



## INTRODUCTION

The World Health Organization (WHO) estimates that there are about 2 billion people worldwide who consume alcoholic beverages and 76.3 million with diagnosable alcohol use disorders (WHO, 2004), which approximately 55% of adults have consumed alcohol. The trend of under-age and young adults drinking has increased over the years. The harmful use of alcohol is a worldwide problem that results in serious consequences for the health of communities and society in general. It is a causal factor in more than 60 major diseases and injuries and results in approximately 2.5 million deaths each year, of which a significant proportion occurs in young people between 15 and 29 years of age (WHO, 2011).

Alcohol consumption is common among adolescents and young adults in Vietnam. The Ministry of Health of Vietnam (MOH) has noted that consumption rates in 2002 and 2009 by males and females in the age group between 14 – 28 years old have been increasing from 69% to 80 % in males and from 28% to 37% in females (MOH, 2003; 2010). Vietnamese youths access alcohol easily and commonly consume beer on social occasions, inadvertently creating a drinking habit. Large quantities of alcohol may be consumed in drinking competitions, in which individuals will challenge one another to drink “drink 100%”. The large numbers of Vietnamese who advocate, “a man without alcohol is like a flag without wind”, reinforce alcohol drinking as an acceptable or even an expected behavior in young men. The society has been traditionally less accepting of alcohol consumption by women but this attitude appears to be in transition. In addition, consumption of alcohol by Vietnamese adolescents has increased with product advertisements and the availability of alcohol (Health Strategy and Policy Institute of Vietnam (HSPIVN) (HSPIVN, 2006; Tho et al., 2007). However, the effects of the drinking reaction policies in Vietnam are still insignificant because in general these laws have not been implemented (HSPIVN, 2006).

Many previous studies (Chen et al., 2009; DeHart et al., 2009; Homsin and Srisuriyawet,

2010; Htay et al., 2010; Kaljee et al., 2005; Oei and Jardim, 2007; Roek et al., 2010; Tobler and Komro, 2010; Yeh and Chiang, 2005; Young et al., 2007) indicated that there were several factors related to alcohol consumption among adolescents such as age, gender, self-esteem, academic performance, drinking refusal self-efficacy, attitude towards alcohol drinking, perceived alcohol availability, family structure, parental monitoring, parental drinking, and peer drinking. According to those afore-mentioned factors, there were many factors related to alcohol drinking, in which the Theory of Triadic Influence (TTI) (Flay and Petraitis, 1994) was used as a theoretical framework. The TTI provides a broad framework for understanding the alcohol drinking behavior among adolescents including intrapersonal, attitudinal, and interpersonal influences.

Most of the researcher’s knowledge, as well as the data provide ample evidence of the use of alcohol among adolescents have come from previous studies in other countries. So, the findings of the studies from other countries seem difficult to apply in Vietnam because of different socio-cultural contexts. There is clearly a need for more research on alcohol consumption among Vietnamese adolescents. Therefore, the purposes of the present study were to investigate the prevalence of alcohol use and whether the factors related to alcohol use in Vietnamese adolescents. This study classifies the factors into three groups, i.e., intrapersonal factors (age, gender, self-esteem, academic performance, and drinking refusal self-efficacy), an attitudinal factor (attitude toward alcohol drinking), and interpersonal factors (family structure, parental monitoring, parental drinking, peer drinking, and perceived alcohol availability). The knowledge derived would be valuable in the development of strategies for preventing and reducing alcohol consumption for adolescents.

## METHODOLOGY

A descriptive correlation design was used to examine the prevalence of alcohol use and examine the association between factors and alcohol drinking behavior among adolescents in Ho Chi Minh City, Vietnam.

Participants were male and female full-time students (grades 10-12) in public high schools in Ho Chi Minh City, Vietnam during the academic year 2011 - 2012. Students over 18 years were excluded from this study.

Alcohol drinking behavior was examined with questionnaires for 350 adolescent students based on the formula developed by Cochran (1977). Statistical variations were represented by 95% confidence intervals, tolerable error of 0.05, and the proportion of alcohol drinking behavior among Vietnamese adolescents was 29% (Kaljee et al., 2005). However, only 338 participants were selected as a target group (9 did not complete the questionnaires and 3 did not meet the inclusion criteria).

Students were selected by a multistage sampling method (Burns and Grove, 2009), whereas schools were randomly selected from the urban (3/19) and suburban (1/5) based on districts in Ho Chi Minh City. In each district, one school was randomly selected, and in each school one class was randomly selected from each grade level for a total of 12 classes (one class x three grade levels x four schools).

A self-administered questionnaire was given to each student. The questionnaire consisted of six parts, i.e., demographic data and behaviors relating to alcohol drinking of adolescents, parents, and peers; self-esteem; drinking refusal self-efficacy; attitude toward alcohol drinking; parental monitoring; and perceived alcohol availability. The average value of content validity index (CVI) of all six parts of the instruments used in this study was 1.0. The questionnaire was prepared in English version first, and it was subsequently translated into Vietnamese by Back - Translation Technique after CVI had reviewed.

**Part 1. Demographic data and behaviors relating to alcohol drinking of adolescents, peers, and parents.** The questionnaire in this part consisted of age, gender, education, students' family background, and the following variables. Academic performance was measured by the student reported his/her grade point average (GPA). Family structure was measured by one item asking about whom adolescents were living with. Parental drinking was measured by

one item asking about whether adolescents' mother and/or father drank alcohol. Peer drinking was measured by one item asking about a number of adolescents' close friends who drank alcohol. *Alcohol drinking behavior in adolescents* was measured by two items based on previous studies (Brener et al., 2002; Johnston et al., 2010). The first question was "Have you ever consumed alcohol, even a little amount?" Participants who answered "yes" were asked to respond to the second question "Have you ever had at least one drink of alcohol per occasion during the past three months?" Respondents were categorized as nondrinkers and drinkers. Nondrinker refers to adolescents who never consumed alcohol, or who have had less than 1 drink during the past three months prior to data collection. Drinker refers to adolescents who have consumed alcohol and have had  $\geq 1$  drink during the past three months.

**Part 2. Self-esteem.** This part was measured by the Rosenberg self-esteem scale (RSES), which developed by Rosenberg (1979). The scale contains 10 items asking about an individual's own feeling of being confident, capable, successful, and valued. Participants answered on a 4-point Likert scale ranging from 1 "strongly disagree" to 4 "strongly agree".

**Part 3. Drinking refusal self-efficacy.** This part was measured by the drinking refusal self-efficacy questionnaire - revised adolescent version (DRSEQ-RA), which was modified from Young and colleagues (Young et al., 2007). The scale contains 14 items asking about an individual's belief in their ability to resist drinking alcohol under social pressure, for emotional relief or when present with the opportunity. Participants answered on a 4-point Likert scale ranging from 1 "not very sure" to 4 "very sure".

**Part 4. Attitude towards alcohol drinking.** This part was measured by the attitude toward alcohol drinking questionnaire (AADQ), which was modified from Homsin and Srisuriyawet (2010). The questions were about an adolescent's own evaluative reaction of drinking alcohol with some degree of approving or disapproving, like or dislike. The scale contains 20 items with a 4-point Likert scale ranging from 1 "strongly disagree" to 4 "strongly agree".

The higher total score indicates a more favorable the attitude toward alcohol drinking.

**Part 5. Parental monitoring.** This part was measured by the parental monitoring questionnaire (PMQ), which was modified from previous studies. The questions were about the levels of parents' or guardians' attend to, track, or control their children's activities and whereabouts. The scale contains six items with a 5-point Likert scale ranging from 1 "never" to 5 "always".

**Part 6. Perceived alcohol availability.** It was measured by the perceived alcohol availability questionnaire (PAAQ), which was modified from previous studies. The questions were about an individual's perception about illegal drinking age of alcohol beverage purchasing and consumption, place of alcohol beverage selling, time of alcohol beverage selling, alcohol outlet of density, and alcohol price. The questionnaire contains 13 items with a 4-point Likert scale ranging from 1 "strongly disagree" to 4 "strongly agree". The higher total score meant the higher perceived alcohol availability.

The reliabilities (Cronbach's alpha coefficients) for the RSES, DRSEQ-RA, AADQ, PMQ, and PAAQ in this study were 0.80, 0.93, 0.82, 0.82, and 0.86, respectively. In order to analyze data by binary logistic regression, the following independent variables including self-esteem, drinking refusal self-efficacy, attitude toward alcohol drinking, parental monitoring, and perceived alcohol availability were categorized as high or low groups, based on the total mean scores.

**Data collection.** The study was approved by the Institutional Review Board Faculty of Nursing, Burapha University and the directors of the selected schools before the start of data collection. Data collection was carried out during January to March 2012. Eligible subjects were approached and informed of the purposes, procedures, and benefits of the study. Information sheets about the study provided details regarding the research protocol and consent forms were also sent to parents of selected students. Students and parents were assured of the students' anonymity, confidentiality and the freedom to withdraw from the study at any time without penalty and their participation was

voluntary. Students were given questionnaires in an unsealed envelope, in the classroom at a most convenient time for students, without the presence of teachers after obtaining consents of both parents and students. Students completed the questionnaires in approximately 30 minutes. Students were told not to put any type of identifying information on the questionnaires (i.e., names) and to place them back into the envelope they had received, then seal the envelope and place it in a box at the front of the classroom. Finally, the researcher viewed all these questionnaires, excluded the missing data questionnaires before entering the data into the SPSS version 17.0 for data analysis.

**Data analysis.** Descriptive statistics and binary logistic regression (Adjusted odds ratio with 95% confidence interval) were used to analyze the data. Multicollinearity between independent variables was evaluated to ensure they were not strongly inter-correlated ( $r \leq 0.45$  in this study).

## RESULTS

The sample included 338 adolescents aged 15-18 years, males (49.1%) and females (50.9%). An average age was 16.6 years old. The distribution of educational levels of respondents was almost equal between grade 10 (34.6%), grade 11 (32.0%), and grade 12 (33.4%).

It was found that respondents had consumed alcohol, with relative number of males (80%) exceeding females (62 %). An average age of first use among participants was 13.7 years old. There was 43.5% of adolescents reporting one or more alcoholic drinks per occasion during the previous three months, males (60 %) outnumbered females (27%), and were classified as drinkers.

Most participants (80.5%) lived with both biological parents. Regarding the alcohol drinking of parents, the majority of respondents (78.4%) had at least one parent who had consumed alcohol. It was also revealed that over 70% of the respondents had at least one friend who had consumed alcohol, where more than half of the respondents (58.9%) had GPA lower than 3.00. It was shown that approximately 44% of participants reported that

they had low self-esteem. In a similar fashion, almost 50% of respondents reported that they had low drinking refusal self-efficacy, while less than half of them (45.6%) revealed that they had an unfavorable attitude toward alcohol drinking. Regarding the monitoring by their parents, 43.8% of the participants had low monitoring from their parents/guardians, where nearly forty three percent of participants reported that they had low perception of alcohol availability.

Results of binary logistic regression demonstrated factors associated with alcohol consumption (Table1). Male adolescents were almost four times more likely to use alcohol than female adolescents (95% CI = 2.24-6.96). Adolescents with low self-esteem were two times more likely to drink alcohol than those with high self-esteem (95% CI = 1.17-3.59). In a similar vein, adolescents who had low drinking refusal self-efficacy were 1.8 times more likely (95% CI = 1.01-3.22) to drink alcohol than those with high drinking refusal self-efficacy. Adolescents who had a favorable attitude toward alcohol drinking were about two times (95% CI = 1.10-3.66) more likely to drink than those with an unfavorable attitude toward alcohol drinking.

It was also revealed that adolescents who lived in single-parent families were 2.7 times (95% CI = 1.35-5.37) more likely to consume alcohol than those who lived in two-parent families. Adolescents who had low monitoring from parents/guardians were 1.8 times (95% CI = 1.01-3.18) more likely to drink alcohol than those with high monitoring from parents. Adolescents who had parent(s) drank were two times more likely to consume alcohol than those who had not (95% CI = 1.15-4.74). Adolescents were more likely to engage in alcohol consumption when their close friend(s) also engaged in this behavior, where the values of AOR = 5.75, 95% CI = 2.76-12.01. Finally, adolescents with high perception of alcohol availability tended to be related to an increased likelihood of drinking, where the value of AOR = 1.89, 95% CI = 1.02-3.48. However, age and academic performance were not significantly related to alcohol drinking among adolescents in this study, where the values of AOR = 1.39, 95%

CI = 0.79-2.46; AOR = 1.62, 95% CI = 0.91-2.88, respectively.

## DISCUSSION

A previous report from the WHO (2001) indicated that Vietnamese adolescents rarely drink (Tran, 1998 as cited in Jernigan, 2001). While the results from the present study showed that the proportion of alcohol drinking among adolescent respondents was 43.5%. It confirmed that almost half of adolescents consumed alcohol. The use of alcohol in Vietnam is increasing due to a combination of many factors, i.e., customs, cultural standard, improved living standard, need of social communication, the increasing market of alcohol production and supply, expanding alcohol advertising, and marketing activities (HSPIVN, 2006). In this study, the average age for the first alcohol drinker was 13.6 years old. It was lower than the result from the study of Kaljee et al. (2005) where it was 16.3 years old. This seems to suggest that Vietnamese adolescents tend to start drinking alcohol earlier than before. This may be because of the improvement of living standard in Vietnam that has facilitated the current generation of adolescents assessing goods and services easily. Besides, increasing the availability and visibility of beer and other alcoholic beverages is certainly affecting drinking patterns among Vietnamese adolescents. These factors might lead adolescents to drink more and at younger ages than in the past.

The results of this study were similar to those of previous studies (Htay et al., 2010; Kaljee et al., 2005) and suggested that Vietnamese male adolescents were more likely to use alcohol than females. This may be due to female drinking is not encouraged in Vietnamese society, whereas male drinking carries a symbolic association with maturity and courage. Drinking alcohol in males is more widely accepted and permitted in Vietnamese society (Kaljee et al., 2005).

The results from this study showed that adolescents who had high self-esteem and drinking refusal self-efficacy were less likely to drink alcohol than those with low self-esteem and low refusal

**Table 1.** Results of adjusted odds ratios and 95% confident intervals for associations between factors and alcohol consumption, stratified by alcohol drinking status (n = 338).

Factors	Nondrinker (n=191) n (%)	Drinker (n=147) n (%)	Adjusted OR	95% CI
Age				
≤ 16 <sup>(r)</sup>	112 (67.1)	55 (32.9)	1	
> 16	79 (46.2)	92 (53.8)	1.39	0.79-2.46
Gender				
Female <sup>(r)</sup>	125 (72.7)	47 (27.3)	1	
Male	66 (39.8)	100 (60.2)	3.95***	2.24-6.96
Self-esteem				
High <sup>(r)</sup>	126 (66.3)	64 (33.7)	1	
Low	65 (43.9)	83 (56.1)	2.05*	1.17-3.59
Academic performance				
≥ 3.00 <sup>(r)</sup>	89 (64.0)	50 (36.0)	1	
< 3.00	102 (51.3)	97 (48.7)	1.62	0.91-2.88
Drinking refusal self-efficacy				
High <sup>(r)</sup>	122 (70.9)	50 (29.1)	1	
Low	69 (41.6)	97 (58.4)	1.80*	1.01-3.22
Attitude toward drinking				
Unfavorable <sup>(r)</sup>	115 (74.7)	39 (25.3)	1	
Favorable	76(31.3)	108 (58.7)	2.01*	1.10-3.66
Family structure				
Two-parent families <sup>(r)</sup>	165 (60.7)	107 (39.3)	1	
Single-parent families	26 (39.4)	40 (60.6)	2.69**	1.35-5.37
Parental monitoring				
High <sup>(r)</sup>	128 (67.4)	62 (32.6)	1	
Low	63 (42.6)	85 (57.4)	1.79*	1.01-3.18
Parental drinking				
No drinking parents <sup>(r)</sup>	52 (71.2)	21 (2.88)	1	
At least one drinking parent(s)	139 (52.5)	126 (47.5)	2.34*	1.15-4.74
Per drinking				
No <sup>(r)</sup>	81 (85.3)	14 (14.7)	1	
Yes (Having at least one drinking friend)	110 (45.3)	133 (54.7)	5.75***	2.76-12.01
Perceived alcohol availability				
Low <sup>(r)</sup>	104 (61.7)	41 (28.3)	1	
High	87 (45.1)	106 (54.9)	1.89*	1.02-3.48

Note <sup>(r)</sup> = reference group \* p < .05. \*\* p < .01. \*\*\* p < .001.

self-efficacy in alcohol drinking (AOR = 2.05, AOR = 1.80, respectively). These results are correlated with those in previous studies (DeHart et al., 2009; Oei and Jardim, 2007; Young et al., 2007). These findings are supported by The Theory of Triadic Influence (TTI) (Flay and Petraitis, 1994), which

assumed that one's general ability to control his or her behaviors and emotions might affect one's sense of self or self-concept. People who can control their actions and moods are likely to develop stronger self-esteems and more coherent self-concepts. People who have the will to control their behaviors, and

believe they have the skills to perform a given health-related behavior should have stronger health-related self-efficacy and should be more likely to adopt health-promoting behaviors. Moreover, refusal skills are specific skills that can help adolescents avoid or reduce alcohol consumption, making them less susceptible to peers' pressure, and giving them greater self-esteem. This study suggests that improved self-esteem and refusal self-efficacy can be expected to provide adolescents with the will and skills to control their alcohol drinking behavior.

The finding also suggests that attitude toward alcohol drinking has a significantly positive effect on alcohol use among adolescents. Adolescents with a favorable attitude toward alcohol drinking were more likely to drink than those with an unfavorable attitude (AOR = 2.01). This is consistent with previous studies (Lehto et al., 1994; Roek et al., 2010). According to Flay and Pertraitis (1994), broad socio-cultural factors contribute indirectly to health-related beliefs and attitudes, by contributing more directly to health-related knowledge, values, expectations, and evaluations. In turn, health-related beliefs and personal values converge to shape attitudes toward health-related behaviors. In addition, most of health-related behaviors are shaped by expectations regarding the health, financial, and social consequences of a given health-related behavior; and evaluations of those consequences. All of those affect health-related behaviors by shaping health-related attitudes. Thus, attitude is an important predictor of a given behavior such as alcohol consumption.

This study was also found that the risk of alcohol drinking was higher for adolescents who lived in single-parent families, had low monitoring from parents, had parent(s) or friend(s) who drank alcohol, and had high perception of alcohol availability. These results are similar to those found in prior studies. These findings could be explained that adolescents from one-parent or stepparent families are at higher risk for alcohol use because of the stress induced by parental conflict, lower income, lack of satisfaction in family interactions or other socio-demographic correlates (Epstein et al., 2002). The efforts of parents to reduce the opportunities

for youth to use alcohol with their friends and the positive parent-child relationships served as the protective effect of parental monitoring on adolescent alcohol consumption (Capaldi et al., 2009). Social Learning Theory claimed that parent and peer behaviors could provide adolescents a chance to imitate and learn and could affect their drinking behavior (Bandura, 1977). The TTI also assumed that social settings could contribute to an individual's behaviors by affecting the attitudes, values, and behaviors of other people such as parents and peer in the same environment. These factors, in turn, affect one's perceptions of norms concerning a given behavior. Alcohol drinking behavior of parents and peer thus is a very important factor influencing such behavior among their adolescent children. This indicates adolescent alcohol interventions might be successful if parents and close friends alter their alcohol drinking behavior. In this study, adolescents with high-perceived alcohol availability tended to be related to an increased likelihood of drinking (AOR=1.89, 95% CI = 1.02-3.48). The possible reasons can be explained that adolescents secure alcohol from a variety of commercial and social sources, while parties, friends, and adult purchasers are the most common sources of alcohol among adolescents (Wagenaar et al., 1996). Commercial and public availability of alcohol can have a reciprocal influence on the social availability of alcohol and thus contribute to changing social and cultural norms that promote harmful use of alcohol (WHO, 2010). These suggest some strategies to reduce alcohol availability in Vietnamese society.

However, in this study, age and academic performance were not found to be significantly related to alcohol drinking behavior among adolescents. It could be explained that as the present study was limited to adolescents studying in grades 10-12, the range of age was 15-18 years and the average age was 16.6 years old, which is considered to be homogeneous in age. With regard to the academic performance, the findings could be argued that besides of academic performance is one way to indicate general intelligence and intelligence is one of the basic dimensions that characterizes one's personality

and also contributes to health-related decisions and behaviors such as alcohol drinking behavior (Flay and Petraitis, 1994); the link between educational performance and alcohol use might be a reflection of other genetic and environmental factors, such as socioeconomic background (Staff et al., 2008).

The cross-sectional study design of this research limits the interpretation of its results. The observations of the relationship between related factors and alcohol drinking behavior were conducted at one point in time; it did not allow establishing causal relationship among variables. Alcohol consumption in adolescents in this study also limits to represent adolescents who are studying only in public schools. It might differ from study in out-school adolescents or students in private schools.

Results of this study suggest that the development of the effective alcohol prevention programs for adolescents should be considered individual and contextual factors. They should also target male adolescents more and involve not only adolescents but also their families, their close friends and the policy.

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