ORIGINAL ARTICLE

ALCOHOL USE AND ASSOCIATED RISK BEHAVIORS AMONG ADOLESCENTS IN NORTHERN THAILAND

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Abstract

Objectives: **Alcohol use in adolescents is one of the major health problems in many countries.Understanding the extent of the problem andrelated health risk behaviors is necessary to help prevent the associated behaviors andprovide appropriate intervention. This study aimed to identify alcohol use in adolescents and its correlation with others health risk behaviors.** ***Methods:*** **A total of 4372 participants, aged 13-18 years old were enrolled. The data were collected using a two-stage stratified cluster sampling methods from secondary and vocational schools. A web-based questionnaire using the Thai Youth Risk Behavior Survey, modified from the Center for Disease Control and Prevention, was administered.** ***Results:*** **The prevalence of lifetime alcohol exposure was 28.32%, of which 815 participants (18.64%) reported current alcohol use. Adolescents with older age (odds ratio, OR=4.93, 95% confidence interval (CI) = 4.15-5.87), male gender (OR = 2.63, 95% CI = 2.23-3.09), and attendance at vocational schools (OR=7.87, 95% CI = 6.66-9.31) were associated with current alcohol use.When adjusted for confounding variables, health risk behaviors including interpersonal violence, cyber bullying, risky sexual behaviors, tobacco and marijuana use, and suicidal behaviors were associated with current alcohol use from the multiple logistic regression (p<0.001).** ***Conclusions:*** **This study shows that a number of adolescents in Northern Thailand are currently using alcohol, and this can influence other health risk behaviors. Efforts to prevent and control alcohol use needs to focus on high-risk groups and among those currently using alcohol.** ***ASEAN Journal of Psychiatry, Vol. 18 (2): July – December 2017: XX XX.***

Keywords: Alcohol Use, Risk Behaviors, Web-Based Survey, Adolescent Problems, Interpersonal Violence

Introduction

Alcohol use in adolescents is one of the major health problems, and it has increased in prevalence in many countries [1-3]. From a national survey in the United States, almost three-quarters of adolescents in secondary school, by 12th grade, have reported of having an alcoholic drink. The patterns of alcohol use that are of the highest concern are excessive drinking and drinking at an early stage of life. Underage alcohol drinking is problematic to the young people, others around them, and the community [4]. Alcohol use at an early age is associated with future behavioral problems such as greater sexual risk-taking, academic problems, other substance use, and delinquent behaviors [5, 6]. Furthermore, early onset of alcohol use may be a risk factor for alcohol-related consequences in adulthood [4]. The Centers for Disease Control and Prevention (CDC) reported that drinking before age 15 years were six times more likely to develop alcohol abuse or dependence than those who

begin drinking after the age of 21 [7]. The trend analysis reported by the World Health Organization (WHO) showed stable alcohol consumption levels over the last 5 years in Europe, as well as in Africa and the United States [8, 9]. In the United States, the rate of current underage drinkers had declined over the decade. The rate of current alcohol uses decreased from 50.85% in 1991 to 32.8% in 2015 [10, 11]. Unfortunately, an increasing trend has been reported in the South-East Asia and the Western Pacific regions [12].

Previous studies in Thailand have shown a decreasing trend of adolescent alcohol use over 10 years from 37.3% in 2001 to 27.9% in 2011 [13, 14]. Moreover, another survey in 2008 found the prevalence of current alcohol use in adolescents was 14.8% [15]. However, increasing social and environmental risk factors and weakened family relationships due to economic crises may push the adolescents in the cities into extremely dangerous situations as regards alcohol. Increased alcohol use by peers and alcohol offers were associated with increased drinking in adolescents and alcohol-related consequences [16].

Alcohol is the leading cause of morbidity and mortality in adolescents due to injuries and risk behaviors. Negative consequences associated with drinking include health risk behaviors such as violent behaviors, high-risk sexual behaviors including multiple partners and unprotected sex, suicidal behavior, and substance use [17, 18]. Understanding the extent of the problems and related health risk behaviors is necessary to help prevent the associated behaviors andprovide appropriate intervention[5]. Therefore, this study aimed to identify alcohol use in adolescents and its correlation with others health risk behaviors.

Methods

Study population

A cross-sectional survey was conducted between June and August 2016. The study sample included adolescents aged 13-18 years (7^{th} to 12^{th} grade) in Chiang Mai, a city in Northern Thailand. The data were collected using a two-stage stratified cluster sampling methods from secondary schools and vocational schools. Only the schools in the city of Chiang Mai with more than 1000 students were enrolled. Assenting students completed a web-based questionnaire, taking approximately 20 minutes, after their computer class. The participants were instructed that the information they provided was completely confidential. Their responses would remain anonymous, and that participation was voluntary. Students were asked to indicate their consent on the front of the web page questionnaire. They were only identified by their age in years, gender, and year of schooling. Research Ethics Committee of Chiang Mai University approved the study.

Measurement

Information regarding alcohol use and other risk behaviors was obtained through the Thai Youth Risk Behavior Survey (Thai-YRBS) which was modified from the Youth Risk Behavior Surveillance System (YRBSS) 2015 [19] developed by the Centers for Disease Control and Prevention (CDC). The YRBS is a school-based survey, which monitors major risk-taking behaviors.

Current alcohol drinking was using the following question: "*During the past 30 days, on how many days did you have at least one drink of alcohol?"* Current drinking was defined as drinking alcohol on *any* of the days in the past 30 days.Current tobacco use: The question was *"During the past 30 days, on how many days did you smoke cigarettes?* Current tobacco use was defined as smoking on *any* of the days in the past 30 days.

Marijuana use: The question was *"During the past 30 days, on how many days did you use marijuana?* Marijuana use was defined as use on any of the days in the past 30 days.

The participants who had been exposed to alcohol, who answered a day or more to the question *"During your life, on how many days have you had at least one drink of alcohol?"* were linked to the education page of alcohol automatically after completing their questionnaires. Instead of read–only information on the website, the participants could mail this page to their mailbox or post to their social media as needed.

Ethic approval

The study was approved by the Ethics Research Committee of the Faculty of Medicine, Chiang Mai University.

Data analysis

Data were analyzed using the SPSS program, version 22.0 (IBM Corp, Armonk, NY) for windows. The percentage, mean, and standard deviation were calculated and reported. A Chi-square test was used for the analysis of categorical variables, and student's t-test was used for continuous variables. Simple and multiple logistic regression analysis were used to identify related factors of each risk behavior. The odds ratios (ORs) and adjusted odds ratios (aORs) with a 95% confidence interval (CI) were calculated.

Results

Of 5639 adolescents randomly enrolled from the six schools, 4372 completed the web-based questionnaire and were included in the analysis, giving a response rate of 77.53%. The average age was 15.20 (SD 1.66) years with 50.8% males. Seventy-eight per cent of participants were studying in secondary school. The prevalence of lifetime alcohol exposure using the Thai Youth Risk Behavior Survey was 28.32%, of which 18.64% have reported on going alcohol use. The percentage of current alcohol use has increased with age, from 2.58% of 7th grade students to 33.87% of 10th grade students. The reported average age at drinking onset was 14.01 ± 2.26 years. Current binge drinking as defined by five or more drinks of alcohol in a row within a couple of hours was reported to be 13.47%. Prevalence of alcohol use and other health-risk behaviors is shown in Table 1.

Table 1. Alcohol use and other risk behaviors among study participants (n=4372)

	n	**% (95% CI)**
Alcohol exposure	1238	28.32 (27.00-29.67)
Current alcohol use	815	18.64 (17.51-19.82)
Current binge drinking	589	13.47 (12.49-14.52)
Bullying involvement	958	21.91 (20.71-23.16)
Interpersonal violence	941	21.52 (20.33-22.76)
Cyber bullying involvement	759	17.36 (16.27-18.51)
Tobacco use	486	11.12 (10.22-12.09)
Marijuana use	216	4.94 (4.34-5.62)
Suicidal behaviors	188	4.30 (3.74-4.94)
Sexual behaviors problems	145	3.32 (2.83-3.89)

CI = confidence intervals

From this study, the older adolescents had significantly higher proportion of current alcohol use than the younger ones ($p<0.001$). Males were also more likely to report of current alcohol use than females significantly. Those at vocational schools were associated with current alcohol use. Characteristics of adolescents with current and non-current alcohol use are shown in Table 2.

Table 2. Characteristics of current and non-current alcohol use in adolescents

Variables	Current alcohol use (n=815)	Non-current alcohol use (n=3557)	p	OR	95%CI
Age					
13-15-year-old	200 (24.54)	2191 (61.60)	<0.001	4.93	4.15-5.87
16-18-year-old	615 (75.46)	1366 (38.40)			
Gender					
Female, n (%)	248 (30.43)	1901 (53.44)	<0.001	2.63	2.23-3.09
Male, n (%)	567 (69.57)	1656 (46.56)			
Grade					
7-9 th grade, n (%)	105 (12.88)	1752 (49.25)	<0.001	6.56	5.29-8.14
10-12 th grade, n (%)	710 (87.12)	1805 (50.75)			
School					
Secondary school, n (%)	354 (43.44)	3052 (85.80)	<0.001	7.87	6.66-9.31
Vocational school, n (%)	461 (56.56)	505 (14.20)			

(OR = odds ratio; CI = confidence intervals)

Health risk behaviors including interpersonal violence, cyber bullying involvement, tobacco and marijuana use, suicidal behaviors, and sexual behaviors problems were associated significantly to current alcohol use from the simple logistic regression($p<0.001$). Similar findings were found from the multiple logistic regression analysis when adjusted for age, gender, level of education, and type of school, as shown in Table 3.

Table 3. Association of risk behaviors with current alcohol use from the simple and multiple logistic regression analysis

	Simple logistic regression			Multiple logistic regression		
	p	OR	95%CI	*p*	aOR*	95%CI
Bullying involvement	0.10	0.85	0.71-1.03	0.55	1.07	0.86-1.33
Interpersonal violence	<0.001	2.93	2.48-3.46	<0.001	3.25	2.68-3.93
Cyber bullying involvement	<0.001	2.14	1.79-2.56	<0.001	2.06	1.68-2.53
Tobacco use	<0.001	27.36	21.63-34.59	<0.001	13.09	10.13-16.93
Marijuana use	<0.001	19.11	13.72-26.63	<0.001	6.83	4.78-9.75
Suicidal behaviors	<0.001	1.76	1.27-2.45	<0.001	2.04	1.40-2.97
Sexual behaviors problems	<0.001	2.21	1.45-3.36	<0.001	2.17	1.43-3.30

(OR = odds ratio; CI = confidence interval; aOR = adjusted odds ratio
*adjusted for age, gender, level of education, and type of school)

Discussion

The findings from this study showed a prevalence of lifetime alcohol use in 28.3% of adolescents of which approximately 18.6% had reported current use. The prevalence of alcohol use reported by Thai students from previous studies in 2008 and 2011 was 14.8% and 27.9%, respectively [14, 15]. Whether the trend of alcohol consumption in adolescents in Thailand is decreasing could not be determined because of different settings and distinctive study population. Compared with the findings from the U.S. 2015 Youth Risk Behavior Surveillance System report [20], U.S. adolescents were more likely than Thai adolescents to have drunk alcohol in the past 30 days (32.8% vs 18.6%) and also lifetime

alcohol drinking (63.2% vs. 28.3%).

The results of the survey showed that the rate of alcohol use increased with age and school years among adolescents. There were 3.7% of 7th grade students reported current uses of alcohol. The critical point of alcohol initiation was found to be around grade 10th. Any primary interventions that aim to decrease the start of alcohol consumption need to be implemented before this point. Males were more likely to be current alcohol drinkers than females so gender-specific preventative measures need to be considered. From previous studies, similar to those predicting alcohol uses, predictors of substance use are gender, ethnicity, school status, social connectedness, and parental monitoring and rule enforcement [18, 21]. Therefore, suggestions from this study are that intervention and prevention programs should be focused at adolescents with older age, male gender, and vocational schools.

Besides the high prevalence of current alcohol consumption in this study, the other health-risk behaviors were quite high too, including bullying, violence, risky sexual behaviors, and other substance use. It is well-documented that these health-risk behaviors are related to alcohol use[4]. Findings from the multiple logistic analyses in this study indicated a positive association between current alcohol used, and many risk behaviors. These findings are consistent with previous studies, which reported the association of alcohol use with sexual risk-taking, tobacco and other drugs use, violence, and suicidal attempts [2, 22-26].

Bullying was found to be quite prevalent in this study. In the study by Carlyle et al [27], it was found that there was a positive correlation between bullying and alcohol use. However, Nansel et al [28] reported negative association between alcohol use and being bullied. As those two studies described, alcohol use is more strongly associated with perpetrators than victims. Being bullied may more commonly lead to internalized behaviors especially depression than externalized behaviors like alcohol use. The results were consistent with the study by Mitchell et al [29], which showed a higher rate of alcohol use in the cyber bullied group (aOR = 3.5; 95%CI 2.0-6.1) and Peleg-Oren et al [30], which reported a higher rate of current alcohol drinking in cyber bullied victims in middle school (aOR 1.64; 95% CI 1.38-1.95).

The strength of this study is that it was based on a representative sample of students in the city and was designed by the epidemiologist. The web-based anonymous questionnaires increased the level of confidentiality for the adolescent participants, and the follow-up pages could provide educational intervention directly to the risk groups in an interactive manner. All underage alcohol users received education regarding the alcohol consequences as a brief intervention. There were 10.1% of the participants mailed this information to their mailbox, and 1.8% posted it on their social media link. This might be the next step for providing intervention directly benefits for the participants.

Some limitations need to be considered. Firstly, the cross-sectional nature of this study limits the ability to explore the direction of relationship between the predictor variables (alcohol used) and the outcomes (others health-risk behaviors). A longitudinal study is needed for assessment of the causality. Secondly, the data used in this study were self-reported, which might have responses biases due to social desirability. However, the web-based questionnaire is designed to report the results directly to the researchers via the Internet, bypassing the teachers. This should provide greater confidentiality and hence greater confidence than traditional questionnaires, which may cause the students more discomfort in reporting their risk behaviors. Thirdly, the school-based study data did not include adolescents who had dropped out of school so that the prevalence found in this study may be lower than the actual prevalence.

Conclusion

This study has found that a number of adolescents in Northern Thailand were current alcohol users. This can influence other health-risk behaviors. Efforts to prevent and control alcohol use should start at early age, especially focusing on high-risk groups, including adolescents of older age, male gender, and adolescents attending vocational schools as well as among those currently using alcohol.

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Conflict of interests

None

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