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A Peer-drinking Group Motivational Intervention among Thai Male Undergraduate Students

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Abstract

Background—Excessive alcohol consumption, particularly among young males, is an important global health problem, in part because of the increased risks of intentional and non-intentional injuries, uses of illicit drug, crime, and psychiatric disorders. There are no data available to evaluate the extent to which interventions are effective in reducing hazardous/harmful alcohol consumption among young males in Thailand. We examined the efficacy of alcohol harm reduction strategies administered as a peer-drinking group motivational intervention (PD-GMI) among Thai male undergraduates.

Methods—We used a quasi-experimental study design that included two student groups assessed at baseline and at two time points post-intervention. Participants were students enrolled in two public universities and who reported alcohol consumption during the current academic year. Students in one university were assigned to an assessment-only study group (n=110); and students in the other university were assigned to a 2-hour PD-GMI (n=115). This intervention was designed to (1) increase the awareness of risks associated with hazardous/harmful alcohol consumption; (2) enhance students' motivation to change their drinking behaviors; and (3) encourage harm reduction strategies during episodes of alcohol consumption. Alcohol consumption and adverse consequences were assessed using the Alcohol Use Disorders Identification Test (AUDIT) and the Rutgers Alcohol Problem Index (RAPI).

Results—Students receiving the intervention had significant reductions in mean AUDIT scores; 50.4% at baseline to 1-month and 61.2% at baseline to 3-month post-intervention. Their mean RAPI scores were also reduced; 42.0% at baseline to 1-month and 42.9% at baseline to 3-month post-intervention. Reductions in alcohol consumption and the prevalence of harmful alcohol consumption patterns were statistically significant among students in the intervention group versus those in the control group. The reductions remained after adjustments for baseline differences.

Conclusions—These results suggest the efficacy of the PD-GMI intervention for reducing alcohol consumption and adverse consequences among Thai male students.

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Keywords

alcohol; harm reduction; group motivational intervention; students; Thailand

Background

Excessive alcohol consumption, particularly among young males, is an important global health problem (Room et al., 2003) that contributes to increased risks of disability and premature deaths, sexual abuse, chronic physical and psychiatric disorders (Foxcroft et al., 2009). Social and developmental factors are thought to contribute to high rates of alcohol consumption among university students in Africa, Asia, Australia, Europe, and South America (Hernandez et al., 2006; Karam 2007). Moreover, excessive alcohol consumption has been associated with impaired academic performance, personal and social problems among university students (Park & Grant, 2005; White, 2006). The prevalence of alcohol consumption, including excessive alcohol consumption, is known to be high among undergraduates in Thailand (Rojanasang, 2007; Thananta, 2007). Collectively, studies of Thai students and others around the globe (Stimson et al., 2007; Neighbors et al., 2008) suggest that alcohol consumption is influenced by the drinking habits of their peers. Some studies conducted among students enrolled in universities in the United States (Hernandez et al., 2006; Stimson et al., 2007) and the United Kingdom (Bewick et al., 2008) suggest that intervention programs that impact students' perception and understanding of their drinking habits and those of their peers may reduce harmful alcohol consumption patterns. We examined the efficacy of alcohol harm reduction strategies administered as a peer-drinking group motivational intervention (PD-GMI) among Thai male undergraduates.

Methods

This study used a quasi-experimental study design involving two student groups with assessments at baseline and at two follow-up periods. Participants were recruited from among students enrolled in two public universities and who reported alcohol consumption during a three month period using the Alcohol Use Disorders Identification Test (AUDIT). *We a priori* designated one university as the site for administering the intervention and the other served as the site for the control group. We selected 115 male who reported alcohol consumption and those who reported drinking with a steady group of friends (i.e., peer-drinking group) in one university to serve as the intervention group, the PD-GMI group. From the second university, we selected 110 male who reported alcohol consumption and those who reported drinking with a steady group of friends to serve as the control group. Students with a history of alcohol dependence and those enrolled in other behavioral intervention program were ineligible for either study group. All participants received non-financial (health information) and financial (US\$3.00 for transportation) incentives.

The PD-GMI, 2-hour alcohol harm reduction intervention used in the present study employs a menu of topics for discussion based on qualitative data obtained from male undergraduates in three focus groups discussion (Pensuksan, 2008), and a brief motivational intervention (BMI) program. The BMI has been used in previous alcohol harm reduction intervention studies (Michael et al. 2006; LaBrie et al. 2007a; LaBrie et al. 2008). Groups of 8-12 students were invited to meet research personnel in a private room after completing the baseline interview. These group meetings were led by a trained male nurse facilitator. During the intervention session, students were invited to discuss the details of their drinking behaviors. Students were encouraged to engage in guided discussions about how alcohol consumption contributes to physiological and neurobehaviorial changes including addiction. They were also encouraged to examine their own alcohol consumption patterns and

consequences experienced. Students were then guided through discussions that helped them explore the pros and cons of their current drinking habits and the desirability of their taking steps to curb problem drinking. Subsequently, the facilitator guided students through open discussions about peer-drinking group behaviors and group-level reasons for promoting safe alcohol consumption levels. These discussions included the identification and exploration of activities that may be used to facilitate the reduction of harmful/hazardous alcohol consumption personally and among their drinking-group peers. Students were then encouraged to record personal and group commitments, goals, and activities that they would undertake to curb their alcohol consumption on personal commitment card.

We used the AUDIT (WHO, 2001) to assess alcohol use. Students recalled their alcohol use for the 3-month period preceding the baseline interview, and 1 and 3 months post-intervention. We used the Rutgers Alcohol Problem Index (RAPI) (Fearer, 2004) to assess the physical and psychological consequences of drinking alcohol. We used the Drinking Self-Regulation Strategies (DSRQ) modified version (Williams, 2003; Fearer, 2004) to evaluate students' drinking self-regulation strategies (cognitive, behavioral, and environmental strategies) used to avoid drinking heavily.

Student's *t*-test and Chi-square test statistics were used to examine study group differences at baseline. The effect of the intervention was evaluated using paired sample *t*-test on reported outcome measures scores separately. Between group differences at each time point were examined using analysis of covariance adjusting for confounders measured at baseline. All study procedures were reviewed and approved by the University's Ethical Clearance Committee on Human Rights Related to Researches Involving Human Subjects. Participating students provided written informed consent.

Results

Baseline characteristics of students in the two groups are summarized in Table 1. Mean baseline AUDIT and RAPI scores were higher, and DSRQ scores were lower for students in the intervention group compared with those in the control group (Table 1).

Table 2, shows mean baseline, 1 and 3-month post-intervention outcomes measures scores. Students in the intervention group had a 50.36% ($p<0.001$) in mean AUDIT scores at 1 month post-intervention. A 61.15% ($p<0.001$) reduction in mean AUDIT scores was noted 3-month post-intervention. Students in the control group had a 7.54% increase in their mean AUDIT scores at 3-month post-intervention ($p<0.02$). Students in the intervention group had a 41.96% ($p<0.001$) and 42.86% ($p<0.001$) reduction in their mean RAPI scores at 1 and 3-month post-intervention, respectively. However, students in the control group had a 10% ($p<0.01$) and 12.50% ($p<0.001$) reduction at 1 and 3-month post-intervention, respectively. With regards to the DSRQ scores, students in the intervention group had a 8.93% ($p<0.02$) and 14.88% ($p<0.001$) increase in their mean DSRQ scores at 1 and 3-month post-intervention, respectively. Students in the control group had a 8.90% decreases at the 3-month period of follow-up ($p<0.02$). Table 3, summarizes changes in alcohol consumption patterns over the course of the study.

ANCOVA results (Table 4) indicated that AUDIT and RAPI scores at all post-intervention time points were significantly lower for students in the intervention group compared with the control group, controlling for scores at baseline and other covariates. Additionally, a significant group and time interaction during each phase, baseline to 1-month, $F(1,224)=21.79, p<0.001$; baseline to 3-month, $F(1,224)=60.90, p<0.001$ was observed for AUDIT scores, and baseline to 1-month, $F(1,224)=6.04, p<0.02$; baseline to 3-month,

$F(1,224)=6.46, p<0.02$ for RAPI scores. There were no significant interactions in DSRQ scores. The medium effect size of the intervention program was found in Table 4.

Discussion

This is the first study to evaluate alcohol harm reduction strategies, administered as the PD-GMI, among Thai male undergraduates. The PD-GMI used in this study resulted in statistically significant reductions in alcohol consumption and adverse consequences of alcohol use. This intervention was designed to increase the awareness of risks associated with hazardous/harmful alcohol consumption, enhance students' motivation to change their drinking behaviors, and encourage harm reduction strategies during episodes of alcohol consumption.

The PD-GMI implemented the principle of motivational interviewing which includes specific protocols for promoting participants' self-efficacy and motivation for changing their drinking behaviors. These techniques were facilitated by having groups of students who were well known to each other, and thus comfortable with engaging in candid discussions about their current alcohol consumption behavior patterns, adverse consequences, and positive outcomes. The group MI-based atmosphere provided students with the opportunity and means to discuss their attitudes and concerns maintaining friendships while changing their alcohol consumption patterns.

Numerous studies have shown that a single intervention group session can change behaviors and efficiently reduce heavy drinking among male and female university students 1-3 months after the intervention (Micheal et al., 2006; LaBrie et al., 2007b; LaBrie et al., 2008). For example, a 51% reduction alcohol consumption was reported by LaBrie et al., (2007b) in their study of male college students. Collectively, findings indicate that the PD-GMI can contribute to reductions in alcohol consumption and adverse consequences in peer-drinking groups with varying demographic and academic characteristics. The magnitude of reductions in harmful drinking observed in our cohort is larger than previous reports (i.e., 94.12% in our present study versus a range of 37-57% in prior studies). Reasons for the differences in magnitude are unknown. We speculate the personal commitment cards, provided to students enrolled in our study served to reinforce the intervention and effectively motivated behavior change. However, our results have to be confirmed in larger studies conducted in Thailand.

The strengths of our study include the complete follow-up of enrolled subjects and implementation of strategies designed to enhance compliance with the intervention and control protocols (e.g., multiple reminders about appointments and opportunities for rescheduling appointments). Our study also implemented an innovative intervention which utilized peer-drinking group motivational interviewing, and harm reduction techniques. Students in each peer-drinking group were from many levels of alcohol consumption drinking scales and severity, and from multiple academic seniorities. Several study limitations merit discussion. First, this investigation was limited to 3-month post-intervention follow-up. Additional trials are needed to determine its stability and to test strategies to strengthen and maintain the long term benefits of the intervention. Moreover, booster sessions are required to help sustain the benefits of the intervention. Second, the quasi-experimental approach did not succeed in creating equivalence between study groups. This important limitation hinders causal inferences. Multi-site studies with block randomization of enrolled subjects across each site will overcome this limitation in future studies. Third, our reliance on self-reports for determining students' drinking behaviors are prone to error. However, self-reports are the most common method used to obtain alcohol use data, and can provide accurate information (Reilly & Wood, 2008; Turrisi et al., 2009).

To mitigate the impact of recall bias, we provided students with assurances of anonymity and confidentiality. We also used multiple validated data collection instruments to assess students' alcohol consumption habits.

This study has implications for intervention efforts among male undergraduates. If our results are confirmed in larger study populations, public health and health care providers should consider implementing programs such as this one, as part of an overall alcohol harm reduction strategy.

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Table 1
Subjects' Demographic Characteristics at Baseline

Variables	Numbers (%)			P-value
	Total (N = 225)	Intervention Group (n = 115)	Control Group (n = 110)	
Age at First of Alcohol Use (mean, SD)	15.30 (2.58)	15.54 (2.29)	15.05 (2.84)	0.16
Age at the present				
18-20	123 (54.67)	51 (44.3)	72 (65.5)	0.16
21	102 (45.33)	64 (55.7)	38 (34.5)	
Religious Affiliation				
Buddhism	215 (95.56)	110 (95.7)	105 (95.5)	0.94
Muslim	10 (4.44)	5 (4.3)	5 (4.5)	
Program of Study				
Sciences & Health Sciences	190 (84.44)	90 (78.3)	100 (90.9)	0.01
Technology & Social Sciences	35 (15.56)	25 (21.7)	10 (9.1)	
Academic Seniority				
First to Second year	150 (66.67)	66 (57.4)	84 (76.4)	0.01
Third year and above	75 (33.33)	49 (42.6)	26 (23.6)	
Grade Point Average				
< 2.5	163 (72.44)	88 (76.52)	75 (68.18)	0.16
2.5	62 (27.56)	27 (23.48)	35 (31.82)	
Number of Friends Living as Dormitory Roommates				
1-3	201 (89.33)	95 (82.61)	106 (96.36)	0.82
Higher than 3	9 (4)	5 (4.35)	4 (3.64)	
Perceived Adequacy of Income				
Adequacy	205 (91.11)	104 (90.4)	101 (91.8)	0.72
Inadequacy	20 (8.89)	11 (9.6)	9 (8.2)	
Problems Experienced due to Alcohol Consumption in Past 6 Months				
Ever	81(36)	57 (49.6)	24 (21.8)	0.001
No	144 (64)	58 (50.4)	86 (78.2)	
Smoking Behaviors				
Current	90 (48)	58 (50.4)	32 (29.1)	0.001
No	135 (60)	57 (49.6)	78 (70.9)	
Baseline Outcomes Measures (mean, SD)				
AUDIT scores		12.33 (7.02)	9.55 (5.6)	0.01
RAPI scores		1.12 (0.45)	0.80 (0.32)	0.001
DSRQ scores		1.68 (0.59)	1.91 (0.66)	0.01

Note. AUDIT: Alcohol Use Disorders Identification Test; RAPI: The Rutgers Alcohol Problem Index; DSRQ: Drinking Self-Regulation Strategies

Table 2
Outcomes Comparison within Group; Intervention and Control group

Variables	Intervention group (n = 115) Mean (SD)			Control group (n = 110) Mean (SD)		
	Time			Time		
	Baseline	1 month	3-month	Baseline	1 month	3-month
AUDIT Scores	12.33 (7.02)	6.12 (5.22) ^{a†}	4.79 (4.0) ^{b†, c†}	9.55 (5.6)	10.14 (5.82)	10.27 (5.3) ^{b*}
RAPI Scores	1.12 (0.45)	0.65 (0.26) ^{a†}	0.64 (0.21) ^{b†}	0.80 (0.32)	0.72 (0.27) ^{a†}	0.70 (0.23) ^{b†}
DSRQ Scores	1.68 (0.59)	1.83 (0.71) ^{a*}	1.93 (0.77) ^{b†}	1.91 (0.66)	1.86 (0.72)	1.74 (0.66) ^{b*}

Note. AUDIT: Alcohol Use Disorders Identification Test; RAPI: The Rutgers Alcohol Problem Index; DSRQ: Drinking Self-Regulation Strategies.

^aBaseline to 1-month FU;

^bBaseline to 3-month FU;

^c1-month FU to 3-month FU, P-value from paired T-test:

[†] $p < 0.001$,

[‡] $p < 0.01$,

^{*} $p < 0.02$

Table 3
Drinking levels based on AUDIT score within Group; Intervention and Control group

Categories of Drinking Levels Based on AUDIT Score	Intervention group (n = 115) Numbers (%)			Control group (n = 110) Numbers (%)		
	Time			Time		
	Baseline	1 month	3-month	Baseline	1 month	3-month
Low Risk Drinking (Score 0-7)	35 (30.4)	70 (60.9) ^{a†}	92 (80.0) ^{b†} , c [†]	44 (40.0)	40 (36.4)	39 (35.5)
Hazardous Drinking (Score 8-15)	45 (39.1)	42 (36.5)	21 (18.3) ^{b‡} , c [†]	49 (44.5)	52 (47.3)	53 (48.2)
Harmful Drinking (Score 16-19)	17 (14.8)	1 (0.9) ^{a†}	1 (0.9) ^{b†}	13 (11.8)	9 (8.2)	13 (11.8)
Alcohol Dependence (Score 20)	18 (15.7)	2 (1.7) ^{a†}	1 (0.9) ^{b†}	4 (3.6)	9 (8.2) ^{a**}	5 (4.5) ^{c**}

Note.

^a Baseline to 1-month FU;

^b Baseline to 3-month FU;

^c 1-month FU to 3-month FU, P-value from paired T-test:

[†] $p < 0.001$,

[‡] $p < 0.01$,

^{**} $p < 0.03$,

^{*} $p < 0.05$

Table 4
ANCOVA results: Intervention and Assessment-only condition during each phrase

Variable	Intervention Means (SD) (n = 115)			Control Means (SD) (n = 110)			ANCOVA (T0-T1)		ANCOVA (T0-T2)	
	Baseline	Post-intervention		Baseline	Post-intervention		F	d	F	d
		1 month	3-month		1 month	3-month				
AUDIT scores	12.33 (7.02)	6.12 (5.22)	4.79 (4.0)	9.55 (5.6)	10.14 (5.82)	10.27 (5.3)	21.79 [†]	0.57	60.9 [†]	0.65
RAPI Scores	1.12 (0.45)	0.65 (0.26)	0.64 (0.21)	0.80 (0.32)	0.72 (0.27)	0.70 (0.23)	6.04*	0.27	6.46*	0.21
DSRQ scores	1.68 (0.59)	1.83 (0.71)	1.93 (0.77)	1.91 (0.66)	1.86 (0.72)	1.74 (0.66)	0.84	0.22	0.09	0.25

Note. p values = group and time interaction,

[†] p<0.001,

* p<0.02,

d = effect size, T0-T1 = baseline to 1 month post-intervention, T0-T2 = baseline to 3-month post-intervention, AUDIT: Alcohol Use Disorders Identification Test; RAPI: The Rutgers Alcohol Problem Index; DSRQ: Drinking Self-Regulation Strategies. Covariates were baseline levels of all outcome measures, program of study, academic years, problems' experience of alcohol use, and smoking behavior