NIH Public Access
Author Manuscript

Underage Drinking among Young Adolescent Girls: The Role of Family Processes

Lin Fang[1], **Steven P. Schinke**[2], and **Kristin C. Cole**[2]
[1]Factor-Inwentash Faculty of Social Work, University of Toronto

[2]School of Social Work, Columbia University

Abstract

Guided by family interaction theory, this study examined the influences of psychological, peer, and familial processes on alcohol use among young adolescent girls and assessed the contributions of familial factors. An ethnically-diverse sample of 1187 pairs of girls (*M* age = 12.83 years) and their mothers completed surveys online. Questionnaires assessed girls' lifetime and recent alcohol use, as well as girls' demographic, psychological, peer, and family characteristics. Hierarchical logistic regression models showed that although girls' drinking was associated with a number of psychological and peer factors, the contributions of family domain variables to girls' drinking were above and beyond that of psychological and peer factors. The interaction analyses further highlighted that having family rules, high family involvement, and greater family communication may offset risks in psychological and peer domains. Study findings underscore the multifaceted etiology of drinking among young adolescent girls and assert the crucial roles of familial processes. Prevention programs should be integrative, target processes at multiple domains, and include work with parents.

Keywords

Early adolescence; Alcohol; Underage drinking; Parents; Parenting; Females; Prevention

Introduction

Underage drinking among girls is a growing problem. Not only are girls closing the gender gap in the prevalence of their alcohol use, but among younger girls in particular, they are reporting higher rates of use than boys (Johnston, O'Malley, Bachman, & Schulenberg, 2009). Among the explanations offered for girls' underage drinking, is family interaction theory (Brook, Brook, Gordon, Whiteman, & Cohen, 1990). This theory posits that adolescents' alcohol use results from psychological, peer, and family influences, and suggests that strong parent-child involvement and communication and high levels of parental monitoring can protect girls.

Family interaction theory is especially salient for adolescent girls. Whereas alcohol use among boys is usually explained by personal beliefs (Fisher, Miles, Austin, Camargo, & Colditz,

Address for Correspondence: Lin Fang, Factor-Inwentash Faculty of Social Work, University of Toronto, 246 Bloor Street West, Toronto, Ontario, M5S 1A1, Canada. lin.fang@utoronto.ca.

2007; Yeh, Chiang, & Huang, 2006), family relationships (Yeh et al., 2006) and involvement (Fisher et al., 2007) are better predictors of girls' alcohol use. Moreover, despite increasing knowledge of predictors associated with underage drinking, the relative contributions of familial variables remain unclear. Although some studies suggest that psychological factors such as depression (Silberg, Rutter, D'Onofrio, & Eaves, 2003), body esteem (National Center on Addiction and Substance Abuse, 2003), and self-efficacy (Kumpulainen & Roine, 2002) as well as peer influence (Farrell & White, 1998; Simons-Morton, Haynie, Crump, Eitel, & Saylor, 2001) are strongly associated with adolescent girls' drinking, other findings support that familial factors may be stronger predictors (Cleveland, Feinberg, Bontempo, & Greenberg, 2008).

Informed by family interaction theory, this study investigated how demographic, psychological, peer, and family factors explain girls' alcohol use. We hypothesized that: (1) higher levels of depression, less body esteem, lower self-efficacy, and greater levels of perceived peer alcohol use would be related to girls' drinking; (2) after controlling for the contributions of psychological and peer variables, familial factors, namely maternal drinking, parental monitoring, family rules against girls' alcohol use, parental involvement, and mother-daughter communication, would be associated with girls' alcohol use; (3) familial domain variables would explain girls' drinking over and above that accounted for by psychological and peer domain variables; and (4) familial domain variables would modify the effects of psychological and peer factors on girls' alcohol use.

Methods

Procedures

The study involved a cross-sectional, web-based survey of mother-daughter dyads. Study participants were recruited between September 2006 and December 2007 through advertisements in newspapers, public transportation, and radio stations, and postings on the website craigslist.org. To be eligible, girls needed to be aged between 10 and 14 years, have private computer access, gain their mothers' active participation, and live in the metropolitan New York area. Informed assent and consent forms were sent to eligible girls and their mothers by mail. Of the 1911 mother-daughter pairs contacted, 20.4% ($n = 390$) did not respond, 14.6% ($n = 279$) were no longer interested, 2% ($n = 38$) were deemed ineligible for the study, and 63% ($n = 1204$) agreed to participate and consented. Our consent rate was higher than the average rate (34%) garnered by other web surveys (Shih & Fan, 2008). Once assent and consent were established, girls and mothers completed online measures. Participants reported before and after the survey whether they were taking the survey alone, and could not begin the online measures until they confirmed their privacy. Less than 2% ($n = 17$) reported that other people were present while they completed the survey. Responses for these 17 dyads were excluded from data analyses. The average time required to complete the survey for girls was roughly 35 minutes, and for mothers roughly 20 minutes. Girls and mothers received $25 each for completing the survey. The study protocol was approved by Columbia University Morningside Campus Institutional Review Board.

Participants

The sample was 1187 pairs of adolescent girls (M age = 12.83 years; SD = 1.03; 34.9% were Black, 26.2% were White, 21.1% were Latino, 8.5% were Asian, and 9.3% were mixed race) and their mothers (M age = 40.28 years; SD = 6.66). Less than one-half of the girls (42.6%) lived in a single-parent household. Most girls reported receiving B's (42.3%) or A's (38.9%) at school. About two-fifths of mothers (42.1%) had some college education or an associate degree.

Measures

Girls' drinking behavior—Girls reported if they had ever had a whole drink of an alcoholic beverage (i.e., beer, wine, malt liquor, wine coolers, sweet alcoholic drinks, mixed drinks, and hard liquor) in their lifetime, and during the past 30 days (0 = have never drunk; 1 = have drunk).

Demographic and background variables—Girls reported their age, ethnic-racial backgrounds, and estimated average academic grades (1 = D's and below to 4 = A's). Mothers provided information on their age, levels of education (1 = less than high school; 2 = high school degree; 3 = some college or associate degree; 4 = undergraduate degree; 5 = graduate degree), and family composition (0 = single-parent household; 1 = two-parent household).

Depression—Girls rated their depressed mood, hedonic capacity, vegetative functions, and interpersonal behaviors on the short version of the Children's Depression Inventory (CDI; Kovacs, 1992). The scale had 10 items. Possible responses ranged from 0 to 2. The scores were averaged, with higher scores indicating more definite depressive symptoms. Alpha was .89 for the girls in our study.

Body esteem—On a 5-item physical appearance subscale of the Self-Perception Profile for Adolescents (Harter, 1988), girls specified the degree to which they were happy with the way they looked and with their height and weight. Possible averaged scores ranged from 1 to 5, where higher scores reflected greater levels of body esteem. Alpha was .86 in this study.

Self-efficacy—Girls indicated their levels of self-efficacy by reporting their confidence in abstaining from alcohol use in situations associated with alcohol use on five items derived from the Alcohol Abstinence Self-Efficacy Scale (DiClemente, Carbonari, Montgomery, & Hughes, 1994). Response choices ranged from 1 to 4, with higher averaged scores representing greater self-efficacy. Alpha was .85 for the girls in our study.

Perceived peer alcohol use—Girls estimated how many of their closest friends drank and how many of them got drunk on a 5-point scale (Johnston, O'Malley, & Bachman, 2001). Possible responses ranged from 0 to 4. Alpha was .85 in our study.

Maternal drinking—Mothers reported whether they drank during the past 30 days, where never drank was coded as 0, and ever drank was coded as 1.

Parental monitoring—On the Parenting Practices Questionnaire (Gorman-Smith et al., 1996), mothers indicated their parental monitoring on a 5-item measure, and reported their awareness of daughter's whereabouts, activities, friends, and peer activities. Response options ranged from 1 to 5. Scores were averaged, with higher scores indicating greater parental monitoring. Alpha for the mothers in our study was .82.

Family rules against alcohol use—Responding to a 3-item scale from Strengthening Families Program evaluations (Spoth, Redmond, & Shin, 1998), mothers assessed the extent to which they communicated specific rules about their child's use of alcohol and the consequences for not following those rules. Possible scores ranged from 1 to 5, with higher averaged scores signifying more family rules against alcohol use. Alpha was .84 for the mothers in our study.

Parental involvement—Mothers reported how often they checked their daughter's homework and whether the family ate dinner and lunch together on a 3-item scale (Griffin,

Botvin, Scheier, Diaz, & Miller, 2000). Responses ranged from 0 to 4. Higher averaged scores signified greater family involvement. Alpha for was .82 for the mothers in our study.

Mother-daughter communication—Girls rated the communication with their mothers when faced with problems and conflicts on the adapted Family Problem Solving Communication Index (McCubbin, Thompson, & McCubbin, 1996). Reponses on this 5-item scale ranged from 1 to 5, where higher averaged scores showed better mother-daughter communication. In our study, the alpha was .81.

Statistical Analysis

Hierarchical logistic regression analysis was conducted for each of two dependent variables - girls' lifetime and recent alcohol use. The hierarchical sequence of psychosocial domains entered in the models was guided by study hypotheses as informed by family interaction theory. In each set of analyses, we entered background variables in Block 1 of the regression equation, and psychological factors including girls' depression, body esteem, and self-efficacy in Block 2. Because we were interested in assessing the effects of family processes after accounting for girls' psychological states and peer influence, we entered the perceived peer use variable in Block 3. Familial factors - maternal drinking, parental monitoring, family rules against alcohol use, mother-daughter communication, and parental involvement - were added in Block 4 to determine whether familial factors predicted alcohol use beyond all other variables entered earlier. Finally, we tested an interaction model, examining whether familial factors moderated the association of psychological factors and peer factors with girls' drinking. We developed separate models for each of the interaction terms (five familial variables × four psychological and peer factors). To reduce multicollinearity and facilitate the interpretation of the interaction terms, centered variables were used to create product terms for each potential interaction (Aiken & West, 1991). To reduce Type I error, all confidence intervals were adjusted for multiple comparisons in the interaction analyses (Jaccard, 2001). For each model, demographic, psychological, peer and family variables, and the corresponding product term were entered as predictors. Variables within each block were entered simultaneously. All analyses were conducted in SPSS 16.0 (SPSS Inc., 2007).

Results

Across the sample, 39.7% ($n = 471$) of girls reported ever drinking one alcoholic beverage and 9.8% ($n = 116$) had at least one whole drink recently (in the past 30 days). Girls' drinking rates for the current study were higher than the national average of 23.1% (lifetime) and 7.7% (past 30 days) among girls aged 12–14 years (Pemberton, Colliver, Robbins, & Gfroerer, 2008). Table 1 shows the group differences between girls who drank and those who did not. Older age, poorer academic performance, greater levels of depression, higher perceived peer alcohol use, and higher levels of maternal drinking were observed in the group of girls who ever drank and drank recently, whereas higher levels of body esteem, self-efficacy, parental monitoring, family rules against alcohol use, and family involvement were found in the group of girls who did not drink. Girls' race, mothers' education, and family composition did not differ by girls' drinking behavior.

Hierarchical Logistic Regression Analyses

Separately for lifetime (Table 2) and recent alcohol use (Table 3), hierarchical logistic regression analyses tested the hypothesized relationships between independent variables and girls' drinking, and examined the relative contributions of familial process variables. Independent variables significantly related to girls' drinking on a bivariate level were entered in the regression models. Given the girls' young age, we examined lifetime and recent alcohol use. Whereas the lifetime drinking model provides an understanding of why the girls began to

drink, the recent drinking model yields information about correlates associated with girls' current alcohol use.

Hierarchical logistic regression model for girls' lifetime drinking—Age and academic performance were included in Block 1 (Table 2). Although the model showed that the two background variables contributed to girls' lifetime drinking ($p < .0001$), neither of the background variables made an individual contribution. Both variables were related to girls' lifetime drinking when they were initially entered in the model. However, when psychological factors were included in Block 2, academic performance was no longer a predictor. The effect of age diminished in Block 3, when perceived peer alcohol use was entered in the model.

Block 2 examined the effects of psychological variables on girls' drinking. Depressed girls were more likely to have drunk alcohol ($p < .01$) than less depressed girls. When girls were satisfied with their appearance and weight, they were less likely to have drunk ($p < .05$). Girls who had better self-efficacy were less likely to have drunk ($p < .0001$). The peer use variable was added to the regression equations at Block 3. The perception of peer alcohol use was positively associated with girls' lifetime alcohol use ($p < .0001$).

Familial variables were entered in Block 4 and contributed to the model significantly ($p < .0001$). Of five familial factors, four demonstrated significant associations with girls' lifetime alcohol use. Whereas maternal drinking was positively associated with girls' lifetime use ($p < .01$), parental monitoring ($p < .001$), family rules against alcohol use ($p < .05$), and parental involvement ($p < .05$) were negatively associated with girls' lifetime alcohol use.

The interactional analyses indicated that family rules against drinking moderated the association between peer drinking and girls' drinking, and parental involvement and mother-daughter communication moderated the effects of body esteem on girls' drinking (figure 1). The relationship between peer drinking and girls' drinking was weaker when the family had rules against drinking ($p < .05$). Among girls who had higher levels of body esteem, those whose parents were more involved and those who had more communication with their mothers were less likely to have drunk (both $ps < .05$).

Hierarchical logistic regression model for girls' recent (past 30-day) drinking—The results of the regression model for recent drinking are displayed in Table 3. Again, neither background variable was significantly associated with girls' alcohol use. Consistent with the findings of the lifetime alcohol use model, the significant contribution of academic performance diminished when psychological factors were included in Block 2, and the contribution of age diminished when perceived peer use of alcohol was entered in Block 3.

Psychological factors were included in Block 2. Whereas girls who were depressed were more likely to have recently drunk ($p < .05$), girls with better self-efficacy were less likely to have drunk ($p < .0001$). Body esteem did not make a significant contribution to girls' recent alcohol use. The peer use variable was included in Block 3. Girls whose close friends drank alcohol were more likely to have drunk recently ($p < .0001$). Familial variables were added in Block 4 and contributed to the model significantly ($p < .0001$). However, none of the familial variables except maternal drinking made a significant individual contribution and was positively associated with girls' recent alcohol use ($p < .0001$).

Interaction analyses indicated a relationship between mother-daughter communication and girls' body esteem, self-efficacy, and peer drinking (figure 2). Among girls who communicated with their mother more, increased body esteem ($p < .05$) and self-efficacy ($p < .05$) were associated with lower recent drinking. Girls who had more communication with mothers and had fewer drinking friends were less likely to have drunk recently ($p < .001$).

Discussion

Study results confirmed our first set of hypotheses concerning the relationship between depression, body esteem, self-efficacy, peer alcohol use, and girl's drinking. Higher levels of depression, lower self-efficacy, and greater levels of perceived peer alcohol use contributed to both girls' lifetime and recent alcohol use. Girls' dissatisfaction with their appearance and weight was positively associated with their lifetime drinking, albeit such a relationship was not replicated in the recent drinking model. Body esteem may have different functional roles during girls' developmental processes. Warranting note is that body esteem may not be associated with alcohol consumption among adolescent girls until they enter late adolescence (i.e., 18 years; Rauste-von Wright, 1989).

Study data partially support our hypothesis that familial variables would exert distinct impacts on girls' alcohol use when girls' personal characteristics, psychological states, and perceived peer drinking were considered in the analysis. Beta weights indicate that parental monitoring, family rules against alcohol use, and parental involvement were associated with decreased girls' lifetime alcohol use, but not recent use. Only maternal drinking was significantly related to both girls' lifetime and recent alcohol consumption. Other work suggest that mothers may influence adolescent drinking by modeling drinking behavior (Dooley & Prause, 2007; Tyler, Stone, & Bersani, 2007). In our study, girls whose mother recently drank were 1.5 times more likely to have drunk alcohol in their lifetime, and were 2.8 times more likely to have drunk in the past month compared to girls whose mother who did not drink.

Our prediction that family domain variables would contribute to girls' drinking above and beyond that accounted for by psychological and peer variables was supported. Controlling for individual and peer factors, inclusion of family domain variables improved the fit of lifetime and recent use models significantly, though the added effects were small.

The interaction analyses partially supported the premises of family interaction theory. Whereas maternal alcohol use and parental monitoring only showed direct effects on girls' drinking and did not exert indirect effects, family rules against alcohol use, parental involvement, and mother-daughter communication appeared to buffer girls against factors that might increase their likelihood to drink. Despite bearing no direct effects on girls' alcohol use in either regression model, mother-daughter communication moderated the effects of self-efficacy, body esteem, and peer alcohol use on girls' drinking. These results highlighted the protective values of a warm information exchange style and open communication between mothers and daughters.

Study findings must be interpreted with caution. First, the cross-sectional design limits causal interpretations. Second, the generalizability of the results is compromised given the community sample of girls with private computer access, the use of a non-probability sampling strategy, and a moderate consent rate. Third, the study employed many brief measures. Fourth, the contribution of broader environmental factors (e.g., alcohol advertising, alcohol availability in the neighborhood) and interactions between psychosocial factors that may influence girls' drinking cannot be disaggregated in our data. Fifth, the validity of self-reported data is questionable. Sixth, data were collected exclusively via the Internet.

Drawn from a large, ethnically-diverse sample, study findings lend credence to previous results that alcohol use among adolescent girls is explained in part by individual, peer and family factors. In line with family interaction theory, the study suggests that familial factors not only directly impact girls' drinking, but also that these factors may safeguard against peer and psychological risks. To be effective, alcohol misuse prevention programs for adolescent girls should begin early, involve parents, and address the interplay of risk and protective factors in multiple domains.

Acknowledgments

References

Aiken, LS.; West, SG. Multiple regression: Testing and interpreting interactions. Sage Publications Inc.; Thousands Oaks, CA: 1991.

Brook JS, Brook DW, Gordon AS, Whiteman M, Cohen P. The psychosocial etiology of adolescent drug use: A family interactional approach. Genetic, Social, and General Psychology Monographs 1990;116:111–267.

Cleveland MJ, Feinberg ME, Bontempo DE, Greenberg MT. The role of risk and protective factors in substance use across adolescence. Journal of Adolescent Health 2008;43(2):157–164. [PubMed: 18639789]

DiClemente CC, Carbonari JP, Montgomery RP, Hughes SO. The Alcohol Abstinence Self-Efficacy scale. Journal of Studies on Alcohol 1994;55(2):141–148. [PubMed: 8189734]

Dooley D, Prause J. Predictors of early alcohol drinking onset. Journal of Child & Adolescent Substance Abuse 2007;16(2):1–29.

Farrell AD, White KS. Peer influences and drug use among urban adolescents: Family structure and parent-adolescent relationship as protective factors. Journal of Consulting and Clinical Psychology 1998;66(2):248–258. [PubMed: 9583328]

Fisher LB, Miles IW, Austin SB, Camargo CA Jr. Colditz GA. Predictors of initiation of alcohol use among US adolescents: Findings from a prospective cohort study. Archives of Pediatrics & Adolescent Medicine 2007;161(10):959–966. [PubMed: 17909139]

Gorman-Smith D, Tolan PH, Zelli A, Huesmann LR, Kuperminc GP, Reppucci ND, et al. The relation of family functioning to violence among inner-city minority youths. Journal of Family Psychology 1996;10(2):115–157.

Griffin K, Botvin G, Scheier L, Diaz T, Miller N. Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. Psychology of Addictive Behaviors 2000;14:174–184. [PubMed: 10860116]

Harter, S. Manual for the self-perception profile for adolescents. University of Denver; Denver, CO: 1988.

Hosmer, DW.; Lemeshow, S. Applied logistic regression. 2nd ed.. Wiley; New York: 2000.

Jaccard, J. Interaction effects in logistic regression. Sage Publications Inc.; Thousands Oaks, CA: 2001.

Johnston, LD.; O'Malley, PM.; Bachman, JG. Monitoring the future national survey results on drug use, 1975-2000. Volume I: Secondary school students. National Institute on Drug Abuse; Bethesda, MD: 2001. No. NIH Rep. No. 01-4924

Johnston, LD.; O'Malley, PM.; Bachman, JG.; Schulenberg, JE. Monitoring the Future national results on adolescent drug use: Overview of key findings, 2008. National Institute on Drug Abuse; Bethesda, MD: 2009.

Kovacs, M. Children's Depression Inventory (CDI). WPS/Western Psychological Services; Los Angeles, CA: 1992.

Kumpulainen K, Roine S. Depressive symptoms at the age of 12 years and future heavy alcohol use. Addictive Behaviors 2002;27(3):425–436. [PubMed: 12118629]

McCubbin, HI.; Thompson, AI.; McCubbin, MA. Family assessment: Resiliency, coping and adaptation: Inventories for research and practice. University of Wisconsin-Madison, Center for Excellence in Family Studies; Madison, WI: 1996.

National Center on Addiction and Substance Abuse. The formative years: Pathways to substance abuse among girls and young women ages 8-22. Columbia University; New York: 2003.

Pemberton, MR.; Colliver, JD.; Robbins, TM.; Gfroerer, JC. Underage alcohol use: Findings from the 2002-2006 National Surveys on Drug Use and Health. Office of Applied Studies; Rockville, MD: 2008.

Rauste-von Wright M. Body image satisfaction in adolescent girls and boys: A longitudinal study. Journal of Youth and Adolescence 1989;18(1):71–83.

Shih T-H, Fan X. Comparing response rates from web and mail surveys: A meta-analysis. Field Methods 2008;20(3):249–271.

Silberg J, Rutter M, D'Onofrio B, Eaves L. Genetic and environmental risk factors in adolescent substance use. Journal of Child Psychology & Psychiatry & Allied Disciplines 2003;44(5):664–676.

Simons-Morton B, Haynie DL, Crump AD, Eitel P, Saylor KE. Peer and parent influences on smoking and drinking among early adolescents. Health Education & Behavior 2001;28(1):95–107. [PubMed: 11213145]

Spoth R, Redmond C, Shin C. Direct and indirect latent-variable parenting outcomes of two universal family-focused preventive interventions: Extending a public health-oriented research base. Journal of Consulting & Clinical Psychology 1998;66:385–399. [PubMed: 9583342]

SPSS Inc.. SPSS 16.0 for Windows. SPSS, Inc.; Chicago, IL: 2007.

Tyler KA, Stone RT, Bersani B. Examining the changing influence of predictors on adolescent alcohol misuse. Journal of Child & Adolescent Substance Abuse 2007;16(2):95–114.

Yeh M-Y, Chiang IC, Huang S-Y. Gender differences in predictors of drinking behavior in adolescents. Addictive Behaviors 2006;31(10):1929–1938. [PubMed: 16446046]
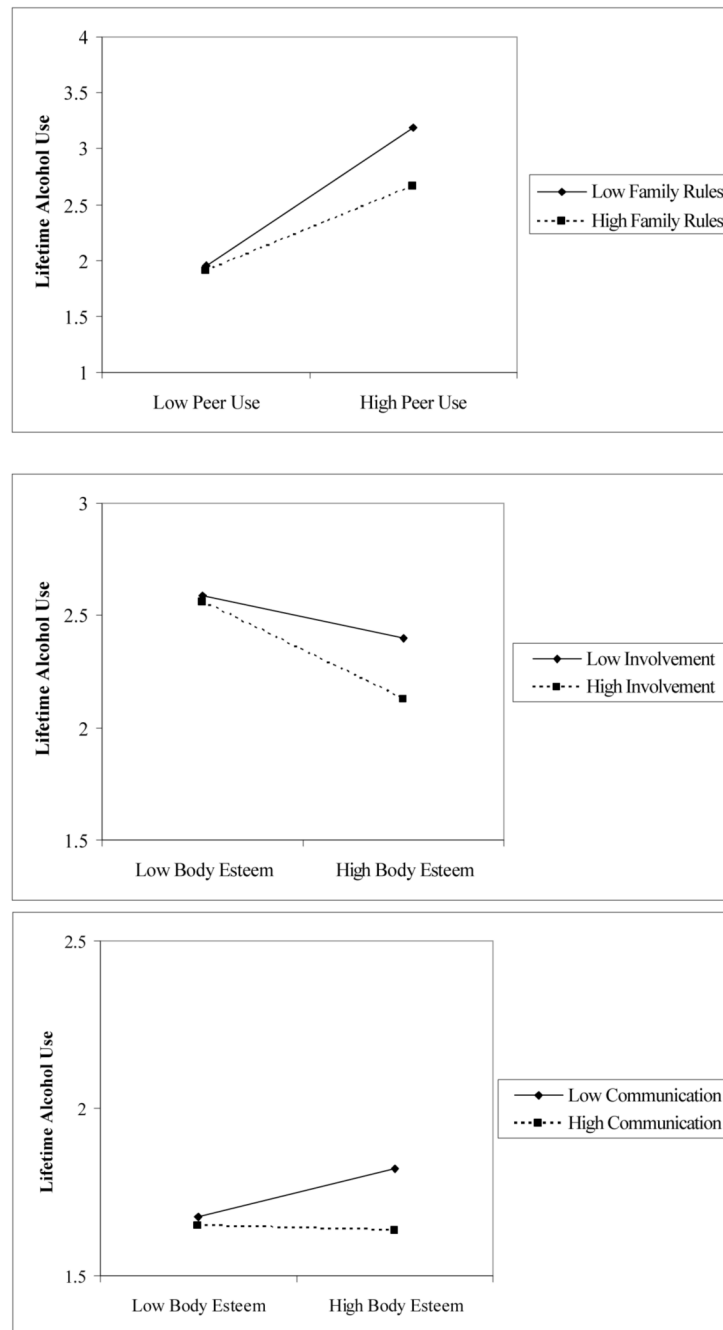
Figure 1.
Plots of the interactions between family rules and peer use (OR = 0.87, CI = 0.78 – 0.99; $p <$ .05), family involvement and body esteem (OR = 0.94, CI = 0.88 – 0.99; $p < .05$), and mother-daughter communication and body esteem (OR = 0.96, CI = 0.93 – 0.99; $p < .05$) from the logistic regression analyses. Lines depict predicted girls' lifetime alcohol use differences at 1 SD above and below the mean for corresponding family variables. For ease of interpretability, analyses for probing and graphing interactions did not include covariates.

Figure 2.
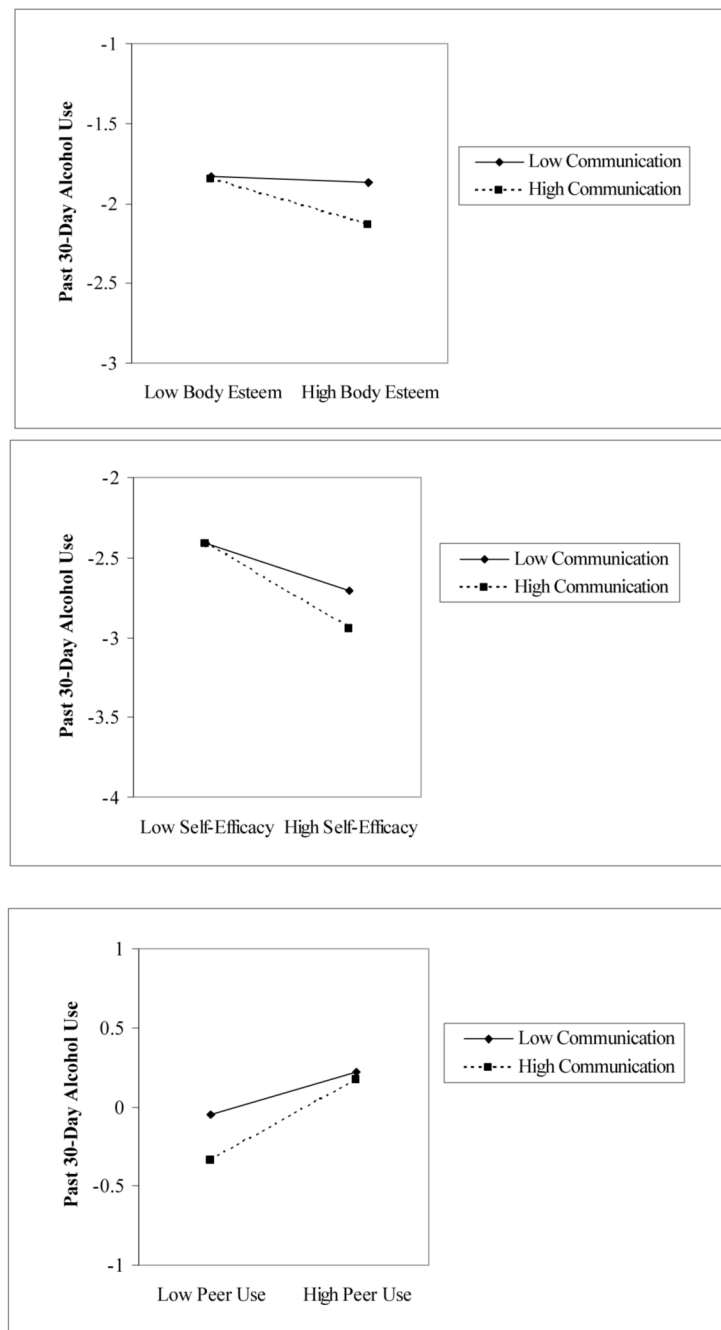Plots of the interactions between mother-daughter communication and body esteem (OR = 0.94, CI = 0.89 – 0.99; $p < .05$), self-efficacy (OR = 0.91, CI = 0.83 – 0.98; $p < .05$), and peer alcohol use (OR = 1.06, CI = 1.02 – 1.10; $p < .001$) from logistic regression analyses. Lines depict predicted girls' recent alcohol use differences at 1 SD above and below the mean for mother-daughter communication.

Table 1

Summary of Major Study Variables and Group Differences by Girls' Lifetime and Recent (Past 30 Days) Alcohol Use (*N* = 1187)

Variables	Lifetime Use				Recent Use			
	Yes (39.7%; *n* = 471)	No (60.3%; *n* = 716)	*t* or χ^2	*ES*	Yes (9.8%; *n* = 116)	No (90.2%; *n* = 1071)	*t* or χ^2	*ES*
	M(SD) or %(*n*)	*M(SD)* or %(*n*)			*M(SD)* or %(*n*)	*M(SD)* or %(*n*)		
Age	13.07 (1.07)	12.68 (0.96)	6.86 ****	.38	13.27 (1.06)	12.79 (1.01)	4.25 ****	.46
Race			7.17	.08			4.88	.06
White	38.3% (119)	61.7% (192)			10.8% (34)	89.2% (277)		
Black	38.2% (158)	61.8% (256)			9.3% (39)	90.7% (375)		
Latino	41.6% (104)	58.4% (146)			8.7% (22)	91.3% (228)		
Asian	39.6% (40)	60.4% (61)			8.8% (9)	91.2% (92)		
Mixed race	45.0% (50)	55.0% (61)			10.8% (12)	89.2% (99)		
Academic grades	3.04 (0.86)	3.20 0.85	−3.12 **	−.19	2.91 (0.81)	3.17 (0.85)	−3.09 **	−.31
Mothers' education	3.64 (1.77)	3.62 (1.83)	0.40	.01	3.68 (1.78)	3.65 (1.80)	0.42	.02
Family composition			0.22	.02			0.06	.01
One-parent	40.7% (206)	59.3% (300)			9.5% (48)	90.5% (458)		
Two-parent	38.9% (265)	61.1% (416)			10.3% (68)	89.7% (613)		
Depression	1.41 (0.50)	1.08 (0.50)	8.62 ****	.66	1.56 (0.44)	1.18 (0.51)	6.21 ****	.80
Body esteem	3.53 (1.00)	3.91 (0.92)	−6.82 ****	−.39	3.41 (0.99)	3.80 (0.96)	−4.42 ****	−.40
Self-efficacy	3.22 (0.62)	3.62 (0.48)	−12.53 ****	−.72	3.00 (0.67)	3.51 (0.54)	−9.79 ****	−.83
Perceived peer alcohol use	2.11 (1.51)	1.27 (0.70)	13.84 ****	.71	2.93 (1.85)	1.47 (0.98)	13.62 ****	.99
Maternal drinking			17.62 ****	.12			30.83 ****	.16
No	54.8% (258)	66.8% (478)			38.3% (46)	64.4% (687)		
Yes	45.2% (213)	33.2% (238)			61.7% (74)	35.6% (380)		
Parental monitoring	4.50 (0.76)	4.81 (0.50)	−9.21 ****	−.48	4.34 (0.81)	4.73 (0.60)	−6.70 ****	−.55
Family rules against alcohol use	2.94 (1.28)	3.30 (1.38)	−4.92 ****	−.27	2.81 (1.29)	3.20 (1.36)	−3.05 **	−.29
Parental involvement	2.47 (1.59)	2.88 (1.63)	−3.36 ****	−.25	3.35 (1.56)	3.76 (1.63)	−2.58 **	−.26

	Lifetime Use				Recent Use			
Variables	**Yes** **(39.7%; _n_ = 471)**	**No** **(60.3%; _n_ = 716)**	_t_ or χ²	_ES_	**Yes** **(9.8%; _n_ = 116)**	**No** **(90.2%; _n_ = 1071)**	_t_ or χ²	_ES_
	_M(SD)_ or %(_n_)	_M(SD)_ or %(_n_)			_M(SD)_ or %(_n_)	_M(SD)_ or %(_n_)		
Mother-daughter communication	3.52 (0.85)	3.69 (0.75)	−2.56***	−.21	3.47 (0.88)	3.62 (0.79)	−1.99*	−.18

Cramer's _V_ was used to compute effect sizes for nominal variables, and Cohen's _d_ for continuous variables.

*
_p_ < .05.

**
_p_ < .01.

***
_p_ < .001.

****
_p_ < .0001.

Table 2

Hierarchical Logistic Regression Analyses of Girls' Lifetime Alcohol Use

	OR	95%CI	B	SE	Δ -2 Log Likelihood	Δ χ²
Intercept			2.33	.97		
Block 1: Background variables					1499.50	$\chi^2(2, N = 1187) = 53.64$****
Age	1.25	0.86–1.83	0.25	.08		
Academic grades	0.99	0.84–1.17	−0.01	.08		
Block 2: Psychological variable					1352.70	$\chi^2(3, N = 1187) = 146.80$****
Depression	1.36	1.08–1.72	0.31**	.12		
Body esteem	0.85	0.73–0.99	−0.14*	.08		
Self-efficacy	0.49	0.38–0.63	−0.69****	.13		
Block 3: Peer use					1288.62	$\chi^2(1, N = 1187) = 64.09$****
Perceived peer alcohol use	1.63	1.42–1.88	0.49****	.07		
Block 4: Family variables					1248.83	$\chi^2(5, N = 1187) = 39.79$****
Maternal drinking						
No	ref					
Yes	1.50	1.13–1.98	0.40**	.14		
Parental monitoring	0.69	0.56–0.86	−0.38***	.11		
Family rules against alcohol use	0.88	0.80–0.98	−0.13*	.05		
Parental involvement	0.93	0.88–0.99	−0.07*	.03		
Mother–daughter communication	0.95	0.80–1.14	−0.05	.09		

Values are taken from the final block (fourth) of the analyses, where OR denotes the odds ratio, and CI denotes confidence interval. The final model was significant, $\chi^2(11, N = 1187) = 304.31$, $p < .0001$, and the Hosmer and Lemeshow test (Hosmer & Lemeshow, 2000) result was nonsignificant, $\chi^2(8, N = 1187) = 8.62$, $p = .38$, indicating the fit of the observed frequencies of cases in the categories compared to those expected based on the logistic regression.

*
$p < .05$.

**
$p < .01$.

***
$p < .001$.

****
$p < .0001$.

Table 3

Hierarchical Logistic Regression of Girls' Recent (Past 30-Day) Alcohol Use

	OR	95%CI	B	SE	Δ -2 Log Likelihood	Δ χ^2
Intercept			−1.07	1.31		
Block 1: Background variables					746.75	$\chi^2(2, N = 1187) = 26.31$ **
Age	1.08	0.85–1.37	0.77	.12		
Academic grades	0.97	0.75–1.25	−0.03	.13		
Block 2: Psychological variables					672.16	$\chi^2(3, N = 1187) = 74.60$ **
Depression	1.56	1.10–2.22	0.42 *	.18		
Body esteem	0.92	0.72–1.16	−0.09	.12		
Self-efficacy	0.50	0.35–0.72	−0.69 **	.19		
Block 3: Peeruse					625.82	$\chi^2(1, N = 1187) = 46.34$ **
Perceived peer alcohol use	1.60	1.38–1.86	0.47 **	.08		
Block 4: Family variables					588.98	$\chi^2(5, N = 1187) = 36.84$ **
Maternal drinking						
No	ref					
Yes	2.84	1.82–4.43	1.02 **	.23		
Parental monitoring	0.85	0.64–1.13	−0.16	.15		
Family rules against alcohol use	0.94	0.84–1.04	−0.06	.05		
Parental involvement	0.94	0.85–1.04	−0.06	.05		
Mother-daughter communication	0.96	0.77–1.33	−0.05	.08		

Values are taken from the final block (fourth) of the analyses, where OR denotes the odds ratio, and CI denotes confidence interval. The final model was significant, $\chi^2(11, N = 1187) = 184.08, p < .0001$, and the Hosmer and Lemeshow test (Hosmer & Lemeshow, 2000) result was nonsignificant, $\chi^2(8, N = 1187) = 7.10, p = .53$, indicating the fit of the observed frequencies of cases in the categories compared to those expected based on the logistic regression.

*
  $p < .05$.

**
  $p < .0001$.