ปัจจัยที่มีอิทธิพลต่อการดื่มที่เป็นปัญหาของนักศึกษาวิทยาลัยในภาคตะวันออกเฉียงเหนือของไทย*

Factors Influencing Problem Drinking among College Students in Northeast Thailand

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บทคัดย่อ

การวิจัยเชิงวิเคราะห์แบบตัดขวางนี้มีวัตถุประสงค์เพื่อสำรวจปัจจัยที่มีอิทธิพลต่อการดื่มที่เป็นปัญหาของนักศึกษา วิทยาลัยในภาคตะวันออกเฉียงเหนือของไทย เก็บข้อมูลจากกลุ่มตัวอย่างที่เป็นนักศึกษาสายอาชีพด้วยการสุ่มอย่างง่าย จำนวน 1,149 คน โดยให้ตอบแบบสอบถาม จำนวน 11 ชุด แบบสอบถามทั้งหมดได้ผ่านการตรวจสอบความตรงเชิงเนื้อหาและความเชื่อมั่น วิเคราะห์ข้อมูลด้วยการวิเคราะห์ถดถอยโลจิสติกแบบลำดับ แบบหลายกลุ่ม และแบบสองกลุ่ม ผลการวิจัยพบว่า ที่ระดับนัยสำคัญทางสถิติ 0.05 ปัจจัยที่มีอิทธิพลต่อการดื่มที่เป็นปัญหาของทั้งนักศึกษาหญิง และชายมี 6 ปัจจัย 2 ปัจจัย มีผลเฉพาะต่อการดื่มของนักศึกษาชาย ในขณะที่ 3 ปัจจัยมีผลเฉพาะต่อการดื่มของนักศึกษาหญิง ผลการศึกษาชี้ให้เห็นว่ามาตรการเกี่ยวกับการดื่มเครื่องดื่มแอลกอฮอล์ที่ใช้อยู่ไม่ครอบคลุมปัจจัยที่มีอิทธิพลทั้งหมด การค้นพบนี้จะเป็นประโยชน์สำหรับผู้ที่สนใจพัฒนาโปรแกรมการป้องกันการดื่มเครื่องดื่มแอลกอฮอล์ที่เป็นปัญหาของเยาวชน

คำสำคัญ: การดื่มที่เป็นปัญหา มาตรการเกี่ยวกับการดื่มเครื่องดื่มแอลกอฮอล์ วัยรุ่น นักศึกษา

Abstract

This analytical cross-sectional study aimed to explore factors influencing problem drinking among college students in northeast Thailand. 1,149 vocational and technical students in Khon Kaen province were randomly recruited to complete 11 self-report questionnaires. All questionnaires were approved for content validity and reliability. Ordinal, multinomial and binary logistic regressions were used. A p level < 0.05 was considered to be statistically significant. Findings showed that six factors influenced problem drinking among males and females; two factors affected only males, while three factors influenced only females. Based on these results, existing alcohol action programs in Khon Kaen province have not been able to cover all risk factors and enhance protective factors. The findings will be useful for those who are interested in developing programs for prevention of alcohol abuse, taking into account the wishes of young people.

keywords: problem drinking, alcohol actions, adolescents, college students

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Introduction

One of the risky behaviors that are found among college students and adolescents is problem drinking. Many countries, including Thailand, have tried to protect children from over consumption of alcohol. Although the Thai government took action to reduce alcohol problems more than five years ago, the percentage of adolescents who drink alcohol at hazardous and harmful levels has not decreased. A previous study indicated that the alcohol intake of Thai adolescents is above what is considered to be a safe level: 118.35 and 61.95 g per drinking day for males and females, respectively. Furthermore, 26.5% of males and 13.2% of females drink at a hazardous level, while 4.5% of males and 2.2% of females drink at a harmful level[1]. These statistics indicate that the actions taken thus far by the Thai government have not been sufficient to protect college students and adolescents from the risks of alcohol abuse. Thus, factors from various theoretical frameworks that influence problem drinking should be re-examined.

From a review of the literature, problem drinking is also known by several other terms, such as hazardous, risky or binge drinking. However, the World Health Organization (WHO) has categorized alcohol consumption into four levels, using the Alcohol Use Disorders Identification Test (AUDIT)[2]: low-risk drinking, hazardous drinking, harmful drinking, and alcohol dependence. Some theories from previous research provide many causative factors which relate to each other in complicated ways. Some theories only include a few factors and are not holistic.

The Theory of Triadic Influence (TTI), a comprehensive theoretical framework explaining adolescents' problem behavior such as smoking[3], emphasizes three streams: cultural, social and intrapersonal streams and their related behaviors. TTI provides definitions of 21 factors that are generally accepted as explaining drinking problems in adolescents. Previous research reports have also defined 14 factors influencing problem drinking, i.e. sensation-seeking, social interaction anxiety, cognitive emotional preoccupation, cognitive behavioral control, drinking refusal self-efficacy, peer drinking, parental drinking, perceived drinking norms, religious affiliation, knowledge about drinking alcohol, positive alcohol expectancies, expectancy valuations, attitudes toward alcohol, and smoking[4-9]. By comparing definitions, the scope of these 14 factors covered all factors from TTI except values of alcohol use. Thus, TTI – reduced from 21 factors to 15 factors (14 factors from previous studies, plus values of alcohol use) – could be applied to explain problem drinking among adolescents.

Khon Kaen, a province in northeast Thailand, is a transportation hub in the region. Hence, it is easy to distribute alcoholic beverages to consumers. Moreover, there are many schools, colleges and universities in the province. Many children and adolescents living in dormitories can easily get access to alcohol from nightclubs, pubs, bars and convenience stores located nearby. Problem drinking among adolescents in Khon Kaen can be found to a considerable extent, especially among vocational and technical students. Furthermore, alcohol action plans in Khon Kaen are the same as actions implemented throughout Thailand. They protect the general public and new drinkers, but they are not particularly effective for adolescents who are problem drinkers. For example, there are no alcohol screening programs or brief interventions for this group in the Khon Kaen health care system. The prevalence of problem drinking among adolescents in Khon Kaen shows that existing alcohol programs have had little effect on fac-

tors influencing problem drinking[10]. Therefore, the aim of this study was to examine influencing factors derived from TTI on problem drinking among adolescents and college students, especially vocational and technical students, in Khon Kaen province, who are likely to become lifelong heavy drinkers if there is no intervention to decrease their consumption. This study will thus have long-term benefits for the prevention of alcohol-related cancers.

Methods

Study participants

In light of previous research on the effects of sex and age on problems relating to drinking[11], participants in this study ranged from 15 to 19 years old, and were divided into male and female groups. With the approval of the Khon Kaen University Ethics Committee for Human Research, 1,378 vocational and technical students were randomly invited to participate in the study. The ideal number of subjects was calculated by using the Rule of Thumb[12-13] and by comparing with previous research[14]. The participants were from four colleges (two in an urban area and two in a rural area) in Khon Kaen province. One college in an urban area and one in a rural area had a greater proportion of males; the other two colleges had a greater proportion of females. Introduction letters and research consent forms were given to both the participants and their parents. Twenty-two students and/or their parents declined to join the study. Participants were informed of the aims and procedures of the study during student-activity class sessions. Afterwards, self-report questionnaires were administered. Incomplete questionnaires were returned by 207 participants. Thus, a total of 1,149 students, 409 males and 740 females, participated in the study. Data were collected from June through September, 2010.

Variables and instruments

To assess factors influencing problem drinking, 11 anonymous self-report questionnaires were used. Five questionnaires – general data, knowledge about drinking alcohol, perceived drinking norms, attitudes toward alcohol, and values of alcohol use were developed by researchers. After permission, six standardized questionnaires for Thai people were employed: the Drinking Refusal Self-Efficacy Questionnaire-Revised (DRSEQ-R)[15], the Social Interaction Anxiety Scale (SIAS)[16], the Sensation-Seeking Personality Questionnaire (SSPQ)[17], the Comprehensive Effects of Alcohol (CEOA)[18], the Temptation and Restraint Inventory (TRI)[19] and the Alcohol Use Disorders Identification Test (AUDIT)[20]. Content validity and reliability of all tools were established. They provided acceptable levels of internal consistency (KR-20 = 0.70; α = 0.70-0.94)[21]. Variables and instruments are shown as follows:

Problem drinking was defined as drinking alcohol at more than a safe level. This was assessed by a 10-item test using AUDIT; the results were categorized into four levels, from low-risk drinking to alcohol dependence. Total scores of 0 to 7 were identified as low-risk drinking (level 0); scores of 8 to 15 were hazardous drinking (level 1); 16 to 19 were harmful drinking (level 2); and 20 or more were categorized as alcohol dependence (level 3).

Religious affiliation, peer drinking, parental drinking, and smoking were included in a general data questionnaire. Each factor was assessed by one question. The religious affiliation item asked about frequency of attending religious activities. The answer was grouped into two orders: none to few (0), and often to always (1). The peer drinking item asked about the number of peers who drank. The answers were divided

into three ranges: no peers (0), a few peers (1), and half of all peers (3). The parental drinking item asked about the frequency of parents' drinking in the last year. The answers were divided into two orders: none to once per month (0), and more than once per month to daily (1). Smoking was defined as tobacco use within the past month. The responses were categorized into two groups: no (0), and yes (1). All of the questions were checked for content validity by five experts using the Index of Item – Objective Congruence (IOC) technique; IOCs were from 0.8 to 1.

Knowledge about drinking alcohol – defined as information about safe alcohol consumption and outcomes from drinking alcohol – was assessed by a knowledge test composed of 12 statements, with responses including two choices: yes and no. Seven statements were true; by answering "Yes", students would receive scores. The other statements were not true. By answering "No", responders would receive scores as well. Total scores lower than the median score were grouped as a bad knowledge level (0), whereas scores higher than the median were considered to be a good knowledge level (1).

Perceived drinking norms – defined as perceived frequency of peers' alcohol use, the amount of alcohol consumed by peers, and acceptance of parents' and peers' behavior – were assessed by a 12-item questionnaire created by the researchers. Responses were measured using a five-point Likert self-report scale. Total scores lower than the median score were identified as a low drinking norm group (0), while higher scores were considered to be a high drinking norm group (1).

Attitudes toward alcohol – defined as an opinion about the advantages and disadvantages of outcomes that occurred after using alcohol – were measured by a 9-item questionnaire created by the researchers. A five-point Likert-type scale was used for all responses. Total scores lower than the median score were identified as a bad attitude group (0), while higher scores were considered to be a good attitude group (1).

Values of alcohol use, defined as positive and negative values pertaining to alcohol use, were assessed by a 14-item questionnaire created by the researchers. Responses were measured using a three-point Likert-type scale. Total scores lower than the median score were identified as a low value group (0), while higher scores were considered to be a high value group (1).

Drinking refusal self-efficacy – defined as confidence to resist alcohol use under social pressure, relaxed mood, and situational awareness – was assessed by **a** 19-item DRSEQ-R (Thai version). Responses were measured on a six-point Likert-type scale. Total scores lower than the median score were identified as a low drinking refusal self-efficacy group (0), while higher scores were considered to be a high drinking refusal self-efficacy group (1).

Social interaction anxiety, defined as awkward feelings in various situations when meeting other people, was assessed by a 19-item SIAS (Thai version). The responses included not yes (0) to yes all (4). Total scores lower than the median score were identified as a low social interaction anxiety group (0), while higher scores were considered to be a high social interaction anxiety group (1).

Sensation seeking – defined as being likely to be involved in risk-taking situations – was assessed by a 10-item SSPQ (Thai version). Responses were measured on a three-point Likert-type scale. Total scores lower than the median score were identified as a low sensation-seeking group (0), while higher scores were considered to be a high sensation-seeking group (1).

Positive alcohol expectancies (good outcomes occurring from drinking alcohol) and expectancy valuations (defining these effects as bad, neutral or good) were assessed by a 20-item CEOA (Thai version). In the alcohol expectancy part, 20 positive statements and 18 negative statements showed outcome expectancies influencing alcohol use. Negative outcome expectancies were not related to problem drinking. Therefore, 20 positive outcome expectancies were selected for this study. Responses were measured on a four-point Likert-type scale. Total scores lower than the median score of the positive alcohol expectancies part were identified as a low positive alcohol expectancy group (0), while higher scores were considered to be a high positive alcohol expectancy group (1). In the valuation part, statements were the same as for the alcohol expectancy part, but responses were measured on a five-point Likert-type scale. Total scores lower than the median score were grouped as a low valuation (0), while higher scores were considered to be a high valuation (1).

Cognitive emotional preoccupation (CEP), or temptation to drink alcohol, and cognitive behavioral control (CBC), defined as planning to control alcohol use, were assessed by a 15-item TRI (Thai version). The first to ninth items measured cognitive-emotional preoccupation level; the tenth to fifteenth measured cognitive-behavioral control level. All responses were measured on a five-point Likert-type scale. CEP scores lower than the median were identified as a low CEP group (0), while higher scores were considered to be a high CEP group (1). Total CBC scores lower than the median were also grouped as a low CBC (0), while higher scores were considered to be a high CBC (1).

Data analysis

Descriptive statistics – including frequencies, percentages, means, standard deviations (SD) and medians – were obtained to describe demographic data and problem drinking. From the observed data, due to the few males and females who drank alcohol at harmful and dependence levels, classifying problem drinking into four levels provided inadequate data for ordinal logistic regression (Table 1). To obtain sufficient data, problem drinking among male participants was categorized into three levels: low-risk drinking, hazardous drinking, and harmful-dependence level. For females, data were divided into two levels: low-risk drinking and hazardous-dependence level. For this reason, ordinal logistic regression was used for males (except for five intrapersonal factors which were analyzed using multinomial logistic regression because of an unmet assumption of ordinal logistic regression). Among females, data were analyzed using binary logistic regression. A significance level of $p < 0.05$ was used throughout the analysis.

Results

Among 1,149 students with mean age of 17.0 years (SD = 1.0) for males and 16.9 years (SD = 1.0) for females, almost half of males (42.6%) and one-third of females (36.6%) were second-year students. The majority of participants, both males and females, were Buddhists (99.3% for males and 98.6% for females). Referring to problem drinking, Table 1 illustrates that most males and females drink alcohol at a low risk level (45.4% and 73.6%, respectively). However, more than half of males (54.6%) drink alcohol at more than a safe level. Drinking at dependence level is found in 11.5% of males and 1.6% of females.

Table 1. Number of male and female participants who were problem drinkers, categorized by AUDIT scores (N = 1,149)

alcohol use	male	female
	n (%)	*n* (%)
AUDIT score		
mean (SD)	9.5 (8.1)	4.7 (5.5)
median (minimum, maximum)	9.0 (0, 35)	3.0 (0, 33)
problem drinking		
low-risk drinking (AUDIT score = 0-7)	186 (45.4)	545 (73.6)
hazardous drinking (AUDIT score = 8-15)	134 (32.8)	153 (20.7)
harmful drinking (AUDIT score = 16-19)	42 (10.3)	30 (4.1)
alcohol dependence (AUDIT score >19)	47 (11.5)	12 (1.6)
Total	409 (100)	740 (100)

Multinomial logistic regression revealed that high sensation-seeking, high social interaction anxiety and high cognitive emotional preoccupation were the factors affecting males who were classified as harmful dependence drinkers, whereas high drinking refusal self-efficacy protected them from being categorized as hazardous and harmful-dependence drinkers (Table 2).

Table 2 Intrapersonal factors affecting problem drinking among male adolescents

variables	hazardous drinkers		harmful-dependence drinkers	
	OR (95%CI)	*p* value	OR (95%CI)	*p* value
sensation seeking (low-high)	1.05 (0.61-1.83)	0.860	2.07 (1.11-3.89)	0.023*
social interaction anxiety (low-high)	1.09 (0.65-1.82)	0.735	2.09 (1.13-3.86)	0.019*
cognitive emotional preoccupation (low-high)	1.23 (0.73-2.08)	0.44	3.57 (1.88-6.77)	0.000*
drinking refusal self-efficacy (low-high)	0.12 (0.07-0.20)	0.000*	0.10 (0.05-0.20)	0.000*

* $p < 0.05$

Based on the best model analysis technique, Table 3 indicates that males who have higher perceived drinking norms due to peer influence are more likely to be problem drinkers. Other risk factors affecting males who were classified as problem drinkers included high values of alcohol use, more positive attitudes toward alcohol, and a higher rate of smoking.

Table 3 Other factors affecting problem drinking among male adolescents

variables	problem drinkers	
	OR (95%CI)	p value
Social context factors		
step I		
peer drinking (low-high)	1.36 (1.09-1.57)	0.007*
parental drinking (low-high)	1.20 (0.91-1.57)	0.192
step II		
peer drinking (low-high)	1.24 (1.00-1.55)	0.055
perceived drinking norms (low-high)	1.99 (1.52-2.62)	0.000*
cultural/environmental factors		
values of alcohol use (low-high)	2.55 (1.93-3.37)	0.000*
attitudes toward alcohol (positive-negative)	1.47 (1.13-1.93)	0.005*
Related behavior		
smoking (yes-no)	4.20 (3.16-5.58)	0.000*

* p value < 0.05

The results from binary logistic regression for females, using best model analysis technique, are shown in Table 4. High sensation-seeking, high cognitive emotional preoccupation, high perceived drinking norms, high values of alcohol use, and high positive alcohol expectancies are the primary risk factors for females. Moreover, the more friends they have who are problem drinkers, the more they themselves drink at a problem level. Meanwhile, high drinking refusal self-efficacy and high knowledge about drinking alcohol are protective factors for females. In addition, as in the case of males, smoking significantly affects females' drinking at hazardous and harmful-dependence levels.

Table 4 Factors affecting problem drinking among female adolescents

variables	problem drinkers	
	OR (95%CI)	p value
Intrapersonal factors		
sensation seeking (low–high)	2.72 (1.82–4.07)	0.000*
cognitive emotional preoccupation (low–high)	1.81 (1.21–2.71)	0.004*
drinking refusal self-efficacy (low–high)	0.09 (0.05–0.15)	0.000*
Social context factors		
peer drinking		
a few peers (low–high)	2.73 (1.43–5.18)	0.002*
half of all peers (low–high)	4.86 (2.55–9.24)	0.000*
perceived drinking norms (low–high)	2.75 (1.88–4.03)	0.000*
Cultural/environmental factors		
knowledge about drinking alcohol (low–high)	0.68 (0.48–0.96)	0.028*
values of alcohol use (low–high)	3.05 (2.12–4.40)	0.000*
positive alcohol expectancies (low–high)	1.62 (1.14–2.32)	0.008*
Related behavior		
smoking (yes–no)	4.01 (2.21–7.28)	0.000*

* p value < 0.05

Discussion

In this study, the prevalence of hazardous drinking and harmful drinking was greater than the prevalence found in current literature[1]. Furthermore, some participants (11.5% of males, 1.6% of females) were found to be alcohol-dependent. This evidence indicates that existing alcohol programs in Khon Kaen province have not succeeded in preventing or reducing alcohol use among college students, i.e. they have not affected the factors influencing problem drinking.

In regard to whether the 15 factors derived from TTI could provide an explanation for this, the present study produced unexpected results. Eight factors significantly affected problem drinking among males, while nine factors affected females. Among male students, there were seven risk factors – sensation-seeking, social interaction anxiety, cognitive emotional preoccupation, perceived drinking norms, values of alcohol use, attitudes toward alcohol, and smoking – and one protective factor, drinking refusal self-efficacy. For females, the nine factors included seven risk factors – sensation-seeking, cognitive emotional preoccupation, peer drinking, perceived drinking norms, values of alcohol use, positive alcohol expectancies, and smoking – and two protective factors, drinking refusal self-efficacy and knowledge about drinking alcohol.

Although these results did not correspond to our original hypothesis, they raise some pertinent issues: whether the existing programs in Khon Kaen province are able to reduce risk factors and enhance protective factors. Such actions as tax and price disincentives, controlling access to alcohol, health education, and alcohol awareness advertising campaigns[10] have not conclusively served to eradicate risk factors such as sensation-seeking, social interaction anxiety, and perceived drinking norms. They also have not improved protective factors such as drinking refusal self-efficacy. Consequently, additional action plans, e.g. screening and therapy, to prevent and reduce problem drinking among male and female adolescents should be urgently implemented in Khon Kaen.

The male and female vocational and technical students participating in this study reported different levels of problem drinking. Most of the males drank alcohol at hazardous and harmful levels, while females mostly drank at a low-risk level. This confirms the findings from a previous report, that males are more likely to be heavy drinkers than females[4]. This may be due to certain factors having a gender-related influence on problem drinking. However, some of the same factors influenced problem drinking among both males and females: sensation-seeking, cognitive emotional preoccupation, perceived drinking norms, values of alcohol use, smoking, and drinking refusal self-efficacy. Factors found only among males were social interaction anxiety and attitudes toward alcohol. Meanwhile, knowledge about safe drinking, positive alcohol expectancies and peer drinking influenced only females. These differences could be due to a variety of reasons.

Since mostly males used alcohol to relieve symptoms of social anxiety[22], and had a more positive attitude toward drinking than females[23], social interaction anxiety and attitudes toward alcohol affected problem drinking only in males. Among female adolescents, seeking information for protecting their health was higher than in males[24]. Also, other factors – such as family, cultural and societal taboos regarding alcohol consumption by youths and females[25] – probably played a role in influencing experimentation with alcohol and subsequent knowledge regarding the effects of alcohol. Since female adolescents generally presented positive outcome expectancies in a more global manner[26], while males did not, female adolescents had more positive outcome expectancies to alcohol. Knowledge about safe drinking and positive alcohol expectancies affected problem drinking in this study. Furthermore, peer norms and peer relationships had a greater effect on the drinking behavior of female adolescents[27].

Because of the different factors influencing problem drinking in males and females, action plans for reducing and preventing alcohol abuse should be gender-specific. For males, actions should be taken to strengthen drinking refusal self-efficacy and decrease other risk factors such as sensation-seeking, social interaction anxiety, cognitive emotional preoccupation, perceived drinking norms, values of alcohol use, and attitudes toward alcohol and smoking. For females, actions should be taken to provide knowledge about safe drinking and strengthen self-efficacy to resist drinking. The importance of smoking, a powerful predictor of problem drinking among both males and females, should be emphasized[7,20]. Preventing smoking could protect them from becoming problem drinkers as well. This is a significant issue in Thai society that should be addressed in the near future.

Conclusions

This study has highlighted some factors influencing problem drinking among males and females. Based on the existing situation, preventive actions currently being implementing in Khon Kaen need to be further developed to cover all of these factors.

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