Ethnic and Gender Differences in Risk for Early Adolescent Substance Use

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This study examined inter*personal and* intra*personal risk for substance use in a sample of Caucasian and Hispanic early adolescents. A total of 1170 sixth and seventh graders, equally divided by gender, participated. Interpersonal risk was assessed by susceptibility to peer pressure, parental monitoring, peer substance use, parent–child involvement, and school adjustment. Intrapersonal risk was measured via self-efficacy, impulsivity, aggression, depression, and academic achievement. As expected, mean level of use did not differ between ethnic groups. Regression analyses indicated susceptibility to peer pressure and peer alcohol use were the best predictors of individual substance use. These findings were consistent across gender and ethnicity. In all groups, interpersonal variables accounted for more variance in predicting risk (49% for Hispanic males) than intrapersonal variables (0% for Hispanic females). Findings are discussed (1) in terms of examining mean levels vs. the underlying pattern predicting substance use, and (2) regarding implications for prevention efforts in early adolescence.*

INTRODUCTION

Despite an increasing awareness of its physical and social consequences, drug use continues to occur with epidemic proportion among ado-

lescents. Recently researchers have used an epidemiological approach to examine both the number (Bry *et al.*, 1982) and types of factors (Jessor and Jessor, 1978; Kandel, 1978; Newcomb *et al.*, 1986; Smith and Fogg, 1978) that predict substance use risk in adolescence. An underlying assumption of the epidemiological approach is that individual variables are of little importance; knowing the overall number of variables that predict risk is sufficiently informative.

The purpose of this study was to use a risk factor approach to directly compare the influence of the interpersonal and intrapersonal domains for predicting substance use in early adolescence. Unlike early epidemiological approaches, we were interested in examining the specific influence of individual factors and the general influence of variables by domain. Focusing on the overall *number* of risk variables may be adequate when asking questions about level of use and mean differences between groups. An examination of specific variables is more appropriate, however, when examining similarities and differences in the underlying *pattern* of factors that predict substance use risk.

The question of whether to examine mean differences or pattern reflects one of the biggest ongoing disputes in substance use research, whether (1) a multiple pathway model of drug use is most appropriate, where several different factors may lead to substance use and abuse; or (2) a specific pattern or combination of variables accounts for all types of drug use in all types of users (Brook *et al.*, 1990). Much research points to the importance of a multivariate framework for understanding substance use. Specifically, simultaneous consideration of personality, perceived environment, and behavioral systems has been found to be more heuristic than simplistic, univariate explanations of substance use (Bloch *et al.*, 1991; Huba and Bentler, 1982). Several recent studies have examined risk factors by various domains.

Brook and her colleagues (Brook *et al.*, 1990; Brook *et al.*, 1984) have examined the influence of family and personality factors on adolescent alcohol use. In an early study of Black and Anglo high school students, Brook *et al.* (1984) found that peer, personality, and family factors each independently predicted adolescent risk for initiation of alcohol use. Coombs *et al.* (1991) recently showed that, among Caucasian and Hispanic youth, friend marijuana use was the most reliable predictor of an adolescent's own drug use. These data are consistent with the findings of Newcomb *et al.* (1986) who, in a sample of 10th–12th graders, showed that peer drug use (vs. parent factors) had the highest average correlation with an individual's self-reported drug use.

In the present study we examine risk for substance use by comparing the specific influence of the *inter*personal and *intra*personal domains. A to-

tal of 10 risk variables were included, 5 from each domain. Variables were chosen based on previous research on adolescent samples indicating they predicted substance use (see Brook *et al.*, 1990). Interpersonal risk was assessed via perceived susceptibility to peer pressure and peer alcohol use (Brook *et al.*, 1989; Coombs *et al.*, 1991), parental monitoring (Wells & Rankin, 1988), parent–child involvement (Penning and Barnes, 1982), and adolescent school adjustment (Brook *et al.*, 1990). Intrapersonal risk was assessed by impulsivity and aggression (Block *et al.*, 1986), depression (Brook *et al.*, 1985; Kandel & Davies, 1982), self-efficacy (Simons *et al.*, 1988) and academic achievement (Johnston *et al.*, 1984).

Regarding ethnic differences, previous research has shown that Anglo and Hispanic youth use substances at nearly equivalent levels (Newcomb and Bentler, 1986). Examining mean levels does not, however, convey information about pattern or process. In the present study we expect that mean levels of use between groups will be similar. Further, we expect that the factors predicting risk for substance use (i.e., the pattern underlying levels of use) will be similar for Caucasian and Hispanic youth (Coombs *et al.*, 1991).

There remains some controversy in the literature over factors that may contribute to gender differences in risk for early drug use. Block *et al.* (1986) found that the personality correlates of illegal drug use were similar for boys and girls, a finding confirmed for marijuana use (Donovan *et al.*, 1983). Baumrind (1985) suggests girls are more receptive than boys to interpersonal influences on drug use (cf. Brook *et al.*, 1990). In general, little research has been conducted that specifically examines risk factors for males vs. females. While some consistent mean level differences have been identified (e.g., boys are more aggressive, girls are more depressed and more concerned about doing well in school), there is little reason to expect gender differences in the *pattern* of variables that may reflect the underlying processes predicting substance use in early adolescence.

The present study extends previous risk factor approaches (e.g., Brook *et al.*, 1990; Bry *et al.*, 1982; Coombs *et al.*, 1991; Newcomb and Bentler, 1986) in several ways. First, we allow individuals to be identified as at risk on any individual variable and examine that variable's unique contribution to predicting substance use. In previous studies one summative risk score was typically computed and treated as a single predictor variable of risk. Second, most studies of risk for substance use have employed older adolescent samples, usually 10th–12th graders. If a risk factor approach is to inform prevention/intervention efforts, we need to examine risk in its earliest stages (i.e., early adolescence). Finally, this study advances previous research by specifically examining gender differences in risk within and between ethnic groups (Brook *et al.*, 1990).

METHOD

Subjects and Procedure

All students in Grades 6 and 7 in three local, urban middle schools were asked to participate. The three schools were all of the middle schools in one large school district in a moderately sized southwestern city. According to information provided by school administrators, families represented all socioeconomic levels; local census tract data indicated mean household income for the district was $33,880 (range = $17,067–$48,621). Information about the survey was sent directly to parents by school administrators. A passive consent procedure was employed: parents were sent a consent form and were asked to indicate whether their child was permitted to take part in the study. If parents indicated consent or no form was returned by the parents, the child was considered eligible for the study. Students were surveyed in their classrooms during two 30-minute periods on consecutive days.

At least one research assistant and one teacher was present in every classroom to provide ongoing assistance and answer questions. On average, there were about 20 students per classroom, so research team members could monitor students and help ensure privacy. Before completing the survey, students read and signed individual consent forms (a research assistant also read the form out loud). At this time students were also given the option of nonparticipation.

For those who chose to take part, several strategies were employed to help ensure confidentiality of responses: (1) Students were verbally assured of confidentiality. (2) Students were not permitted to discuss responses with each other. (3) At the end of the first day students placed their surveys in a closed envelope, and packets were collected by research team members; surveys were not left at the school overnight. On the next data collection day research team members returned the packets directly to each student. (4) Survey packets were numbered for data entry; student names only appeared on the outside of the envelopes, which were discarded once packets were collected.

Of the original available sample of 1437 students, 67 (4.7%) did not participate due to parental concerns, 134 students were absent during data collection or chose not to participate (9.3%), and 66 surveys (4.6%) were not usable due to incomplete or missing data (defined as a completion rate below 50% of all items). The final sample consisted of 1170 students in Grades 6 and 7 (mean age = 12.7 years) about equally divided between males (52%) and females (48%). The sample was ethnically diverse, although predominantly Caucasian (64%) and Hispanic (24%). Seventy-four

percent of adolescents came from intact families. Lifetime use of alcohol in the sample was 49.4%, tobacco 17.1%, inhalants 11.7%, marijuana 4.7%, hallucinogens 2.2%, amphetamines 1.9%, and cocaine 1.1%.

Measures

Substance Use

Lifetime substance use was assessed for beer/alcohol, tobacco, inhalants, marijuana, hallucinogens, cocaine/crack, and amphetamines. Subjects rated lifetime use for each substance on a 5-point scale: (1) *never*, (2) *1–2 times*, (3) *3–9 times*, (4) *10–39 times*, and (5) *= 40 or more times*. Lifetime use was the sum of scores across all seven substances (range = 7–35). This measure is similar to scales used in other large surveys of early adolescent substance use (e.g., Kandel, 1980; Newcomb *et al.*, 1986).

Peer Pressure

Perceived susceptibility to peer pressure was assessed using 4 items from the misconduct scale of the Peer Pressure Inventory (PPI) developed by Brown *et al.* (1986). Two content valid items were added to assess substance using behaviors. Adolescents rated the six hypothetical situations in which friends urge participation in an antisocial behavior. On a 4-point scale, responses ranged from *definitely would* to *definitely would not*. Internal consistency in this sample was high (alpha = .87).

Peer Substance Use

One item asked early adolescents to indicate "How often do your close friends drink beverage alcohol?" Students responded on a 4-point scale: (1) often, (2) occasionally, (3) rarely, and (4) never. Because of the young age of our sample, we used peer alcohol use rather than peer marijuana use (see Coombs *et al.*, 1991).

Parental Monitoring

Four core items from Patterson and Dishion's (1985) measure of parental monitoring were used to assess degree of parental supervision. Two content valid items were added for this sample. Cronbach's alpha for the 6 items was .77.

Parent–Child Involvement.

Seven items assessed parent–child involvement, focusing on issues of (1) closeness, e.g., "When you have a problem, how often do you go to your mother/father?" and "How often do you share your thoughts and feelings with your mother/father?" and (2) activities, e.g., "How often do your parent(s) help with your homework?" A mean score was calculated across the 7 items (alpha = .74).

School Adjustment

Five items assessed an adolescent's school behavior and motivation to succeed. For example, subjects responded to questions like "How important is it to you to get good grades in school?" or "I disobey at school." Items were answered on a 3-point scale, generally ranging from either *none* to *a lot* or *not true* to *very true*. One summary score was computed, with high scores indicating high academic integration (alpha = .64).

Self-Efficacy

Eighteen items from Wheeler and Ladd's (1982) self-efficacy scale assessed the adolescent's ability to perform a persuasive task in the presence of peers. Items described social situations followed by an incomplete statement: "Some kids want to play a game. Asking them to play is _____ for you." Adolescents responded on a 4-point scale, ranging from (1) *very hard* to (4) *very easy*. Higher scores indicated a greater sense of self-efficacy with peers. These items have been shown to be appropriate for use with early adolescents; test–retest reliabilities range from .80 for females to .90 for males (alpha for this sample = .89).

Impulsivity

Five items assessed sensation seeking behaviors (Buss and Plomin, 1984). Adolescents rated statements such as "I think planning takes the fun out of things" or "I enjoy new and exciting experiences if they are a little frightening or unusual." Responses ranged from (1) *strongly disagree* to (5) *strongly agree*. One summary score was computed. Coefficient alpha for these items was .71.

Aggression and Depression

Aggression and depression were assessed using items from Achenbach's (1991) Youth Self Report (YSR). The YSR is a commonly used clinical instrument designed to elicit self-report information about adolescent's competencies and behavior problems. Adolescents were asked to rate their behavior for the past six months by responding whether statements were *not true, somewhat or sometimes true,* or *very true or often true* for them. The factor structure and internal consistency of the items have been shown to be highly reliable (Achenbach, 1991; depression alpha = .85, aggression alpha = .88 for this sample).

Academic Achievement

Academic achievement was assessed by having adolescents report an overall letter grade that best represented their average level of achievement in school. They were asked "What grades do you *usually* get on your report card?" Eight grade categories were listed as possible responses. The grade checked was transformed to a numeric grade, ranging from A = 4.0 to F = 0.

Plan of Analysis

One-way analyses of variance (ANOVAs) were conducted to examine overall ethnic differences. In addition, because we were interested in examining gender differences in behavior, one-way ANOVAs were also performed by gender within ethnicity. Pearson correlation analyses were employed to illustrate the relationship between variables. To examine patterns of substance use risk, data were analyzed using a series of multiple regressions. First, in a hierarchical regression, lifetime substance use was regressed on all interpersonal and intrapersonal variables together. Interpersonal variables were entered first, based on recent research showing the importance of variables in this domain for predicting adolescent substance use (Brook *et al.*, 1990; Coombs *et al.*, 1991). Significant predictors were retained for a second within-domain stepwise regression. This second step showed which variables contributed the most unique variance to substance use risk and permitted a specific comparison of variance accounted for by the intrapersonal versus interpersonal domains.

To determine risk status, a dichotomous weighing scheme was employed (e.g., Bloch *et al.*, 1991; Newcomb *et al.*, 1986). First, a risk cut-off score was established by determining, within each ethnic group, the score

representing the top 20% for each variable. Individuals scoring in the top 20% received a risk score of 1 on that variable. Individuals scoring in the bottom 80% received a risk score of 0 for that variable. Based on 10 risk variables across domains, any individual's risk could range from 0 (no risk) to 10 (high risk on each variable measured). The procedure used to define risk in this sample was somewhat more conservative than in previous studies, where risk was defined as the top third of the sample (Bloch *et al.*, 1991) or the top quartile (Newcomb and Bentler, 1986).

RESULTS

One-way ANOVAs were employed to examine differences in mean levels of behavior. Only two differences emerged when comparing all Caucasian youth to all Hispanic youth: Caucasian adolescents reported having higher school grades, $F(1, 1005) = 39.54, p < .01$ and better school adjustment, $F(1, 1019) = 9.51, p < .01$. As expected, overall levels of substance use were not significantly different in the two ethnic groups. Consistent with expectations, an examination of gender differences within each ethnic group showed that for Caucasian youth males rated themselves to be more aggressive, more impulsive, and more self-efficacious than their female peers (Table I). Conversely, females rated themselves to be better adjusted at school and to have better grades. In addition, Caucasian females reported higher levels of depression and more monitoring by their parents than Caucasian males. Fewer gender differences emerged in the Hispanic group. Hispanic females rated themselves to be more aggressive, more depressed, and were more likely to have friends who drank beverage alcohol compared to their male peers.

Table II contains correlations on Caucasian youth for all variables assessed in this sample. As shown in Table II, lifetime substance use for both males and females was most highly related to perceived susceptibility to peer pressure and whether or not an adolescent had a close friend who used beverage alcohol. In fact, susceptibility to peer pressure was highly related to many areas of individual functioning including school adjustment, being aggressive and impulsive, and whether or not parents monitored behavior. It is interesting to note that for both genders, poor school adjustment was significantly related to increased substance use. Similar patterns were evident for Hispanic youth (see Table III). Specifically, increased drug use was positively related to perceptions of pressure from peers, having close friends who drink alcohol, and to poor school adjustment. Further, perceived susceptibility to pressure from peers was also related to increased aggression, impulsivity, and less monitoring by parents.

Table I. One-Way ANOVAs by Gender Within Ethnicity[a]

| | Caucasians | | | | | | Hispanics | | | | | |
| | Males (N = 370) | | Females (N = 369) | | | | Males (N = 144) | | Females (N = 131) | | | |
Variable	Mean	SD	Mean	SD	F		Mean	SD	Mean	SD	F	
Drug use	8.5	2.3	8.3	2.4	.8		8.6	2.7	8.7	3.1	.00	
Aggression	9.8	6.8	8.7	6.3	5.1[b]		9.0	6.2	10.7	6.9	4.9[b]	
Impulsivity	16.5	4.4	15.3	3.9	16.8[d]		16.0	4.5	16.9	4.3	2.9	
Depression	6.8	5.6	7.8	6.3	5.3[b]		5.9	4.6	8.7	6.4	17.3[d]	
Self-efficacy	59.9	9.9	57.9	10.1	7.3[c]		59.1	9.7	59.0	9.8	.01	
Grades	3.1	.7	3.3	.6	14.2[d]		2.8	.8	2.9	.7	2.5	
Pressure	10.3	4.4	10.1	4.2	.2		10.3	4.2	11.2	4.5	2.7	
Friend drink	1.4	.8	1.4	.8	.5		1.4	.8	1.6	.8	4.7[b]	
Monitor	19.2	3.8	20.1	3.4	10.3[d]		19.3	4.2	19.4	3.6	.00	
Relations	2.5	.6	2.5	.6	.94		2.5	.6	2.4	.7	1.5	
Adjustment	10.6	2.3	11.3	2.0	21.1[d]		10.4	2.2	10.6	2.1	.6	

[a] For Caucasian df males = (1, 369); for females df = (1, 368). For Hispanic df males = (1, 143); females. df = (1, 130).
[b] $p < .05$.
[c] $p < .01$.
[d] $p < .001$.

Table II. Pearson Correlations for Caucasian Youth[a]

	1	2	3	4	5	6	7	8	9	10	11
1. Drug use		.37	.31	.17		-.23	.55	.52	-.33	-.20	-.41
2. Aggression	.46		.50	.45		-.19	.48	.32	-.36	-.32	-.59
3. Impulsivity	.32	.44		.18	.12	-.24	.44	.24	-.33	-.27	-.45
4. Depression	.30	.65	.24		-.39	-.12		.13	-.14	-.21	-.16
5. Self-efficacy	.19		.15	-.27				.17			
6. Grades	-.29	-.20	-.11	-.16	.11		-.32	-.22	.18		.39
7. Pressure	.56	.49	.47	.19	.20	-.22		.46	-.50	-.25	-.60
8. Friend drink	.50	.37	.29	.29	.17	-.20	.48		-.33	-.19	-.38
9. Monitor	-.38	-.38	-.34	-.22	-.15	.22	-.45	-.28		.41	.49
10. Relations	-.34	-.33	-.26	-.29		.19	-.29	-.25	.40		.36
11. Adjustment	-.51	-.51	-.34	-.19	-.14	.35	-.54	-.38	.39	.34	

[a]Correlations for males are above the diagonal; correlations for females are below the diagonal. For males, $N = 370$; for females, $N = 369$. All values presented in the table are significant at $p < .05$.

Table III. Pearson Correlations for Hispanic Youth[a]

	1	2	3	4	5	6	7	8	9	10	11
1. Drug use		.52	.26			-.17	.65	.58	-.27	-.28	-.38
2. Aggression	.29		.30	.57		-.33	.56	.27	-.26	-.27	-.43
3. Impulsivity	.31	.49					.34	.26	-.20	-.18	-.17
4. Depression	.23	.57	.30		-.18						
5. Self-efficacy	-.24			-.21							
6. Grades	-.18				-.19						
7. Pressure	.51	.54	.59	.35		-.18		.50	.20	.17	.39
8. Friend drink	.51	.30	.33			-.20	.61		-.28	-.30	-.47
9. Monitor	-.36	-.22	-.43				-.37	-.33		-.27	-.37
10. Relations	-.21	-.32	-.26	-.31		.19	-.30	.36	.36		.27
11. Adjustment	-.45	-.56	-.47	-.35		.34	-.61	-.45	.37	.44	

[a]Correlations for males are above the diagonal; correlations for females are below the diagonal. For males, N = 144; for females, N = 131. All values presented in the table are significant at p < .05.

Regression Analyses

To examine differences in intrapersonal and interpersonal risk for lifetime substance use, a series of regression analyses were employed. Because we were interested in ethnic and gender differences, the regression analyses were conducted for both males and females within each ethnic group. In the first series of hierarchical regressions, all 10 intrapersonal and interpersonal variables were entered in a single step. Those variables that were significant were then retained in a stepwise model that compared interpersonal and intrapersonal variables to determine the variance accounted for by each domain. As shown in Tables IV and V, at this first step as much as 65% of the variance was accounted for in male substance use and 45% of the variance in female substance use.

For both male and female Caucasian early adolescents, perceived pressure from peers to engage in antisocial behavior and having close friends who drink beverage alcohol were the most consistent and powerful predictors of self-reported substance use (Table IV). While the relative magnitude of the individual beta weights was slightly different, the same pattern emerged for Hispanic males. Specifically, substance use was best predicted by having a friend who drinks and perceived susceptibility to peer pressure (Table V). School adjustment also entered for Hispanic males, a variable uniquely absent from the Caucasian male model.

For both ethnic groups, aggression entered the model for males, but not for females. School adjustment was the most consistent significant predictor of female substance use across ethnicity, and was the only significant predictor for Hispanic females. Grades added to the predictive model for Caucasian females but not for any other group (Table IV). Across both gender and ethnicity, interpersonal variables accounted for a greater proportion of the variance in substance use than intrapersonal variables, accounting for as much as 49% of the variance for Hispanic males vs. no variance for Hispanic females.

DISCUSSION

The most striking and consistent finding for this early adolescent sample was the significant contribution of the interpersonal domain to predicting risk of drug use. Specifically, having a friend who drinks beverage alcohol and perceived susceptibility to pressure from peers were the two best and most consistent predictors of drug use. This finding was consistent across both gender and ethnicity. The importance of peer drug and alcohol use and the general influence of peers to predicting adolescent drug use

Table IV. Regression Analyses for Caucasian Youth by Gender[a]

	Full model hierarchical regressions						
	Males				Females		
Variable	Beta	t	p	Variable	Beta	t	p
Friend drink	.324	6.76	.001	Peer pressure	.243	4.93	.001
Peer pressure	.251	4.61	.001	Friend drink	.186	3.81	.001
Aggression	.113	2.22	.05	Parent-child relations	.156	3.53	.001
				School adjustment	.132	2.67	.01
				Grades	.096	2.26	.05
Model R^2 = .38				Model R^2 = .45			

	Stepwise regressions by domain						
	Males				Females		
Variable	Beta	t	Total R^2	Variable	Beta	t	Total R^2
	Interpersonal domain						
Peer pressure	.505	11.12	.25	Peer pressure	.516	11.43	.27
Friend drink	.335	7.19	.35	Friend drink	.328	7.09	.36
				Parent-child relations	.210	4.83	.39
				School adjustment	.172	3.77	.42
	Intrapersonal domain						
Aggression	.313	6.33	.10	Grades	.263	5.19	.07

[a]All variables entered in the stepwise regression are significant at $p < .01$.

Table V. Regression Analyses for Hispanic Youth by Gender[a]

Full model hierarchical regressions

	Males				Females		
Variable	Beta	t	p	Variable	Beta	t	p
Friend drink	.409	6.73	.001	School adjustment	.203	2.11	.05
Aggression	.367	5.70	.001				
School adjustment	.213	3.36	.001				
Peer pressure	.198	3.14	.01				
Model R^2 = .65				Model R^2 = .26			

Stepwise regressions by domain

	Males				Females		
Variable	Beta	t	Total R^2	Variable	Beta	t	Total R^2
			Interpersonal domain				
Friend drink	.445	6.62	.32	School adjustment	.347	4.17	.12
Peer pressure	.391	5.81	.46				
School adjustment	.183	2.77	.49				
			Intrapersonal domain				
Aggression	.490	6.67	.24	No significant variables			

[a]All variables entered in the stepwise regression are significant at $p < .01$.

are well documented (Brook *et al.*, 1990; Coombs *et al.*, 1991). Consistent with these studies, we found significant and direct peer influences for early adolescents. Further, we showed that, when comparing the influence of interpersonal to intrapersonal variables directly, the interpersonal domain consistently accounts for more variance in early adolescent substance use risk.

As expected, males in both ethnic groups reported themselves to be more aggressive than females. Aggression was also the most powerful intrapersonal variable for predicting drug use. This is consistent with previous work on drug use in older adolescent samples (Brook *et al.*, 1990). While other researchers have shown that depression and impulsivity predict drug use (Pandina and Schuele, 1983), our data suggest that these are not as important as aggression, at least when they are simultaneously compared in a single model with other intrapersonal factors.

School adjustment was a significant predictor in all but the Caucasian male model of drug use risk. As expected, self-reported grades were also a significant predictor for Caucasian females. These findings are consistent with those of Brook *et al.* (1990), who pointed out the highly robust influence of school achievement and behavior on patterns of adolescent substance use. These data also support assertions that nondrug using adolescents are responsible, achievement-oriented youth (Brook *et al.*, 1990). Positive school adjustment and academic achievement can provide a context in which children and adolescents experience success and gain reinforcement for their efforts. Developing a positive sense of self-worth in school may help buffer against the possibility of turning to a deviant peer group for reinforcement and reward.

Contrary to expectations, several variables did not predict drug use risk in our sample. For example, even though females in both ethnic groups reported greater mean levels of depression vs. males, depression did not enter the predictive model for any group (but see Simons *et al.*, 1988). In light of previous findings, our data may be interpreted in at least two ways: (1) given the impact of peers on behavior in 6th and 7th grades, depression and impulsivity are simply not as influential in predicting drug use at this early age; or (2) when compared directly with other intrapersonal and interpersonal variables in a risk-based model, interpersonal variables generally have more predictive power than depression and impulsivity.

Parental monitoring and involvement also did not emerge as significant predictors of early adolescent substance use. While both were significantly and inversely correlated with substance use, neither was a consistently significant predictor in regression analyses. By comparing parent, peer, and personality variables directly, the present study suggests parental monitoring's impact on substance use may not be direct; rather, any

effect of parental monitoring on early adolescent substance use may be mediated by peer or other interpersonal variables (Chassin *et al.*, 1993). Direct vs. indirect effects models of the influence of parental monitoring on early adolescent substance use and its implication for prevention efforts awaits further investigation.

Several limitations regarding this sample require mention. First, the data were collected using early adolescent self-reports. The value of obtaining parent or teacher reports has been well documented (Brook *et al.*, 1990). Any time self-reports are gathered regarding sensitive topics, the question of validity and accuracy of responses is raised. We took several steps to help ensure the confidentiality of responses and the validity of the data, including discarding inconsistent protocols and incomplete surveys. Further, as adolescents are the target of prevention efforts, their perspective regarding factors that lead to further substance use is quite useful and necessary.

Second, the data are cross sectional in nature. In order to examine underlying causal structures and the etiological process that leads to high risk for early substance use, longitudinal data are required. The cross-sectional nature of the data also does not permit conclusions about the direction of peer influence. Is the impact of peers on self drug use due to assortative pairing wherein individuals select friends who are similar to themselves (Kandel, 1985; e.g., drug users seek out deviant friends), or does associating with deviant peers lead to substance use and other problem behaviors? Only longitudinal data can address the direct causal pathway between peer influence and an individual's drug use in early adolescence.

Implications for Prevention Efforts

Our data have several implications for prevention efforts. First, it is clear that levels of substance use and risk continue to be quite high at very young ages. Starting and concentrating prevention efforts in the early elementary years is the only effective means of prevention; we cannot afford to wait until middle or late adolescence to intervene. Second, our findings point out the highly significant influence of peer behavior and peer pressure on an early adolescent's decision to use substances. In terms of selecting appropriate prevention program goals, focusing on the interpersonal domain is most appropriate for early adolescents. This may include an emphasis on (1) problem solving with peers, (2) making responsible choices (e.g., choosing friends), and (3) developing strategies to deal effectively with pressure from peers to engage in socially undesirable behavior.

This is not to say that other intrapersonal variables such as aggression and depression should be ignored. For some children and adolescents, these variables may also place them at risk for drug use and other problem behaviors (which may lead to or be associated with drug use). When designing school- and community-based prevention efforts, however, one must decide on a clear focus that will benefit the greatest number of program participants. Our findings, using a large, ethnically diverse, economically representative sample, suggest that the influence of peers deserves early and focused attention.

Finally, what is most compelling about our data is that, despite differences on some specific variables, the significant predictors, across gender, were the same for Caucasian and Hispanic youth. Other researchers comparing different samples have also identified consistencies between ethnic groups (see Brook et al., 1990). What does this mean for our prevention efforts? If the same factors place adolescents in both ethnic groups at risk for substance use, then both adolescents should be exposed to the same prevention efforts. For example, our data suggest that a Caucasian youth who has friends who drink beverage alcohol is at high risk for using substances. A Hispanic youth in the same situation is also at high risk. Both youth may benefit from prevention efforts with similar goals. While this data speaks to similarity of *pattern* in predicting risk for drug use and the importance of the interpersonal domain, a true examination of *process* awaits specific comparisons of relationships between groups and longitudinal research designs.

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