

## พฤติกรรมเสี่ยงทางเพศที่เกิดจากการบริโภคเครื่องดื่มแอลกอฮอล์ ในกลุ่มวัยรุ่นหญิง: การศึกษาแบบภาคตัดขวาง ภาคกลาง ประเทศไทย

### Alcohol Use and Sexual-risk Behaviors among Female Youths: a Cross-sectional Survey in Central Thailand

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#### บทคัดย่อ

การวิจัยแบบภาคตัดขวางระหว่างเดือนธันวาคม-กุมภาพันธ์ ในกลุ่มวัยรุ่นหญิง จำนวน 6,176 คน เขตภาคกลางของประเทศไทยนี้มีวัตถุประสงค์เพื่อศึกษาพฤติกรรมเสี่ยงทางเพศ ที่เกิดจากการบริโภคเครื่องดื่มแอลกอฮอล์ จำแนกเป็นกลุ่มที่บริโภคเครื่องดื่มแอลกอฮอล์เป็นเวลา 30 วันก่อนการวิจัย จำนวน 358 ราย และกลุ่มที่ไม่บริโภคเครื่องดื่มแอลกอฮอล์ จำนวน 5,818 ราย เก็บรวบรวมข้อมูลจากกลุ่มตัวอย่าง โดยให้ตอบแบบสอบถามด้วยตนเอง ไม่ระบุชื่อผู้ตอบ ระหว่าง ธันวาคม 2550 ถึงกุมภาพันธ์ 2551 สถิติเชิงพรรณานำมาใช้ในการวิเคราะห์ข้อมูล และสถิติเชิงวิเคราะห์ ได้แก่ ไคสแควร์ สถิติถดถอยเชิงพหุ โลจิสติก ผลจากการวิจัยพบว่า วัยรุ่นหญิงบริโภคเครื่องดื่มแอลกอฮอล์ ร้อยละ 5.79 และผลจากการวิเคราะห์ข้อมูลด้วยสถิติ ถดถอยเชิงพหุ โลจิสติก หลังจากควบคุมปัจจัยภายนอก คือ คุณลักษณะทั่วไปและสังคม พบว่า ปัจจัยพฤติกรรมเสี่ยงทางเพศ ที่มีความสัมพันธ์กับการบริโภคเครื่องดื่มแอลกอฮอล์ในปัจจุบัน ได้แก่ การถูกบังคับให้ร่วมเพศด้วย การมีเพศสัมพันธ์ การบริโภคเครื่องดื่มแอลกอฮอล์หรือเสพยาเสพติดก่อนร่วมเพศครั้งสุดท้าย การไม่สวมถุงยางอนามัยในการร่วมเพศครั้งสุดท้าย และการไม่รับประทานยาคุมกำเนิดก่อนร่วมเพศครั้งสุดท้าย ( $p < 0.05$ ) จากผลการวิจัยบ่งชี้ว่า ควรมีการจัดโปรแกรมในการป้องกันพฤติกรรมเสี่ยงทางเพศ ที่เกิดขึ้นจากการบริโภคเครื่องดื่มแอลกอฮอล์ และการรณรงค์ที่เน้นกลุ่มที่ได้รับความเสี่ยง และมีการดำเนินงาน โดยได้รับความร่วมมือจากผู้ปกครอง ทางโรงเรียน และพลังในชุมชน เช่น การให้ความรัก ความเอาใจใส่ การให้ความรู้ ความเข้าใจ เกี่ยวกับข้อเสียและผลกระทบจากการบริโภคเครื่องดื่มแอลกอฮอล์ และการให้ความรู้เกี่ยวกับเพศศึกษาและการป้องกันพฤติกรรมเสี่ยงทางเพศ ที่เกิดจากการบริโภคเครื่องดื่มแอลกอฮอล์ของวัยรุ่นหญิง ทั้งในระยะสั้นและยาวอย่างต่อเนื่อง

**คำสำคัญ** ; การบริโภคเครื่องดื่มแอลกอฮอล์ พฤติกรรมเสี่ยงทางเพศ วัยรุ่นหญิง ภาคกลาง ประเทศไทย

#### Abstract

A cross-sectional study was conducted with 6,176 female youths in central Thailand between December 2007 and February 2008 to explore the association between alcohol use and sexual-risk behaviors classified into 2 groups according to their alcohol drinking in the previous 30 days (yes = 358, no = 5,818). Information was collected by an anonymous self-administered questionnaire from December 2007 to February 2008. Descriptive statistics, a chi-square test and multiple logistic regression were performed to analyze the data. Of all respondents, 5.79% admitted to drinking alcohol. Multiple logistic regression analysis, after adjusting for socio-demographic factors, revealed that

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sexual behavioral factors were associated with current alcohol consumption: forced coitus, had coitus, alcohol or drug use before last coitus, no condom use during last coitus and no birth control before last coitus ( $p < 0.05$ ). An alcohol prevention program and effective intervention strategies should focus on vulnerable groups and cooperate with parents, schools and community efforts among adolescents (such as maintaining their love and attention, providing knowledge of disadvantages and impacts of alcohol drinking including sex education and prevention) should be implemented to prevent underage alcohol consumption and other adverse short-term and long-term consequences.

**Keywords:** Alcohol use, Sexual-risk behaviors, Female youths, Central Thailand

## Introduction

Agreement is widespread that healthy youth are seriously threatened by alcohol use. The World Health Organization (WHO) estimates that the worldwide per capita consumption of alcoholic beverages (people aged  $\geq 15$  years) in 2005 equaled 6.13 liters of pure alcohol while Thai people consumed 5-7.49.<sup>1</sup> Therefore, the major alcoholic risk groups were working people and youths. In 2007, the National Statistical Office of Thailand found 8.8% of Thai females  $\geq 15$  years old consumed alcohol. The proportion of female alcohol consumption at age 25-59 years was 11.2 %, 15-24, years 3.9% and over 60 years, 4.6%,<sup>2</sup> The proportion of female drinkers increased from 9.5% in 1991 to 14.5% in 2003, but dropped to 9.1% in 2006 and 8.8% in 2007, after that drinking consumption rate was slightly increasing to 10.8% in 2009.<sup>2,3</sup> From 1996-2006, the proportion of female drinkers rose in all age groups, particularly those aged 15-19 years (1.0 to 2.9%).<sup>3</sup> Furthermore, at the end of 2011, more than 2,000 illegally aborted fetuses were recovered at the Phai-nguern Chotinaram temple in central Bangkok.<sup>4</sup> One of the morticians of the temple confessed that he received these fetuses from illegal abortion clinics. Inappropriate sexual activities lead to unwanted or unintended pregnancies, which finally caused several unsafe abortions. These events worsen the youths' future. Two risk behaviors, alcohol consumption and early initiation of sexual intercourse (ISI), can have devastating consequences for youth<sup>5</sup>.

A few studies of sexual-risk behaviors and their association with alcohol use among female youths in Thailand have been undertaken, and a better understanding

of them is essential for planning intervention to solve this problem. The aim of this study was to determine the association between current alcohol use and sexual-risk behaviors among female youths in central Thailand.

## Materials and Methods

### Study Design and Population

A cross-sectional study was conducted from December 2007 to February 2008 to ascertain current alcohol use and sexual-risk behaviors among female youths focusing on 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) and informed consent was sought from parents (with student assent). Parental consent and student assent were required for participation if the student was aged  $< 18$  years, whereas students aged  $\geq 18$  years could personally consent. A two-stage stratified sampling technique was used to select the 6,176 students from ten provinces of central Thailand. These provinces were randomly selected from 3 educational areas, not including Bangkok or its adjacent provinces because they actually had various educational characteristics which differed from other central provinces and represented the socio-demographic characteristics of female adolescents in central Thailand. The selection of schools was based on a list of schools obtained from the Provincial Education Offices. Altogether, 6,176 students were the representative of secondary school students from Mathayomsuksa Schools (MS) grades 1, 3 and 5 participated in the study (equivalent to grade 7, 9 and 11 of high school). In each

school, three or less classes of each of these three educational levels were recruited at the same grade level. If more than three classes enrolled, three classes with students of mixed academic performance were randomly selected by their teachers. By virtue of being enrolled in a selected class, all students in the class were eligible to participate. The subjects were classified into two groups according to their alcohol intake in the previous 30 days preceding the survey (yes = 358, no = 5,818). Information was collected by an anonymous self-administered questionnaire consisting of three parts, socio-demographics, sexual-risk behaviors and alcohol consumption behavior during the past month was performed by trained health staff who were the researcher's assistants. Participants were asked to estimate how many alcoholic drinks they normally consumed each time, on how many occasions they drank alcohol in the last four weeks, how many times in the past month they consumed five standard glasses or more etc. Current alcohol use was defined as consuming at least one standard drink of an alcoholic beverage during the previous 30 days of the survey. A standard drink was defined as a can (330 cc) of beer, a glass (100 cc) of wine, or a small glass (30 cc) of whisky or spirits. The health-risk behaviors questionnaire was modified from the questionnaire of the U.S. Youth Risk Behavior Surveillance System<sup>6-8</sup> and focused on sexual-risk behaviors. The Thai version was translated and verified by a bilingual English university lecturer and reviewed by the experts (consisting of psychiatrists, psychologists, nurses, social workers, school teachers and health promotion specialists). It was evaluated, tried out and modified to better suit Thai students' context. Details of the study including the right to refuse to participate without any effect were explained before completing the questionnaire, and informed consent forms were signed by all the participants. The main reason for non-response was absenteeism on the day of

the survey. Participants self-administered the paper and pencil survey during one class period, taking approximately 30 minutes to complete. Individual answers were kept confidential.

### Data Analysis

Sociodemographic factors were given as a percentage, crude odds ratio, 95% CI of OR and p-value. Unadjusted analysis or univariate analysis was performed using Pearson's chi-square test to differentiate proportional exposures between the alcohol consumers and the non-consumers for categorical variables. Multiple logistic regression was used to estimate the adjusted odds ratio and the 95% CI of OR as measures of associations including identifying and adjusting confounding variables. Assessment of the statistical significance of each independent variable was considered at p-value < 0.05 analyzed using the SPSS (version 18 for Windows) statistical package.

### Results

In all, 358 students (5.79% of the total sample) were self-identified as current alcohol consumers. Mean age was 14.91 years (range 11-21). Most of them were younger than 15 years old (40.37%). Their educational level ranged from 31% in MS 1 to 37% in MS 5. The majority of study subjects had a GPA of >3.0 (56.06%) and 2.0-3.0 (39.77%). Current alcohol consumption prevalence increased with increasing age (3.45% of < 15 year-olds vs. 6.52% of ≥17 years) and grade level (3.26% among 7<sup>th</sup> graders vs. 6.98% among 11<sup>th</sup> graders).

Using univariate analysis, the six socio-demographic factors significantly associated with alcohol consumption (p < 0.05) were age group, educational level, residence, GPA, part time job, and family members with alcohol/drug problems (Table 1).

**Table 1** Unadjusted association between sociodemographic factors and current drinking of female high school students

Variables	Nondrinker/total	%drinker	Crude OR	95%CI	p-value <sup>a</sup>
Age group (y) (n = 6176)					
< 15	86/2493	3.45	1		
15-16	158/1934	8.17	2.49	1.89-3.29	< 0.001 <sup>a</sup>
≥17	114/1749	6.52	1.95	1.45-2.63	< 0.001 <sup>a</sup>
Mean (SD)	14.91 (1.77)				
Median (QD)	15.00 (2.00)				
Min-Max	11-21				
Educational level (n = 6176)					
MS 1	64/1964	3.26	1		
MS 3	134/1921	6.98	2.22	1.62-3.05	<0.001 <sup>a</sup>
MS 5	160/2291	6.98	2.22	1.63-3.02	<0.001 <sup>a</sup>
Religion (n = 6158)					
Buddhism	351/6051	5.80	1		
Islam	4/44	9.09	1.62	0.49-4.75	0.332 <sup>b</sup>
Others	1/63	1.59	0.26	0.01-1.94	0.267 <sup>b</sup>
Residence (n = 5559)					
House/Apartment of family	307/5502	5.58	1		
School dormitory	6/38	15.79	3.16	1.18-7.98	0.006 <sup>b</sup>
Private dormitory	4/19	21.05	4.49	1.25-14.53	0.004 <sup>b</sup>
Cohabitant (n = 5931)					
Parent	286/5049	5.66	1		
Relative	52/819	6.35	1.13	0.82-1.54	0.435 <sup>a</sup>
Friend	3/30	10.00	1.85	0.44-6.40	0.242 <sup>b</sup>
Alone	2/32	6.25	1.11	0.26-4.67	0.703 <sup>b</sup>
Grade point average (n = 5371)					
<2.0	25/224	11.16	1.59	1.01-2.53	0.040 <sup>a</sup>
2.0-3.0	158/2136	7.40	1		
>3.0	154/3011	5.11	0.67	0.53-0.85	<0.001 <sup>a</sup>
Mean (SD)	3.08 (0.59)				
Median (QD)	3.11 (0.44)				
Min-Max	1.00-4.00				
Part time job (n = 6087)					
No	266/4896	5.43	1		
Yes	88/1191	7.39	1.39	1.07-1.79	0.009 <sup>a</sup>
Family members with alcohol/drug problems (n = 5561)					
No	143/3165	4.52	1		
Yes	190/2396	7.93	1.82	1.45-2.30	<0.001 <sup>a</sup>

<sup>a</sup> Pearson's chi-square test, <sup>b</sup> Fisher's exact test, OR = odds ratio, CI = confidence interval.

MS 1 = 1<sup>st</sup> year of secondary school (equivalent to 7<sup>th</sup> grader), MS 3 = 3<sup>rd</sup> year of secondary school (equivalent to 9<sup>th</sup> grader), MS 5 = 5<sup>th</sup> year of secondary school (equivalent to 11<sup>th</sup> grader).

The multivariate analyses showed that after adjustment (six socio-demographic factors), compared with non- consumers, coitus forced (OR = 2.98, 95% CI = 1.49–5.97), higher proportions of having coitus (OR = 3.94, 95 % CI = 2.76–5.63), alcohol or drug use before

last coitus (OR = 4.23, 95 % CI = 1.67–10.75), no condom use during last coitus (OR = 3.16, 95 % CI = 1.31–7.69) and no birth control before last coitus (OR = 2.08, 95 % CI = 1.06–4.10) were found among current consumers than non-consumers as shown in Table 2.

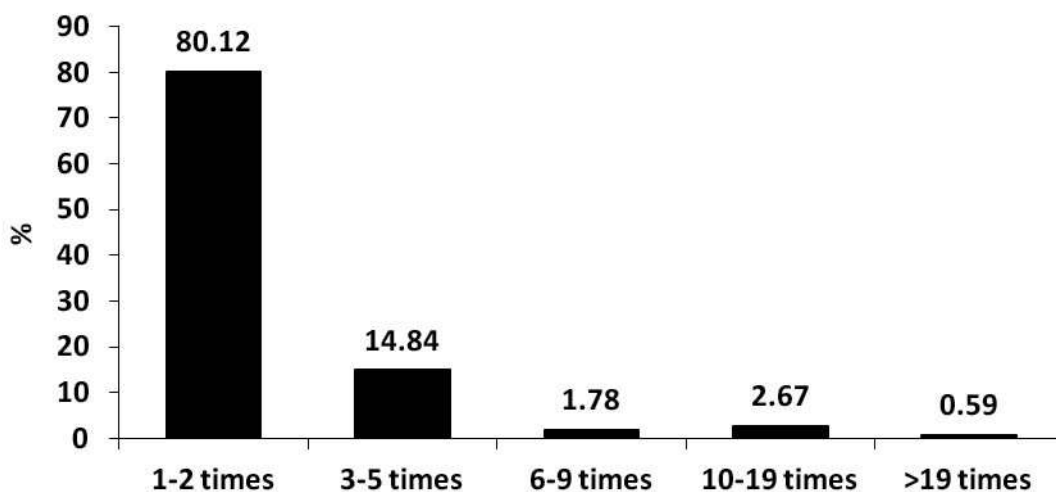
**Table 2** Percent, crude OR and adjusted OR of sexual-risk behaviors among female high school students according to drinking status

Sexual-risk behaviors	All Respondent (n = 6176)	Nondrinkers (5818)		Current drinkers (n = 358)				p-value
	%	%	Adjusted OR <sup>a</sup>	%	Crude OR	Adjusted OR	95%CI	
Forced coitus	4.69	3.74	1	11.35	3.29	2.98	1.49-5.97	0.002
H coitus	4.09	3.27	1	17.58	6.33	3.94	2.76-5.63	<0.001
Had ≥ 4 sex partners during lifetime	12.21	12.50	1	11.29	0.89	1.09	0.40-2.92	0.867
Alcohol or drug use before last coitus	8.48	5.66	1	20.00	4.17	4.23	1.67-10.75	0.002
No condom use during last coitus	49.72	46.76	1	59.52	1.69	3.16	1.31-7.69	0.011
No birth control use before last coitus	34.81	33.04	1	40.91	1.41	2.08	1.06-4.10	0.033
Have been pregnant	5.83	4.72	1	10.96	2.49	1.73	0.57-5.24	0.333

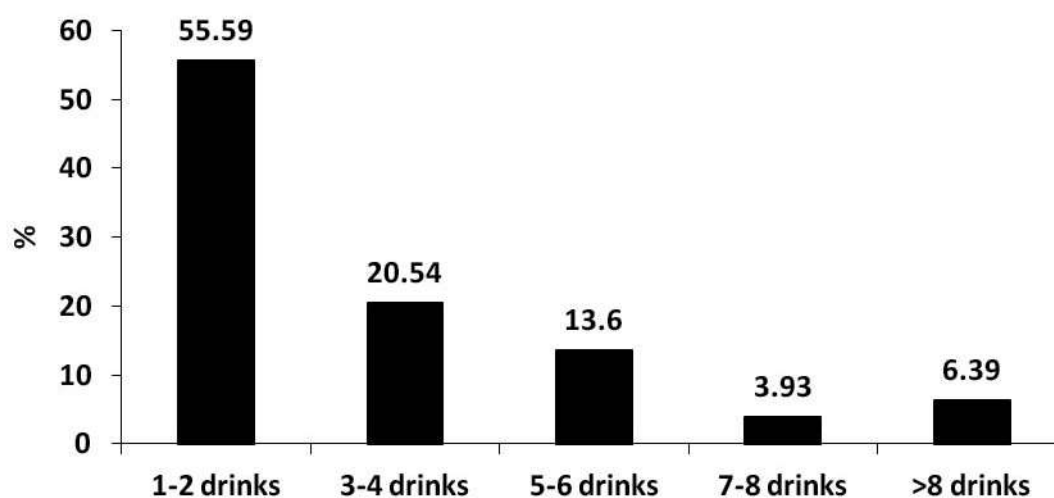
<sup>a</sup> Adjusted for age gr., educational level, residence, GPA, part time job and family members with alcohol/drug problems

The majority of girls consumed alcohol less than three times a month (80.12 %) and they each consumed less than three standard drinks in the past 30 days (55.59 %). Average age of first drinking was 13.76 years (SD

2.13). Approximately 20% of girls consumed more often than twice a month and 44% of them consumed more than two standard drinks each time, as shown in Figures 1 and 2.



**Figure 1** Frequency of drinking in the previous month



**Figure 2** Quantity of drinking each time in the previous month

**One unit of standard drink is equal to 8-13 grams of ethanol**

## Discussion

Of the 6,176 students polled, 358 (5.79%) were classified as current consumers. This result may be an underestimate of alcohol consumption by these girls since they probably don't always admit the extent of their habits. One of the reasons may be that they were afraid of punitive consequences from their parents or teachers, despite the fact that they had been assured that personalized information would not be reported.<sup>9</sup> The present study found an increased risk of sexual-risk behaviors, including premature sexual behaviors among alcohol consuming and non-consuming students that caused important health problems. Our findings demonstrated that approximately 6% of participants reported that they consumed alcohol at least one drink during the 30 days preceding the survey. Adolescence is a vulnerable period and facilitates the start of risk behaviors, for instance consuming alcohol, cigarette smoking and other substance abuse etc. This study confirmed that older girls consumed alcohol more than the younger ones<sup>10-14</sup>. Non-consumers had lower rates of sexual-risk behaviors compared with current consumers. This study also confirmed that current alcohol use is associated with being forced coitus<sup>15</sup>. Women also experience unique negative social consequences of alcohol use that impact health, from increased risk of domestic violence and

stigma<sup>10,11</sup>. Heavy drinking may cause people to become drunk where they cannot control their consciousness, especially among females. Even though females drink the same amount of alcohol as males, they will have less tolerance to alcohol. Therefore, females will become drunk more easily than males. When females drink alcohol in private places or with strangers they may encounter problems and are at risk for having social stigma where they have to drop out from school because they became pregnant. Alcoholic drinks stimulate the sexual desire of women and men. After drinking, their desire becomes more intense. Therefore, when women and men consume alcohol together, this desire would be more likely to cause problems than when they consume separately. In sexual-risk behaviors, this study also confirmed that higher levels of alcohol consumption were associated with having coitus, alcohol/drug use before last coitus, no condom use during last coitus and no birth control use before last coitus<sup>12,16,17-20</sup>. Problematic is also number of adolescents who regularly consume alcohol. One study indicated about one fourth are likely to develop or continue risky alcohol consumption in their adult life with possible alcohol-related problems<sup>21,22</sup> such as teenage pregnancy, unsafe abortion, obstructed labor and other complications at childbirth. Most of these problems can be relieved and prevented if they receive appropriate interventions from

a skilled health worker, adequate equipment, drugs and medicines, access to reliable information, compassionate counseling, and services for the prevention of subsequent unintended pregnancy and management of complications.

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 sexual-risk behaviors. Moreover, the data collection in the classroom might exclude students who are often absent from class or those who developed serious alcohol-related problems and dropped out of school<sup>23</sup>. A longitudinal study is needed to examine causal effects of alcohol consumption on subsequent drinking. Second, all data were obtained through self-reports, which may lead to variation with both of the number of standard drinks consumed and sexual-risk behaviors<sup>24-27</sup>.

The results suggested that effective intervention strategies among female adolescents should be implemented to prevent underage consumption of alcohol. Limiting youth access (namely, adequate enforcement of the minimal legal drinking age, increased alcohol excise taxes, reduced exposure to alcohol advertising and marketing, implementation of comprehensive community-based programs to prevent drinking, development of a national media campaign to reduce risky drinking etc.) to alcohol has reduced underage alcohol use and alcohol-related problems<sup>28,29</sup>. The family institution is the first place to promote immunity against alcoholic drinks/drug use, to develop the love and warmth in their adolescents that are necessary for children's intelligent and emotional development including serving as appropriate role models for proper practices. Ramirez-Valles and coworkers proposed time spent with the mother correlated to delaying first coitus among female adolescents<sup>30</sup>. In addition, a policy for the development of prevention programs aimed to reduce alcohol use and integrating the programs in the curriculum in formal education should be initiated. One study presented findings from a pilot study of Prime Time, a clinic-based youth development intervention to reduce sexual risk behaviors among girls at risk for early pregnancy<sup>31</sup>. Moreover, a policy advocat

ing for safety environments in multiple settings against alcohol use, such as strict enforcement of selling liquor, prohibiting alcohol sales near schools and increasing alcohol taxes to their maximum levels should be promoted<sup>28,29, 32</sup>. A study suggested that online social networking and the topics discussed on these networks can potentially increase and decrease sexual risk behaviors depending on how the networks are used. Developing sexual health services and interventions on online social networks could reduce sexual risk behaviors<sup>33</sup>.

## Conclusion

The increased risk of sexual-risk behaviors was higher among students consuming alcohol leading to various health problems. The results suggested that effective intervention strategies among adolescents should be implemented to prevent underage drinking. Results indicate that a drinking prevention program is needed. Effective intervention strategies should focus on vulnerable groups. Parents should be encouraged to take a more active role by giving advice to their children and addressing the issue of abstaining from alcohol use. Similar programs sponsored by schools and public health information would also be helpful. School is very much a part of the lives of youth, and therefore, the relationship they have with their school experience is important and may influence their involvement in risk behaviors. Feeling connected to school is a positive asset that can protect youth from such risky behaviors as sexual initiation and alcohol consumption<sup>5</sup>. Legislative measures specifically addressing the legal drinking age and then enforcement of that law using heavy penalties and fines for both consumers and providers would help to curb use. Moreover, sex education and prevention of other sexual related problems should be provided appropriately. However, underage drinking cannot be successful by focusing on adolescents alone; the efforts need to focus on both youths and adults.

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#### Declaration of Conflicting Interests

The authors declare no conflicts of interests with respect to the authorship and/or publication of this article.

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