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A Study of the Relationship between Parental Alcohol Problems and Alcohol Use among Adolescent Females in Republic of Korea

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chool of Social Work and Institute for Social Research, University of Michigan¹⁾

Objectives : The study was designed to test if alcohol use and alcohol-related problems among adolescent females are related to their parents' level of alcohol problems.

Methods : In 2001, a stratified sample of 2077 adolescent females, grades 10-11, from twelve female-only high schools located in a large metropolitan city in the Republic of Korea completed a questionnaire about alcohol use, parental attention, and parental alcohol consumption, and other risk and protective factors. Data were analyzed with chi-square and regression analyses.

Results : Nearly 63% of the student drinkers had experienced at least one to two alcohol-related problems in their lives. Two-thirds of all 2077 students indicated that at least one of their parents had an alcohol-related problem and that approximately 29% had experienced several problems. Results of random effects ordinal logistic regression analyses suggest a dose-response relationship between parental and youth alcohol-related problems.

Youth who report having parents with some and many alcohol problems were 30% (Odds Ratios [OR] = 1.30; 95% Confidence Interval [CI] = 1.10 - 1.53) and 55% (OR = 1.55; 95%CI = 1.23 - 1.95) more likely to experience alcohol-related problems than youth whose parents do not have alcohol problems, respectively, after statistically adjusting for important covariates.

Conclusions : This study presents evidence that alcohol-related problems among adolescent female students is highly prevalent. Also, the study findings reveal a high percentage of parents with alcohol problems, as reported by students. This study presents evidence of what might be a hidden problem among adults and youths in the Republic of Korea that merits serious attention.

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Key Words: Adolescents, Females, Alcohol abuse, Mental health, Survey, Republic of Korea

Introduction

This article presents the results of a survey of alcohol use conducted in September of 2001 with 2077 adolescent females in a large metropolitan city in the Republic of Korea. In 1999, a government study of alcohol use in the Republic of Korea concluded that drinking alcohol was becoming an increasingly common activity among youth in general and females in particular [1]. The government's study indicated that the lifetime prevalence of alcohol use among adolescent females had change from 43.7% in 1989 to 69.5% in 1996,

while for males it increased from 72.4% to 74% in the same period. The increase in alcohol consumption among adolescent females is of concern because of the documented association between early initiation of alcohol use and the risk of problematic drinking in young and middle adulthood, as well as the potential association between early alcohol use and subsequent illegal drug use [2-4], though the later observation has not been documented among populations in Asian countries.

A large number of factors have been identified as potentially influencing a person's

risk of developing alcohol problems [5-6] but parental and peer influences appear to be two of the most important factors contributing to increased alcohol consumption and related problems [7-11]. Researchers have found the mean age of first diagnosis of alcoholism among Koreans to be significantly lower among individuals who grew up in families with an alcoholic parent when compared to individuals who grew up in families without an alcoholic parent [12]. In another study it was found that among a sample of 102 adolescent children of alcoholics, 17.8% of males and 7.5 % of females were heavy drinkers [13]. In a

study of 1,384 high school students, it was found that 10.7% of female high school students and 17.3% of male high school students reported having parents with an alcohol problem or alcoholism [14]. These findings are consistent with findings of studies conducted in the United States [15,16].

Peer pressure has been identified as an important risk for adolescent alcohol involvement in the Republic of Korea. In a 1999 study of 1,613 Korean students in middle school and high school, approximately 50% of adolescents regarded drinking as a necessary behavior to make friends, which was the most frequent reason given by students for consuming alcohol [17]. Prior research in the U.S. also has documented the influences of peers on adolescent alcohol consumption [5,18]. In addition to these influences, a large body of research exists documenting an association between the use of mood altering substances and psychological problems [19-25]. While research on the causal direction of this association is still under investigation [22,23] it is of concern that youth who drink are more likely to experience other health and mental health problems.

The present study sought to contribute to the literature on alcohol use among adolescent females by attempting to answer the following two research questions using data collected from a large sample of female students in the Republic of Korea. "Are youth alcohol use and problematic use related to their parents' level of alcohol problem?" "Is problematic use related to their mental health status, behavioral problems, peers, and levels of parental supervision?"

Methods

1. Subjects

Subjects included 2,077 female high school students, grades 10 to 11, sampled from twelve female-only high schools located in the metro area city of Tae-gu, the Republic of Korea.

The sampled high schools were from six administrative districts in Tae-gu. Twelve of the 18 principals contacted from the female-only high schools in the city gave permission to conduct the study. Five classes were randomly selected from each school for a total of 60 classes. Nearly 87% of all students in each class participated once consent was obtained from parents and youths, who signed the consent form prior to questionnaire administration. Students without parental consent or who declined participation were asked to act as if they were completing the survey and to turn it in with no markings in the envelope to avoid being identified as non-participants.

II. Instrument

The survey instrument consisted of questions selected from established questionnaires used in youth alcohol research in the U.S. The instrument's items were double translated into Korean first and then back into English by two distinct Korean educators. Then, the instrument was pilot tested on a sample of 50 adolescent females in the Republic of Korea. The data were carefully examined for any language discrepancies and the MPLUS software [26] was used to obtain the scales' factor structures. With this procedure we identified and eliminated questions that may have seemed appropriate but did not load on any factors. All data collected are based on students' self reports.

The 23-item Rutgers Alcohol Problem Index (RAPI) [27] was used to identify students who had consumed alcohol in the past three years and to identify students with drinking related problems. Students are asked "How many times did the following things happen to you while you were drinking alcohol or because of your alcohol use during the last 3 years?" Two examples are: "Not able to do your homework or study for a test" and "Got into fight, acted bad, or did mean things." All items are measured on a scale that ranges from 1 (Never

to 5 (More than 10 times). Due to the skewed nature of the data, three categories of responses were created according to tertiles: Those with absolutely no problems [23] (points), those with some problems [24-27] (points), and those with several problems [28] (or more points). Chronbach's alpha for these items in this sample was estimated to be 0.92. The six-item Children of Alcoholics Screening Test (CAST-6) [28] was used to measure the extent of parents' drinking problems. Items included such questions as "Did you ever encourage one of your parents to quit drinking?" and "Did you ever argue or fight with one of your parents when he or she was drinking?" All items were dichotomous and the total score could range from 0 to 6. Chronbach's alpha for these items was estimated to be 0.85. Due to the skewed nature of the data three categories were created guided by tertiles: Students whose parents had absolutely no alcohol related problems (a score of zero), some problems (a score of 1-3), and several problems (a score of 4-6). The Drug Use Screening Inventory (DUSI) [29] was used to measure students' behavioral and psychological problems, extent of parental attention, and the number of delinquent friends. These factors, measured on a 'Yes-No' dichotomous format, are depression, anxiety, behavior problems, parental attention, social withdrawal, and friends' delinquency. Chronbach's alpha for these domains ranged from 0.61 to 0.81. An example of a DUSI domain is the "behavioral problems" scale that asked the following six items: 'Do you argue a lot?,' 'Do you yell a lot?,' 'Are you easily upset?,' 'Do you generally feel angry?,' 'Do you swear or use dirty language a lot?,' 'Do you tease others a lot?' We created a three-level response category for the behavioral problems factor: Students whose scores summed up to zero were coded as having "no problems" (0), those with one to two problems were coded as having "some problems" (1), and those with a score of three to six were coded as having "many problems" (2). Finally, parental

education was measured by asking students for the highest level of education any one of their parents completed. The categories were as follows: did not complete high school, completed high school, completed college, completed a university degree. This measure was used as a proxy of socioeconomic status.

III. Data Collection and Analysis

To take advantage of a larger sample size, missing values on the independent and dependent variables were replaced with multiple imputation derived values [30-31], using the NORM missing value software [32]. The chi-square statistic was utilized to test for differences in proportions and multiple ordinal regression analysis was used to test if levels of alcohol problems varied as a function of parental alcohol problems, parental attention, behavioral problems, depression, and peer delinquency, while statistically adjusting for the students' age and parental education. We

allowed the intercept and each of the predictors' coefficients to vary randomly using hierarchical linear modeling[33] with the HLM software [34]. This analysis was conducted to test whether the associations between each predictor and the dependent variable (alcohol-related problems) varied randomly between schools.

Results

Participants were a total of 2,077 youth ages 14 to 18 years old in grades 10th through 11th. Approximately 75.7% (n=1,573) came from public schools and 24.3% (n=504) from private schools. About 1% (n=20) were 14 years old, 48% (n=995) were 15, 44.3% (n=920) were 16, 6.7% (n=140) were 17, and only 2 students were 18 years old. Approximately 12% of the students' parents had not completed high school, 51% had a high school degree, 7% had completed college, and 30% had a university

degree.

I. Student alcohol use and parental alcohol problems

A total of 1,430 students or 68.8% indicated they had consumed alcohol once in the three years prior to the survey. Those who reported consuming alcohol in the past three years were then asked 23 questions about any problems they may have experienced due to their drinking. About 37.1% experienced no problems, 33.5% experienced some problems, and 29.4% experienced several problems. Having parents that have no alcohol problems (38.4%), some alcohol problems (32.5%), and several alcohol problems (29.1%) did not discriminate between the percent of students who indicated they had consumed alcohol in the past three years with those who had not ($p>0.05$). This finding may point to a substantial subset of students who may not drink because of their parents' negative

Table 1. Correlates of student alcohol consumption and alcohol-related problems

Correlate	Students' Alcohol-Related Problems								Total (2,077)
	Has not consumed alcohol (n=647)		Consumed Alcohol (n=1430)						
	n	%	No problems		Some problems		Several problems		
n			%	n	%	n	%		
Parents' Alcohol Problems									
None	260	32.6	239	175	175	21.9	124	15.5*	798
Some	206	30.6	167	24.8	163	24.2	138	20.5	674
Several	181	29.9	125	20.7	141	23.3	158	26.1	605
Students' Anxiety Symptoms									
None	293	32.2	242	26.6	211	23.2	165	18.1	911
Some	107	32.2	84	25.3	81	24.4	60	18.1	332
Several	247	29.6	205	24.6	187	22.4	195	23.4	834
Levels of Students' Isolation									
None	355	29.7	326	27.3	287	24.0	227	19.0	1195
Some	213	32.0	159	23.9	151	22.7	142	21.4	665
Several	79	36.4	46	21.2	41	18.9	51	23.5	217
Students' Depression Symptoms									
None	341	36.2	267	28.3	209	22.2	126	13.4*	943
Some	143	27.3	130	24.9	129	24.7	121	23.1	523
Several	163	26.7	134	21.9	141	23.1	173	28.3	611
Students' Behavioral Problems									
None	270	39.4	204	29.7	133	19.4	79	11.5*	686
Some	275	30.0	229	24.9	225	24.5	189	20.6	918
Several	102	21.6	98	20.7	121	25.6	152	32.1	473
No. of Delinquent Friends									
None	569	35.5	447	27.9	361	22.5	224	14.0*	1601
One or more	78	16.4	84	17.6	118	24.8	196	41.2	476
Students' Parental Attention									
Little or none	69	23.5	59	20.1	72	24.5	94	32.0*	294
Some	86	26.1	86	26.1	64	19.5	93	28.3	329
A lot	492	33.8	386	26.5	343	23.6	233	16.0	1454

Note: To compare the correlates between student drinkers and non-drinkers only, collapse the cells under the heading " Consumed Alcohol."
*** $p<0.01$.

experiences with alcohol. This point is elaborated in the discussion section. Among student drinkers, parental alcohol problems significantly differentiated those students with none, some, or several alcohol related problems ($p < 0.001$) (Table 1). Specifically, 26.1% of students experienced several alcohol problems if their parents also had several alcohol problems, 20.5% if their parents had some alcohol problems, and only 15.5% if their parents had no alcohol problems.

II. Student alcohol use and mental health symptoms

Students who reported more symptoms of depression were more likely to be drinkers and to report alcohol-related problems than those with less symptoms of depression ($p < 0.001$). A greater percent of students with several behavioral problems reported drinking (78.4%) compared to those with some behavioral problems (70.0%) and those with no behavioral problems (60.6%) ($p < 0.001$). Also, a greater percent of students with greater number of behavioral problems reported

having several alcohol problems (25.6%) than students reporting some behavioral problems (24.5%), and no behavioral problems (19.4%) ($p < 0.001$). Approximately 83.6% of students who had one to two friends who had had problems with the law reported having consumed alcohol in the past three years where 64.5% of those who did not have friends with legal problems had consumed alcohol ($p < 0.001$). Finally, having parents that monitor and supervise students played a protective role in students' alcohol consumption. A lower percent of students had consumed alcohol if they reported having parents who paid considerable attention to their lives ($p < 0.001$). Alcohol-related problems were found to be more prevalent among students who received little or no parental attention (Table 2).

III. Students Alcohol Use, Mental Health Problems, and Parental Alcohol Problems

Table 2 presents the results of the ordinal logistic regression analysis using hierarchical

linear modeling to allow the parameters to vary randomly between schools. In these analyses we included only variables that were significantly associated with levels of drinking problems per the result of the bivariate analyses. We conducted two sets of analyses. The left panel in Table 2 presents the results of the analysis that included all students, non-drinkers and drinkers alike. The likelihood of experiencing little or no alcohol problems was much lower among students whose parents provide some ($OR = 0.68$; $95\% CI = 0.47-0.98$) and a lot of supervision ($OR = 0.58$; $95\% CI = 0.42-0.79$) compared to those with little or no parental supervision. The right panel in Table 2 presents the results of the analysis that included only students who indicated they had consumed alcohol in the past three years. Limiting the analysis to drinkers only, resulted in all predictors being significantly associated with level of student's alcohol-related problems. A close examination of the odds ratios suggests that a dose-response relationship exists between each of the predictors and student's problematic drinking levels. These findings are discussed in greater detail in the discussion section. Finally, the results of the hierarchical linear analyses indicate that none of the study's estimates of the association between predictors and alcohol-related problems varied between schools. That is, none of the estimated Tau's (variance coefficients of the association between the predictors and alcohol-related problem) varied significantly between schools. Specifically, Tau's ranged from a low of 0.06 for the association between the predictor depression and alcohol-related problem ($p > 0.50$) to a high of 0.33 for the association between the predictor number of delinquent friends and alcohol-related problem ($p > 0.10$).

Discussion

Consistent with the findings of the study sponsored by the Korean government in

Table 2. Predictors of students' levels of alcohol-related problems for all students (left panel) and for drinkers only (right panel), results of random effects ordinal logistic regression analyses

Covariate	Alcohol-related problems among all students (N = 2,077) ^a		Alcohol-related problems among drinkers only (N = 1,430) ^b	
	Odds Ratio	95% Confidence Intervals	Odds Ratio	95% Confidence Intervals
Parents' Alcohol Problems				
None	1.00		1.00	
Some	1.20	0.96 - 1.51	1.30	1.10 - 1.53
Several	1.15	0.92 - 1.44	1.55	1.23 - 1.95
Parental Attention				
Little or none	1.00		1.00	
Some	0.68	0.47 - 0.98	0.72	0.56 - 0.93
A lot	0.58	0.42 - 0.79	0.59	0.47 - 0.75
No. of Delinquent Friends				
None	1.00		1.00	
One or more	2.97	2.27 - 3.89	2.72	2.07 - 3.59
Students' Depressive Symptoms				
None	1.00		1.00	
Some	1.25	0.95 - 1.66	1.40	1.17 - 1.67
Several	1.18	0.94 - 1.49	1.45	1.24 - 1.70
Students' Behavioral Problems				
None	1.00		1.00	
Some	1.57	1.17 - 2.11	1.44	1.19 - 1.74
Several	2.04	1.51 - 2.74	1.86	1.49 - 2.33

^a Response categories: has not consumed alcohol, has consumed alcohol but has not experienced alcohol-related problems, has consumed alcohol and has experienced some or many problems. ^b Response categories: has consumed alcohol but has not experienced alcohol-related problems, has consumed alcohol and has experienced some alcohol-related problems, has consumed alcohol and has experienced many alcohol-related problems.

1999 [1], the present study shows a high proportion of adolescent females using alcohol. This study presents evidence of what might be a hidden problem among adults and youths in the Republic of Korea, specifically, the extent of female adolescents' drinking and related problems, and the extent of and influence of parents' drinking on their children. However, these findings are based on students' self report. Data from parents, teachers, or peers were not obtained. Nonetheless, we are inclined to believe that the presence of any social desirability bias may be hiding a more serious alcohol problem in the population. For this reason, further monitoring of alcohol use and its influences, among adolescents, particularly among females is important. Also, the study sample, though large, is limited to a particular city. Therefore it is unknown if the same rates of alcohol use and its association with risk and protective would be observed with a nationwide sample of Korean female adolescents or if they would be the same among schools with male and female students. If the present study's findings are any indication of the extent of alcohol consumption and problems among female youths in the Republic of Korea, the need for ongoing surveillance of alcohol involvement is certainly critical.

The dose-response relationship observed between students' alcohol-related problems, their mental health problems, and their parents' levels of drinking problems is another important finding and is consistent with associations found in similar studies in other countries [35,36]. The degree of parental alcohol problems is a significant risk factor of students' alcohol-related problem, however, this finding is specific to students drinkers and diluted by including nondrinkers. It is well-known that children of alcoholics have a substantially elevated risk of experiencing alcohol-related problems and alcoholism in adulthood [37] but as many researchers have documented, the risk is enhanced by a number of parental and child characteristics that

include, but are not limited to, the parents' behavioral and cognitive deficits, the child internalizing or externalizing behaviors, the degree of impulsivity, cognitive deficits, intellectual ability, and hyperactivity, among others [35]. The importance of parental influences on youths' behaviors is also highlighted with the finding that a greater percent of students who drink and who have alcohol-related problems are found among those receiving the least amount of parental attention or monitoring. This finding is also consistent with studies conducted in other countries [35-37]. Research is needed to test whether interventions to strengthen monitoring by parents or to enhance ways in which parents pay attention to their children result in decreased incidence of alcohol involvement among females in the Republic of Korea.

Conclusions

The results of the multilevel analyses indicate that the associations between alcohol-related problems and predictors in this sample do not vary between schools. As such, it does not appear that there are school-level factors that might account for the association between students' alcohol-related problems and the predictors included in this study such as parental drinking, parental attention, mental health problems, and peer associations. Additional research is needed to identify if community characteristics may account for alcohol involvement. In turn, the identification of these characteristics could serve as potential targets of primary and secondary interventions to prevent adolescent females from consuming alcohol or to prevent those who have consumed alcohol from escalation into problem causing drinking.

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