Factors influencing alcohol use among Korean adolescents:
A comparison between middle and high school students

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Introduction

Drinking among youths is a problem experienced in many countries, and Korea is not an exception. The legal drinking age in Korea is 19; however, there has been an increase in underage drinking over the years and problems drinkers among youths are also on the rise (Government Youth Commission, 2005). An early drinking onset is a strong predictor of alcohol abuse and alcohol-related problems in the adulthood (McGue et al., 2001; Grant, 1998), and is associated with low grade, deviant behaviors, legal problems as well as adverse effects on the developing body of minors. A more alarming finding among Korean youths is that the age of first drinking is decreasing and that the gap between girls' and boys' drinking is narrowing, which is similar to findings from Monitoring the Future Study (Johnston et al., 2002) in the US.

Studies on alcohol use among youths have received much attention in the western academia leading to many epidemiological studies, intervention studies, prevention work, and those aiming at policy efforts. Research in underage drinking

began to receive some attention in Korea from 1990s. Until recently, most of these efforts focused on treatment and intervention of those at risk rather than targeting all youths on the premise of first and secondary prevention. It is promising that recent studies in youth drinking began to tackle predictors of youths drinking, drinking behavior, and factors influencing problem drinking. Most of these studies, however, treat youths as one group and fails to make distinctions between different age group. Adolescents experience many changes throughout their teenage years, and if we were to find different factors influencing alcohol use and risky drinking practices at different developing stage, it would be helpful in providing specific programs that target specific age groups. Based on this assumption, the purpose of this study is to examine factors that influence risky drinking among Korean adolescents, and to compare these factors between different age groups, age 13 through 15 (middle school group) and age 16 through 18 (high school group). Findings from this study are expected to help intervention efforts and program development that cater to more needs of each age group.

Many factors have been found to influence underage drinking, namely cognitive factors, family history, parental attitude, peer drinking, and societal attitude toward drinking. The Health Belief Model is the most frequently used social cognition model to predict health related behaviors. This model maintains that behavior is influenced by an individual's beliefs and attitudes related to health outcomes (Becker, 1974; Rosenstock et al., 1988). Becker's (1974) Health Belief Model includes perceived susceptibility, severity, benefits, barrier, and self-efficacy. Later Becker included health motivational cues that imply one's desire to maintaining one's health and avoiding illness. Several studies has utilized the model in health-related research in Korea. One

study on Korean college student drinking found that lower benefits and higher barrier led to less alcohol use (Chai, 2001). Based on the model, we may state that higher perception of health belief is associated with less harmful use of alcohol (or abstinence in the case of youths).

Bandura, the founder of social learning theory, described that not only individual factors but environmental factors including family and peers shape human behavior. The model has been extensively applied to the explanation of alcohol use among all population. Alcohol using behavior is partly obtained through modeling others' behavior, and especially those who are significant in one's life are more likely to serve as the role of in modeling. For adolescents, these are likely to be parents and peers, and drinking attitude or drinking behaviors of parents and peers greatly influence that of youth (Arata, 2003; Chung, 2007; Kandel & Andrews, 1987; McDermott, 1984; Kim, 2006).

Methods

Sample and data collection

A stratified national sample of 2,732 adolescents from six major provinces in Korea was included in the study. Data on 1,420 adolescents in the 13-15 age group were collected from 8 middle schools, and 1,312 adolescents in the 16-18 age group were from 10 high schools. Data were collected using a self-administered questionnaire.

Major variables

Risky drinking: Drinking 5 or more drinks at any given day in the past 30 days was considered a risky drinking practice. In the 2007 National Survey on Drug Use and Health, SAMHSA used five or more drinks at one sitting as a criteria for harmful

drinking.

Peer drinking: Peer drinking is defined as drinking frequencies (number of days) of a close friend in the past 30 days.

Parental attitude toward drinking: Parents' attitude toward adolescent's drinking was used as a binary variable indicating whether parents would approve of respondent's drinking with friends (1-will approve, 0-not approve).

Health belief: A Korean version of the health belief questionnaire developed by Moon (1990) based on Becker (1974)'s properties of health beliefs (perceived susceptibility, severity, benefits, and barrier) were used for the study. The score in each property was summed to provide a total score of respondent's health belief. Higher score indicates having higher health belief.

Analysis

Two analytical methods were employed for the study. First, two sets of multiple regression were conducted for each of the age group to examine influential factors of alcohol consumption and drinking frequencies, and results were compared between the two groups. Second, in order to inspect variables associated with risky drinking, again two sets of logistic regression were conducted and compared. All analyses were done using SPSS 15.0.

Results

Out of the 2,732 respondents, 55.3% (n=1,510) were male adolescents and 44.7% (n=1,222) were females. Among them 52% (n=1,420) were in the younger age group (middle school students) and 48.0% (n=1,312) were those in between 16 and 18.

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<Table 1> describes alcohol-related characteristics of the respondents. More than half of respondents have experienced drinking (70.1%) which shows a high prevalence of drinking among adolescents. Drinking frequencies in the past 30 days was almost twice higher for the older group (2.9 times vs. 1.2 times), and they are shown to consume more alcohol (9.35 drinks vs. 0.96 drinks). Almost half of close friends of high school students are drinkers whereas 13% of those of middle students are drinkers. This result indicates that older age corresponds to more drinking. When asked about their perception on whether parents would approve of their drinking, 37.6% of high school respondents said yes (vs. 9.2% of middle school students). Differences in health belief was not prominent between two groups, showing a slight higher score among the younger group.

<Table 1> Alcohol-related characteristics

	Total (N=2,732)	Middle School (n=1,420)	High School (n=1,312)	χ^2, t
Drinkers	70.1% (1,914)	57.8% (821)	83.3% (1,093)	χ^2=211.24*** (df=1)
Drinking frequency[a] (Past 30 days)	M=1.12 (SD=2.4)	M=0.49 (SD=1.2)	M=1.59 (SD=2.9)	t=-11.28***
Consumption[a] (No. drinks)	M=5.75 (SD=17.3)	M=0.96 (SD=3.1)	M=9.35 (SD=22.1)	t=-12.38***
Risky drinking[a] (5 or more drinks)	36.6% (291)	6.8% (15)	48.0% (276)	χ^2=111.29*** (df=1)
Peer drinking frequency (No. of days in the past 30 days)				
None	66.0% (1820)	87.0% (1236)	44.5% (584)	χ^2=571.62*** (df=5)
Once a month	15.6% (425)	8.1% (115)	23.6% (310)	
2-4 / month	12.1% (331)	3.5% (49)	21.5% (282)	

1-2 / week	3.8% (105)	0.7% (10)	7.2% (95)	
3-4 / week	1.1% (31)	0.5% (7)	1.8% (24)	
Almost everyday	0.7% (20)	0.2% (3)	1.3% (17)	
Parents will allow drinking	22.8% (623)	9.2% (130)	37.6% (493)	χ^2=312.92*** (df=1)
Health Belief	M=40.8 (SD=6.6)	M=42.6 (SD=6.3)	M=39.2 (SD=6.4)	t=14.17

*p<.05, **p<.01, ***p<.001

Note: a. Calculations are based on 795 youths who endorsed drinking in the past 30 days

Factors influencing drinking frequencies

<Table 2> shows multiple regression results showing the factors influencing drinking frequencies in the past 30 days in the two age groups. For both groups both higher peer drinking and lower health belief were significant predictors of drinking frequencies. For the middle school respondents, parents' permissive attitude was related to higher frequencies of drinking, while it had no significant influence on the high school group. Of the influential variables, close friends' drinking had the most effect on drinking for both groups (β=.31 and β=.50). The variables included in the analysis explained 18% of the variances (R²=.18, F=41.71, p<0.001) in the middle school group and 30% for the high school group (R²=.30, F=109.03, p<0.001).

<Table 2> Factors influencing drinking frequencies

	Middle School		High School	
	B	β	B	β
Gender (0=Male)	-.10	-.05	-.42	-.07**
Peer drinking frequencies	.46	.31***	1.22	.50***
Parental attitude	.38	.11**	.07	.01
Health Belief	-.03	-.20***	-.04	-.10**
F	41.71***		109.03***	
R²	.18		.30	
Adjusted R²	.17		.30	

*p<.05, **p<.01, ***p<.001

Factors influencing alcohol consumption

An analysis of factors influencing alcohol consumption is presented in <Table 3>. Results are similar to those predicting drinking frequencies, except that health belief was not a significant predictor for the high school group. Peer drinking frequencies, parental attitude, and health belief were found to be influential factors for middle school students, whereas gender and peer drinking were predictors of alcohol consumption amount for older students. Similar to drinking frequencies, peer influence had the largest effect on alcohol consumption (β=.31 and β=.43 for middle and high school students, respectively). The four variables together explained 17% of the variance in middle school students' alcohol consumption and 22% for the high school group (R²=.17 and R²=.22).

<Table 3> Factors influencing alcohol consumption

	Middle School		High School	
	B	β	B	β
Gender (0=Male)	.05	.01	−4.43	−.10***
Peer drinking frequencies	1.32	.31***	8.11	.43***
Parental attitude	1.16	.12***	−.49	−.01
Health Belief	−.09	−.18***	−.19	−.05
F	38.36***		70.82***	
R²	.17		.22	
Adjusted R²	.16		.21	

*p<.05, **p<.01, ***p<.001

Factors influencing risky drinking

Results from logistic regression analysis are shown in <Table 4>. Two sets of logistic analysis were conducted for each of the age group using risky drinking as a binary variable (1= risky drinking). First, for both groups, close friend's drinking frequencies were significant predictor of risky drinking. For the middle school group, each drink by the friend doubles the probability of respondent's risky drinking (Odds Ratio=2.24, p<0.01). However, this result needs to be interpreted with caution since only 15 middle students fell under the risky drinking category. In the high school group, peer drinking is associated with 46% increase in terms of odds of falling into the risky drinking category (Odds Ratio=1.46, p<0.001).

Gender was found to be significant only for the high school group. That is, male high school students are more likely to fall into the risky drinking practices (OR=0.65, p<.05).

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Unlike drinking frequencies, only gender and peer drinking were found to be significant predictors of risky drinking among adolescents. This indicates that neither parental attitude nor health belief is influential when it comes to risky drinking.

<Tables 4> Results from logistic regression: Risky drinking

	Middle School Group				High School Group			
	B	Odds Ratio	Confidence Interval		B	Odds Ratio	Confidence Interval	
			Lower 95%	Upper 95%			Lower 95%	Upper 95%
Gender (0=Male)	0.43	**1.54**	0.50	4.78	-0.43 *	**0.65**	0.45	0.93
Peer drinking frequencies	0.81 **	**2.24**	1.30	3.87	0.38 ***	**1.46**	1.23	1.72
Parental attitude	-0.42	**0.66**	0.13	3.24	0.12	**1.13**	0.79	1.62
Health Belief	-0.05	**0.95**	0.87	1.05	-0.02	**0.98**	1.00	1.01
	-2LL=107.626, Model χ^2=11.235, df=5, p<.05				-2LL=740.993, Model χ^2=31.946, df=5, p<.001			

*p<.05, **p<.01, ***p<.001

Discussion

The purpose of this study is to examine factors that influence risky drinking among Korean adolescents, and to compare these factors between different age groups, namely middle and high school students. Study results indicate that drinking is quite prevalent among adolescents in Korea and speaks to the need for closer monitoring and research targeting this population.

The findings yield the following implications for underage drinking prevention and intervention. First, similar to previous findings in youth drinking studies, this study also found the peer factor as the most influential variable for adolescents' drinking behavior. This speaks to the need for targeting adolescent group as a whole rather than individuals. The study findings also imply efforts to develop programs focusing on specific refusal skills and responding skills to peer pressure.

Second, middle and high school group were similar yet different in some aspects in regard to alcohol-related variables. For the younger adolescent group, parental attitude was found to be significant. This suggests that the intervention efforts should target not only adolescents but also adults (or parents) in order to tackle the problem more efficiently. Health belief was also found to predict younger students' alcohol use. Health belief can be developed through parents and/or surrounding environment, but at the same time, assisting to gain appropriate knowledge on severity and danger of harmful drinking may be useful to this group.

Third, risky drinking practices were found in 6.8% of younger adolescents and 48% of the older adolescents. This implies that primary prevention efforts should begin from early ages in order to prevent developing into risky drinking in the later years, and for the older group both primary and secondary prevention program should be developed targeting each group with specific needs.

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