (0.66)	
Min-Max	1.00-4.00		1.00-4.00		1.00-4.00	
Job earning money ($n = 11,208$)						
No	3,724	72.7	4,897	80.4	8,621	76.9
Yes	1,396	27.3	1,191	19.6	2,587	23.1
Family members with alcohol/drug problems ($n = 9,964$)						
No	2,607	59.2	3,166	56.9	5,773	57.9
Yes	1,795	40.8	2,396	43.1	4,191	42.1

MS 1, grade 7; MS 3, grade 9; MS 5, grade 11

21.7% drank 3-5 times during the previous month. Thirty-eight point six percent drank 1-2 standard drinks per time and 22.8% drank 3-4 drinks per time. Eighty point one percent of girls who drank consumed alcohol 1-2 times during the previous month and 14.8% consumed alcohol 3-5 times. Fifty-five point six percent drank 1-2 standard drinks per time and 20.5% drank 3-4 drinks per time (Figs 1, 2).

Table 2
Socio-demographic factors associated with alcohol drinking.

Variables	No. drinker/total	% Drinker	p-value [a]
Age group (yrs) (n = 11,360)			
≤ 15[b]	801/7,624	10.5	
> 15	727/3,736	19.5	<0.001
Gender (n = 11,360)			
Female[b]	612/6,176	9.9	
Male	916/5,184	17.7	<0.001
Education level (n = 11,360)			
MS 1[b]	243/3,950	6.2	
MS 3	585/3,825	15.3	<0.001
MS 5	700/3,585	19.5	<0.001
Religion (n = 11,333)			
Buddhism[b]	1,489/11,106	13.4	
Islam	8/77	10.4	0.438
Other	18/150	12.0	0.615
Residence (n = 10,233)			
Home of family[b]	1,334/10,037	13.3	
School dormitory	33/136	24.3	0.002
Private dormitory	25/60	41.7	<0.001
Persons who stayed with (n = 10,060)			
Parent[b]	1,706/9,207	18.5	
Relative	179/643	27.8	<0.001
Friend	33/114	29.0	0.005
Alone	20/96	20.8	0.563
Grade point average (n = 9,833)			
< 2.0	177/759	23.3	<0.001
2.0- 3.0[b]	694/4,261	16.3	
> 3.0	504/4,813	10.5	<0.001
Job for earning money (n = 11,208)			
No[b]	1,064/8,621	12.3	
Yes	438/2,587	16.9	<0.001
Family members with alcohol/drug problems (n = 9,964)			
No[b]	671/5,773	11.6	
Yes	648/4,191	15.5	<0.001

[a] Pearson's chi-square test; [b] Reference group
MS 1, grade 7; MS 3, grade 9; MS 5, grade 11

DISCUSSION

Of the 11,360 students investigated 1,528 (13.5%) were classified as alcohol drinkers. The majority of students who drank were >15 years old. This is similar to a previous study which found alcohol use among adolescents was higher at a higher age (Tur *et al*, 2003). Proportion of girls drinking alcohol (8.8%) was 6 times

Table 3
Prevalence of alcohol consumption by educational level (%).

Drinking pattern	MS1	MS3	MS5	Total
Males				
Lifetime drinking	10.2	22.6	35.9	21.2
Drinking during the previous 12 months	7.5	19.3	30.8	17.7
Current drinking (during the previous 30 days)	4.7	13.2	22.1	12.2
Binge drinking during the previous 30 days	1.4	5.8	12.2	5.7
Drinking until intoxication druing the previous 30 days	4.4	11.0	15.8	9.7
Females				
Lifetime drinking	5.4	14.9	17.6	12.8
Drinking during the previous 12 months	4.8	11.3	13.2	9.9
Current drinking (during the previous 30 days)	3.3	7.0	7.0	5.8
Binge drinking during the previous 30 days	0.8	2.6	3.0	2.2
Drinking until intoxication during the previous 30 days	2.0	5.2	4.7	4.0

Table 4
Drinking places of study subjects (%).

Drinking places	Males	Females	Total
Party	47.8	49.4	48.5
House/dormitory	35.2	40.8	37.5
Shop around school	14.9	9.0	12.4
Garden/field	2.1	0.8	1.6

lower than boys (51.0%). This finding is consistent with other studies who reported alcohol consumption among boys was greater than among girls (Allison *et al*, 1999; Takakura and Wake, 2003; Ramisetty-Mikler *et al*, 2006; Chaveepojnkamjorn and Pichainarong, 2007; Miller *et al*, 2007; Ozer and Fernald, 2008). It appears that as students grow older and achieve a higher education level, they drink more alcohol. Younger students still live with their parents, while the older students spend more time with friends. Friends have a strong influence for alcohol consumption (Harford *et al*, 2002; Almodovar *et al*, 2006; Yeh, 2006; Chaveepojnkamjorn and Pichainarong,

2007; Arria *et al*, 2008; Chuang *et al*, 2009). The education level was also related to drinking. A GPA <2.0 was associated with an increased risk of drinking which is in agreement with many other studies (Ritchey *et al*, 2001; Paschall and Freisthler, 2003; Chaveepojnakmjorn and Pichainarong, 2007; Miller *et al*, 2007). Students with a job drank more than those without a job. The possible reason for this is the ability to purchase alcoholic beverages and a greater opportunity to meet friends who use alcohol. This finding is in agreement with other studies (Dunn, 2005; Ozer and Fernald, 2008). Family members with alcohol/drug problems were a negative influence for alcohol drinking consistent with other studies (Harford *et al*, 2002; Eaton *et al*, 2006; Kemppainen *et al*, 2008). This study found that boys drank more often and more heavily than girls.

Some limitations of this study should be noted. First, the study was a cross-sectional study; therefore, a temporal relationship cannot be established between alcohol consumption and the socio-demographic factors studied. A longitudinal

study would be needed to examine causal effects of drinking on subsequent drinking. Second, all data were obtained through self-reports, which may lead to incorrect estimations of alcohol drinking.

The results from this study show prevention of underage drinking is needed. Further studies are needed to explore the cultural and socio-economic factors associated with adolescent alcohol use. Effective intervention strategies should focus on vulnerable groups, especially those groups from disadvantaged socio-economic backgrounds. Attempts should be made to limit access to alcoholic beverages in order to reduce accidents, injuries, violence and alcohol-related health problems among young people.

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