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of Thai High School Students

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ABSTRACT

The objective of this study was to identify and describe the alcohol-related expectancies of a sample of Thai high school students. A convenience sample of 2,227 high school students in Chon Buri province completed an alcohol expectancy questionnaire. The initial factor analysis was done with data from 875 questionnaires and identified four factors. The four factors were cross-validated on two separate sets of 676 questionnaires. A relationship was found between expectancies and drinking behaviors. High school students who drank alcohol had significantly greater positive expectancies for alcohol and greater expectancies that alcohol would enhance sexual performance and power. Students who did not drink had significantly greater negative expectancies for alcohol and a greater expectancy that Buddhism viewed alcohol use negatively. Frequent drinkers and students who drank alcohol in large quantities had significantly greater positive expectancies for alcohol and were more likely to believe that alcohol enhanced sex and power than infrequent drinkers and students who drank smaller quantities of alcohol. The alcohol expectancies found in this sample of Thai high school students were similar to alcohol expectancies found for adolescents in the USA, with the exception of the expectancy regarding Buddhism.

Key words: adolescents, alcohol, expectancies, prevention, alcohol education

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Introduction

Costs of Alcohol Use

Alcohol is the best known and most widely used of mind-altering substances.[1] Alcohol (fermented fruit juices), along with water, fruit juice, and milk are the universal beverages of humankind, consumed to some degree by practically all people. The World Health Organization has reported that alcohol-related death and disability accounts for greater costs to life and longevity than tobacco.[2] The estimated total number of years of life lost to death and disability (DALYS-Disability Adjusted Life Years) in 1990 attributed to alcohol was 47,687,000, compared to tobacco's 36,182,000.[3] Eighty percent of the excess mortality related to alcohol use is in the developing countries.[2]

Chronic alcohol abuse (alcoholism), though recognized as a medical condition, contributes only a small portion of the life lost to death and disability. The majority of the costs result from drinking events among young people and persons who typically drink in ways considered acceptable. Because the number of these people is so large, a relatively small proportion occasionally drinking to excess contributes significantly to death and disability rates.

Between 1970 and 1996, in Thailand, per capita alcohol consumption among people ages 15 years and older increased 401 percent. In 1990, the adult per capita alcohol consumption was estimated at 7.46 liters of pure alcohol. In 2000, it was 13.59 liters per capita.[4]

In Thailand, alcohol-related public health costs are most visible in the death and disability associated with automobile crashes, especially at holiday times like new year, and especially involving young people. Alcohol-related traffic crashes during the rest of the year are often overlooked. Other public health costs from alcohol, such as violence, petty crime, family disruption, reduced school performance, accidents and low productivity in work places are also regularly overlooked.

At the same time as the health and social costs of alcohol are beginning to be recognized, competition in the retail alcohol marketplace has encouraged new ways to promote alcohol sales. Government initiatives like OTOP expand local alcohol production and encourage increased sales to new segments of the community. Increased local wine production, for example, will likely increase the proportion of women who drink, and could increase the quantity or frequency of use among those who currently drink or who now drink only occasionally.

As public health professionals explore ways to reduce alcohol-related death and disability, they also recognize that alcohol use is deeply entwined in the cultures and traditions of most people. For centuries, alcohol has played a role in cooking, medicine, hospitality, special celebrations, religious rituals, and the commercial and economic life of most communities. Now there is some evidence that alcohol, in appropriate quantities, may be beneficial to health.[5-7]

Expectancy Theory

Research suggests there is a strong relationship between what a person expects will happen when they behave a particular way and

their actual behavior. Expectancy theory is a memory-based cognitive-learning theory that helps explain how prior learning influences future behavior choices. Goldman et al. defined "expectancy" as the anticipation of a systematic relationship between events or objects and a future situation.[8] The relationship is best understood in terms of an "if—then" statement. If a certain event occurs, then a certain effect is expected to follow. Expectancies are learned from personal experience and from watching other people's experiences. Hence, a young person who has not yet drunk alcohol can know what to expect from drinking alcohol if he/she has seen what happens when other people drink alcohol. Because the anticipated relationship between an expectation and an outcome is strong and because expectancies are learned, knowing about the expectancies of a group or an individual is very useful information for planning educational programs.[8-11]

The objective of this study was to identify and describe the alcohol-related expectancies of a sample of Thai high school students.

Material and Method
Questionnaire

The alcohol expectancy questions were developed from the results of focus group discussions with high school students in Chon Buri. Questions were also adapted from a widely-used well-validated adolescent alcohol expectancy questionnaire, the Adolescent Alcohol Expectancy Questionnaire (AEQ-A).[10,11] Each focus group discussion involved four to six high school students and a member of our research team. The objective for the focus group discussions was to identify the largest possible list of adolescent alcohol expectancies. The expectancies elicited from the focus group members were then used in the development of the Thai adolescent alcohol expectancy scale. Examples of alcohol expectancies elicited from focus groups discussions were: "If I drink alcohol it will make me feel good" and "If I drink alcohol it will help me fall asleep." The final questionnaire contained 43 alcohol expectancy questions, 15 alcohol use questions, and 10 questions about demographics. Expectancy questions were rated on a six-point Likert scale (1 = strongly agree, 2 = agree, 3 = slightly agree, 4 = slightly disagree, 5 = disagree, 6 = strongly disagree). For analysis, the scales were reverse-scored; this meant higher scores indicated stronger beliefs in the expectancy scale items. For religious expectancies related to alcohol use, higher scores indicated a stronger belief that religion viewed drinking negatively.

Participants

The sample included 2,227 high school students (920 boys and 1,306 girls; mean age = 16.08) in grades 10 (n = 1024), 11 (n = 758), and 12 (n = 439) in three schools in Chon Buri Province.

Statistical Analysis

Factor analysis was used to identify the dimensionality of alcohol expectancy scale items. The analysis was done using principal components. This analysis was done using both orthogonal (Varimax) and oblique (Promax) rotation methods. Determination of the factor structure was based

on both the statistical adequacy of the obtained factor solution and the conceptual coherency of the questions in each factor.

Participants were divided into three randomly selected samples for analysis and validation. The sample for the initial analysis consisted of 40% of the students (n = 875). The remaining 60% were split into two validation samples, each with 30% of the total sample (n = 676). The initial factor analysis was done on the entire 43-question expectancy scale using the results from a 40% sample of the students (N = 875). Preliminary selection of factors was done using Eigenvalues and analysis of the scree plot of Eigenvalues. Both of these analyses indicated a number of potential factors between three and seven. To determine the best factor structure, analyses were conducted extracting three through seven factors using both Varimax and Promax rotations. The results were compared for quality of the factor solution and conceptual soundness.

As a result, a four-factor structure was identified as the most adequate. The four-factor solution produced relatively clean factors, with few cross-loadings of question results on multiple factors and a conceptually coherent solution. Following the initial determination of the best factor structure, the factors were cleaned by removing ill-fitting questions and questions with high cross-loadings on multiple factors. This resulted in the removal of 9 questions, producing an expectancy scale with 34 questions. The factor loadings were generally strong (most above 0.50).

Conceptually, the four identified factors were:

- Factor 1-positive alcohol-related expectancies;
- Factor 2-negative alcohol-related expectancies;
- Factor 3-alcohol-related sex and power expectancies; and
- Factor 4-religious expectancies related to alcohol.

The identified four-factor structure, using the 34-question expectancy scale, was then cross validated on two separate samples of 676 students each, whose questionnaire results had not been used in the initial analysis. The two cross validations of the four-factor solution were done using principal components with Varimax rotation. In both cross-validations, the basic factor structure and pattern of loading was replicated with only minimal deviation. The cross-validation confirmed that the four-factor structure was statistically plausible and consistent across multiple samples. These results suggest that the four identified factors represented coherent and meaningful categories of alcohol expectancies among this sample of high-school students.

The final 34-question alcohol expectancy scale has excellent metric properties. Coefficient alpha reliability estimates and question-total correlations were computed for the four scales using the full 2,227 student samples. Coefficient alphas for the scales were 0.91 for positive expectancy, 0.83 for negative expectancy, 0.68 for sex and power expectancy, and 0.81 for religious expectancy. Question-total correlations for the positive expectancy scale were all above 0.47. Question-total correlations for the negative

expectancy scale were all above 0.44 with the exception of one question, which was 0.31. Question-total correlations for the sex and power expectancy scale ranged from 0.38 to 0.56. Question-total correlations for the religious expectancy scale were all above 0.61. Reliability estimates for the scales, question-total correlations, and factor loadings all met accepted guidelines for quality questionnaires and were consistent with those of the majority of psychological and educational instruments and questionnaires. The alcohol expectancy scale appeared to be a reliable, internally consistent measure of the four identified dimensions of alcohol expectancies.

Defining Alcohol Drinkers

To determine whether expectancies influenced students' drinking behavior, we examined the differences in the expectancies of drinkers and non-drinkers. Students were defined as regular drinkers if they had drunk alcohol in the 30 days prior to the questionnaire. Students, who had drunk alcohol in the past year, but not in the past 30 days, were classified as occasional drinkers. Occasional and regular drinkers were combined in the analysis that assessed the effects of expectancies on drinking or not drinking. Students who did not drink alcohol in the past year were classified as non-drinkers.

Among drinkers, we examined whether there were differences in the expectancies of students who drank 5 or more drinks on a single drinking occasion and students who drank fewer than 5 drinks on a single drinking occasion. In the United States, drinking five or more drinks in a row on a single drinking occasion is classified as binge drinking. We used t-tests for the analysis. For this analysis, scores on the four dimensions of expectancy were computed by taking the mean score of the questions in each factor. The entire sample of 2,227 students was used in this analysis.

Results

We found that students who drank had different expectancies about alcohol than students who did not drink. As shown in Table 1, drinkers had significantly more positive expectancies and less negative expectancies about alcohol than non-drinkers. Drinkers also had significantly greater expectancy that drinking could enhance sexual performance and power. Non-drinking students were significantly more likely to express the expectancy that their religion viewed drinking negatively. There was a substantial effect size for positive expectancies of about eight-tenths of a standard deviation. This was a very large effect and suggested that drinkers expect to have substantially more positive effects from their drinking than non-drinkers. Effect sizes for negative expectancies and religious expectancies (Table 1) were about four-tenths of a standard deviation, suggesting a moderate but very meaningful difference between drinkers and non-drinkers. The effect size for sex and power was two-tenths of a standard deviation, suggesting a small but potentially meaningful difference.

Table 1 Students' mean scores on alcohol expectancies by drinking status

	df	Drinker		Non-Drinker		t	ES
		M	SD	M	SD		
Positive alcohol expectancies	1469.9	3.67	0.86	2.86	0.94	-19.78*	0.82
Negative alcohol expectancies	1514.2	3.88	0.88	4.27	0.99	9.20*	0.40
Sex/power expectancies related to alcohol	1299.4	2.39	1.03	2.19	0.98	-4.19*	0.20
Religious expectancies related to alcohol	1283.8	4.22	1.35	4.73	1.29	8.23*	0.39

Note   Higher scores on the expectancy scales indicated stronger beliefs in the expectancy items. Higher scores on the religious
         expectancies indicated stronger belief that their religion viewed drinking negatively. Drinker = drank alcohol in the
         last year; Non-Drinker = did not drink alcohol in the last year. ES = effect size computed by Cohen's d̲. For positive,
         negative and sex/power expectancies, drinker n = 688 and non-drinker n = 1414; for religious expectancies, drinker
         n = 675 and non-drinker n = 1389.

*p < 0.001

Among students who drank, there were significant differences in expectancies between students who reported drinking 5 or more drinks on a single occasion (binge drinkers) and students who drank fewer than 5 drinks on a single occasion (non-binge drinkers). As shown in Table 2, students who were binge drinkers had significantly more positive expectancies about alcohol and were more likely to have higher sex and power expectancies about alcohol than non-binge drinkers. Non-binge drinkers were significantly more likely to express the expectancy that their religion viewed drinking negatively. There were no differences between binge drinkers and non-binge drinkers in negative expectancies. The effect sizes for positive expectancies and sex/power expectancies were each about half a standard deviation suggesting a meaningful difference

between binge drinkers and non binge drinkers. The effect size for religion expectancies of almost four tenth of a standard deviation also suggests a meaningful difference between binge and non-binge drinkers.

Similar differences were found between students who drank alcohol one or more times in the last 30 days (frequent drinkers) and students who drank alcohol in the last year, but not in the last 30 days (occasional drinkers). As shown in Table 3 students who were frequent drinkers had significantly more positive and higher sex and power expectancies than occasional drinkers. Occasional drinkers were significantly more likely to express the expectancy that their religion viewed drinking negatively. There was no difference in negative expectancies between frequent drinkers and occasional drinkers.

Table 2 Mean scores on alcohol expectancies of students' who drink by binge drinking status

	df	Binge Drinker		Non-Binge Drinker		t	ES
		M	SD	M	SD		
Positive alcohol expectancies	686	4.00	0.84	3.55	0.84	-6.27*	0.52
Negative alcohol expectancies	686	3.90	0.83	3.87	0.90	0.42	0.04
Sex/power expectancies							
related to alcohol	294.4	2.80	1.10	2.24	0.96	-6.17*	0.55
Religious expectancies							
related to alcohol	302.1	3.85	1.41	4.36	1.29	4.27*	0.38

Note ES = effect size computed by Cohen's d. For positive, negative and sex/power expectancies, binge drinker n = 186 and non-binge drinker n = 502; for religious expectancies, binge drinker n = 183 and non-binge drinker n = 492.

*p < 0.001

Table 3 Mean scores on alcohol expectancies of students' who drink by frequency of drinking

	df	Frequent Drinker		Occasional Drinker		t	ES
		M	SD	M	SD		
Positive alcohol expectancies	685	3.88	0.85	3.47	0.82	-6.50*	0.48
Negative alcohol expectancies	685	3.90	0.83	3.86	0.92	0.55	0.04
Sex/power expectancies							
related to alcohol	652.2	2.61	1.09	2.18	0.93	-5.51*	0.41
Religious expectancies							
related to alcohol	652.8	3.99	1.40	4.44	1.26	4.33*	0.33

Note ES = effect size computed by Cohen's d. For positive, negative and sex/power expectancies, frequent drinker (drank in last 30 days) n = 332 and occasional drinker (did not drink in last 30 days) n = 355; for religious expectancies, frequent drinker n = 326 and occasional drinker n = 348.

*p < 0.001

Effect sizes for positive expectancies were about one-half of a standard deviation, suggesting a large difference between binge drinkers and non-binge drinkers and between frequent drinkers and occasional drinkers. The effect size for sex and power expectancies were about one-half of a standard deviation for binge drinkers compared to non-binge drinkers, suggesting a large difference between these two groups. The effect size for sex and power expectancies were about four-tenths of a standard deviation for frequent drinkers compared to occasional drinkers, suggesting a moderate difference. The effect size for religious

expectancies was about one-third of a standard deviation, suggesting a moderate difference between binge drinkers and non-binge drinkers and between frequent drinkers and occasional drinkers.

Discussion

These high-school students expressed four dimensions of expectancies about alcohol. Across an initial factor analysis and two cross-validations, a consistent four dimensional structure was found. The dimensions suggested that students distinguished between expectations for positive outcomes from drinking and expectations for negative outcomes. Additionally, they distinguished expectations about positive influences of alcohol on sexual prowess and power from other kinds of positive influence. They also distinguished between expectancies about how their Buddhist religion views alcohol and other types of expectancies. These categories of expectancy beliefs are consistent with those that have been found with samples of American students, with the exception of religious expectancies, which have not been studied extensively in American samples.[10,11]

Expectancies appeared to play an important role in the drinking decisions of students. Additionally, the four dimensions of expectancies appeared to each provide unique information about drinking patterns. As might be expected, students who drank expected more positive outcomes, fewer negative outcomes, and greater influence on their sexual performance and power than students who did not drink. Also, students

who drank expressed lower expectancy that their religion viewed drinking negatively. Among the drinkers, general positive expectancies, sex and power expectancies, and religious expectancies differentiated the students who drank larger quantities of alcohol and who were frequent drinkers from the students who drank fewer drinks and who were occasional drinkers. Negative expectancies did not differentiate binge drinkers and frequent drinkers from non-binge drinkers and occasional drinkers. This suggested that although negative expectancies about drinking might influence whether a student chooses to drink or not, once a student chooses to drink, negative expectancies did not affect decisions about engaging in high-risk drinking. Among drinkers, there was a lower expectancy that alcohol would enhance sex and power compared to expectancies of alcohol's positive effects in general. We suggest that the expectation that one would have enhanced sexual performance or greater power was less important in drinking decisions than expectations about other positive outcomes from alcohol, such as socializing and feeling good.

The findings that the four dimensions of expectancy related somewhat differently to whether students drink or not and whether students engage in high-risk versus low-risk drinking provided evidence for the validity of the four identified dimensions. Both the differences between the mean scores of the four dimensions and the different influences on drinking of each dimension suggested that there were meaningful differences between these categories of expectancy.

Implications of these findings for public health

Because expectancies are learned, they are changeable. Therefore, expectancy studies provide important information to public health professionals for planning programs to encourage either not drinking or low-risk drinking.[8] These results suggested a number of approaches for planners of alcohol prevention/alcohol education programs.

- Negative expectancies like "If I drink alcohol I am more likely to get into an argument, "If I drink alcohol I am more clumsy," and "If I drink alcohol I am less efficient," need to be reinforced. Negative expectancies differentiated between drinkers and non-drinkers, but not between high-risk drinkers and low-risk drinkers. Expectancy theory suggests that reinforcing negative expectancies among non-drinkers may encourage them to remain non-drinkers, but the same message will have little effect on the behavior of a person who has already begun to drink.[9]

- Some of the positive expectancies about alcohol of this sample of high school students arise from students' incomplete knowledge and misinformation about alcohol's physiological effects. We suggest that positive expectancies based on incomplete knowledge and misinformation can be neutralized in an educational program with correct and complete information about alcohol's physiological effects. For example, the positive expectancy "If I drink alcohol I will be more romantic," is true in the sense that alcohol lowers a person's inhibitions so they can perhaps express feelings more easily; but the same lowering of inhibition also interferes with a person's ability to make responsible decisions about matters like sex. The expectancy that "If I drink alcohol I lower the muscle tension in my body," is a misinterpretation of the physiological reaction to alcohol, since alcohol does not directly lower muscle tension but depresses the entire central nervous system.[6]

- Positive expectancies differentiated drinkers and non-drinkers and high-risk (binge) drinkers and low-risk drinkers. An educational program that neutralizes some positive expectancies about alcohol may be effective for adolescents who already drink alcohol and may reduce some high-risk types of drinking.

- Dealing with the beliefs about alcohol's affect on sex and personal power involves individual and social values.[1] This requires a different educational strategy. A school-based alcohol educational program should help students to discuss and fully understand the consequences of these beliefs on other people. It will require males and females to listen carefully to the different perspectives held by the two genders. Some of the alcohol expectancies in the sex and personal power factor included, "If I drink alcohol I feel more powerful and can make other people do as I want," "If I drink alcohol it is easier for me to tell someone off," "If I drink alcohol I enjoy having sex more," and "If I drink alcohol I am more responsive, more in the mood for sex."

- It was not surprising to find that Buddhist beliefs influenced drinking. These findings suggest that religious teachers could be more direct in teaching the Buddhist principles about

alcohol. Also, because religion deals with issues of values and respect for other people, it also serves as a basis for discussing the beliefs about alcohol's effects on sex and personal power.

Expectancies are powerful predictors of behavior. The identification of expectancies should be a basic step in developing an education/prevention program. Education/prevention programs are only effective if they provide information that the target audience perceives as relevant. The time and effort devoted to identifying expectancies is time well spent because it provides a key insight into information that will be relevant to the target audience.

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ความคาดหวังของนักเรียนมัธยมในประเทศไทย
ต่อการบริโภคเครื่องดื่มผสมแอลกอฮอล์

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บทคัดย่อ

วัตถุประสงค์ของการศึกษาวิจัยนี้ คือศึกษาความคาดหวังเกี่ยวกับพฤติกรรมการบริโภคเครื่องดื่ม แอลกอฮอล์ของกลุ่มตัวอย่างนักเรียนระดับมัธยมศึกษาในจังหวัดชลบุรี จำนวน 2,227 คน โดยการตอบ แบบสอบถามเกี่ยวกับความคาดหวังที่มีต่อการบริโภคเครื่องดื่มแอลกอฮอล์ การวิเคราะห์ปัจจัยในเบื้องต้นได้ มาจากแบบสอบถามจำนวน 875 ชุด หลังจากนั้นปัจจัยทั้งหมดใน 4 กลุ่มได้นำมาวิเคราะห์โดยใช้กับแบบสอบถาม 2 กลุ่ม กลุ่มละ 676 ชุดเท่าๆ กัน ผลการศึกษาพบว่า ความคาดหวังมีความสัมพันธ์กับพฤติกรรมการบริโภค เครื่องดื่มแอลกอฮอล์จริง นักเรียนที่บริโภคเครื่องดื่มแอลกอฮอล์มีความคาดหวังในเชิงบวก และมีความเชื่อ อย่างยิ่งยวดว่า เครื่องดื่มแอลกอฮอล์สามารถช่วยเพิ่มพูนสมรรถนะทางเพศและพละกำลัง ส่วนนักเรียนที่ไม่ บริโภคเครื่องดื่มแอลกอฮอล์กลับมีความคาดหวังหรือความเชื่อในเชิงลบตามคำสอนของพุทธศาสนาว่า การ บริโภคเครื่องดื่มแอลกอฮอล์เป็นสิ่งไม่ดี ส่วนกลุ่มนักเรียนที่บริโภคเครื่องดื่มแอลกอฮอล์บ่อยครั้งและนักเรียนที่ บริโภคในปริมาณมาก ต่างมีความคาดหวังต่อการบริโภคเครื่องดื่มแอลกอฮอล์ในเชิงบวก อีกทั้งยังมีแนวโน้มที่ จะเชื่อว่า เครื่องดื่มแอลกอฮอล์สามารถช่วยเพิ่มพูนสมรรถนะทางเพศและพละกำลังมากกว่านักเรียนที่บริโภค เครื่องดื่มแอลกอฮอล์น้อยครั้ง และนักเรียนที่บริโภคในปริมาณที่น้อยกว่า การศึกษาวิจัยนี้มีผลสรุปคล้ายคลึง กับผลการศึกษาวิจัยในกลุ่มวัยรุ่น ณ ประเทศสหรัฐอเมริกา มีข้อแตกต่างกันเพียงด้านความเชื่อในพุทธศาสนา เท่านั้น

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