

## **Depression and Substance Use in Two Divergent High School Cultures: A Quantitative and Qualitative Analysis**

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*Research has generally concluded that adolescent depression and substance use are strongly interrelated, but has rarely considered how this relationship may vary across diverse populations. In this study, we used quantitative and qualitative methods to explore the relationships among depression and cigarette, alcohol, marijuana, and harder drug use across two culturally disparate*

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*environments: a suburban and an inner-city high school. Our sample included 164 suburban and 242 inner-city high school students. The students completed Kovacs' Children's Depression Inventory of 1985 and substance use measures derived from various sources. In-depth semistructured interviews were conducted with subjects who scored in the top 10% of the CDI (N = 19) from both schools. Our quantitative findings indicated a positive association between depression and cigarette, marijuana, and harder drug use among the suburban students, and no association between depression and the use of any substances for the urban students. There were no significant differences in levels of reported depression across samples. However, with the exception of marijuana use, suburban students reported greater involvement in substance use than urban students. Our qualitative analyses suggest that across-school differences in the relationships among depression and substance use may be related to the varied meanings of depression and substance use that are informed by cultural context.*

## INTRODUCTION

Over the past 30 years an abundance of research on adolescents and young adults has investigated the relationships among depression and substance use. The results of these studies suggest that adolescents or young adults who are heavy cigarette, drug, or alcohol users are more likely to show signs of depression than light or nonusers (Aneshensel and Huba, 1983; Braucht *et al.*, 1973; Kaminer, 1991; Kaplan *et al.*, 1980; Kaplan *et al.*, 1984; Kennedy *et al.*, 1987; Paton *et al.*, 1977; Reinherz *et al.*, 1991; Robins and Przybeck, 1985; Shiffman and Wills, 1985; Simons *et al.*, 1991). Researchers and practitioners have typically concluded that there is a strong association between depression and substance use among adolescents (Blau *et al.*, 1988; Kaplan *et al.*, 1984; Reinherz *et al.*, 1991; Simons *et al.*, 1988).

There has been little research, however, that has explored the effects of gender, ethnicity, social class, or environment (e.g., urban vs. suburban) on the relationships among depression and substance use. The few studies that have examined such sociodemographic differences have concluded that this type of investigation is critical (Dembo *et al.*, 1979; Paton and Kandel, 1978; Prendergast, 1974; Siegel and Ehrlich, 1989). Paton and Kandel (1978) report widely disparate relationships between depression and substance use among different ethnic groups, and between males and females within selected ethnic groups. They found no relationship between depression and drug use among either black or Puerto Rican adolescents; however, this relationship was highly significant for white adolescents, with higher levels of depression associated with higher levels of drug use. Fur-

thermore, the relationship between depression and drug use was significantly stronger for the white girls in the sample than for the white boys.

Siegel and Ehrlich (1989) report socioeconomic status (SES) differences in levels of depression among adolescent substance abusers. The high SES, white adolescent substance abusers scored significantly higher on the depression scale (The Children's Depression Inventory) than the low SES, white adolescent substance abusers. Their findings suggest that the relationships among depression and substance use may vary across social class. Siegel and Ehrlich (1989) state that the low success rates among treatment programs for drug-abusing adolescents may be related to a failure to "take into account the possibility that adolescents from different ethnic or socioeconomic backgrounds may take drugs (and alcohol) for different reasons" (p. 925). Drug and alcohol use may not be related to depression for lower SES adolescents as it is for higher SES adolescents.

While researchers have examined gender, ethnic, social class, or environmental (e.g., rural vs. urban) differences in levels of drug use (Kaplan *et al.*, 1984; Kaplan *et al.*, 1980; Siegel and Ehrlich, 1989), type of drug use (Hager *et al.*, 1971; Harris, 1971; Siegel and Ehrlich, 1989; Smart and Fejer, 1969), and levels of depression (Baron and Perron, 1986; Doerfler *et al.*, 1988; Kaplan *et al.*, 1980; Siegel and Ehrlich, 1989), they rarely have looked for such sociodemographic differences in the *relationships* among depression and substance use.

In the present study we used both quantitative and qualitative methods to explore the relationships among depression and cigarette, alcohol, marijuana, and harder drug use in two culturally divergent school environments: an inner-city public high school and a suburban public high school. The inner-city school and the suburban school are characterized by differences in racial and ethnic composition, social class, geographic location, and educational and community resources. We assume that differences we may find between the two schools reflect a complex combination of these social class, racial, ethnic, and environmental factors. Rather than attempting to tease out the differential effects of such factors, as was done in the previously cited studies (e.g., Paton and Kandel, 1978), our analyses are conducted at a more macro level where individual contributions coalesce to form the distinct community of the school culture.

We conducted an integrative analysis of quantitative and qualitative data in which quantitative results were used to select participants, generate questions, and provide a context for the qualitative analysis. Therefore, the paper is divided into two methods and results sections, one for the quantitative analysis and one for the contingent qualitative analysis. The two sets of findings are synthesized through a single discussion section.

## QUANTITATIVE ANALYSIS

### Method

#### *Subjects*

The sample included 164 students from a suburban high school (grades nine [ $N = 44$ ], ten [ $N = 36$ ], eleven [ $N = 35$ ], and twelve [ $N = 49$ ], 75 boys, 89 girls) and 242 students from an inner-city high school (grades nine [ $N = 45$ ], ten [ $N = 33$ ], eleven [ $N = 68$ ], and twelve [ $N = 96$ ], 108 boys and 134 girls). Both schools were located in the Greater Boston area. The students from the suburban high school primarily described themselves as Irish-American (26%), Italian-American (11%), Irish and Italian-American (5%), or white with no ethnicity specified (45%). The students from the inner-city high school primarily described themselves as African-American (35%), Puerto Rican or Dominican (31%), Haitian (12%), white (7%), or American Indian (4%).

The suburban students came from predominantly middle- or working-class families, while the urban students came from predominantly working-class or poor families. These variations in social class were inferred from the parents' educational backgrounds, their current occupations, the families' housing situations, and the percentage of students who receive subsidized lunches (see Table I).

In addition to social class differences, the schools had substantially different dropout rates: It is projected that 32% of the freshman students in the urban school vs. 4% in the suburban school will not graduate. Due to this important distinction, our study does not attempt a broad description of the comparative experiences of inner-city and suburban youth. However, while the elevated dropout rate in the urban school restricts the generalizability of our findings, our inclusion of students from the four high school grade levels makes it possible to capture the experiences of numerous inner-city students who are potential dropouts. As such, while this study does not reflect the behavioral and emotional characteristics of students who have dropped out, neither does it provide a uniform picture of inner-city students who have fully circumvented risk for dropping out.

In both schools, students were recruited for the study through presentations made to their classrooms by members of our research team. In the suburban school where tracking exists, equal numbers of required courses were targeted for presentation within each academic track, allowing us to reach a sample of students that was representative of the whole school population. In the urban school there is no tracking, but large numbers of students receive special education services. As such, we targeted propor-

**Table I.** Student Reports of Parent Job-Type, Parent Education Levels, Family Housing, and School-Reported Percentages of Subsidized Lunches

	Parents' jobs			
	Suburban school		Urban school	
	Mothers	Fathers	Mothers	Fathers
"Professional"	21%	40%	4%	4%
"Semiprofessional"	16	10	9	6
Business person	6	9	8	8
Own business	1	8	5	6
Blue-collar job	12	19	25	39
Office-clerical	22	3	4	0
Other	5	4	5	5
Unemployed	16	4	39	20
Don't know	0	1	4	13

  

	Parents' education			
	Suburban school		Urban school	
	Mothers	Fathers	Mothers	Fathers
Graduate school	11%	16%	2%	2%
College grads	23	35	7	7
Some college	18	14	9	9
High school grads	25	12	21	16
Trade school	14	13	7	7
Less than twelfth grade	5	5	33	23
Don't know	4	5	23	35

  

	Housing	
	Suburban school	Urban school
Project housing	0%	19%
Two- or three-family homes	12	36
Apartments	4	28
Single-family homes	84	15
Rent home	12	71
Own home	82	27

  

	Students eligible for subsidized lunches	
	Suburban school	Urban school
	3%	80%

tional numbers of mainstream vs. special education classrooms for our presentations. Across all of the classrooms from which we recruited in both schools, 80–90% of the students agreed to participate. Of those students who agreed to participate, 98% in both schools agreed to *both* the ques-

tionnaire and the interview. Participants were paid five dollars for completing the questionnaire measures and five dollars to participate in a follow-up interview.

### *Questionnaires*

*Children's Depression Inventory (CDI).* All students completed the CDI (Kovacs, 1985), a 27-item questionnaire designed to assess the severity of depressive symptoms from mid-childhood through late adolescence. The scale, based on the BDI for adults, measures symptoms such as disturbances in mood, eating behaviors, self-esteem, and interpersonal behavior. For each item, students are asked to check one of three descriptions that best applies to them during the last 2 weeks (e.g., "I am sad all the time," "I am sad many times," "I am sad once in a while"). Responses to each item are scored on a 0–2 scale (from *least depressed* to *most depressed*). A total score of 19 or above, out of a maximum of 54 points, is considered a strong indicator of depression (Kovacs, 1982). According to Kovacs (1983), the CDI's "readability" is at the first grade level, thus increasing its accessibility to students in a high school population at various levels of literacy. The CDI has been used with urban and suburban samples and has typically indicated minor or no significant differences by grade, sex or race (Doerfler *et al.*, 1988; Finch *et al.*, 1985; Kovacs, 1980–1981). The CDI has shown high internal consistency ranging from .71 to .86, and test–retest reliability ranging from .38 to .87, depending on the length of time between tests and the population studied (Kovacs, 1983; Saylor *et al.*, 1984). It has also been reported to be strongly related to other self-report measures of constructs associated with depression (e.g., self-concept, hopelessness, and anxiety; Doerfler *et al.*, 1988; Kovacs, 1982; Way *et al.*, 1990). In the present study, inter-item reliability, using Chronbach's  $\alpha$ , was .80 for the urban school and .88 for the suburban school.

*Substance Use Scales.* Our substance use scales were derived from the Institute of Behavioral Science's Health Questionnaire (Donovan *et al.*, 1985) and the California Substance Use Survey (Skager and Firth, 1988). Additional questions were developed in consultation with students from each school who advised us on the use of appropriate and accessible language for their age group and cultures.<sup>5</sup> Separate measures for cigarettes, alcohol, marijuana, and harder drugs (e.g., cocaine and LSD) employed Likert-type scales to assess the age at which the student started using the particular substance, the frequency of use, the amount of use at any one time, and when, where, and

<sup>5</sup>These consultations with students, some with reading disabilities, allowed us to create measures that are accessible to students with diverse reading skills.

with whom the use typically occurs. Total scores for each measure included age of initiation, frequency, amount, and patterns of use.

The alcohol use measure, for example, was comprised of 9 equally weighted questions: 1 for age of initiation ("How old were you when you had your first whole drink?"), 2 for frequency of use (e.g., "How often do you drink alcohol?"), 2 for amount of use at any one time (e.g., "When you drink, how many whole drinks do you usually have at a time?"), and 4 for patterns of use (i.e., "When do you usually drink alcohol?" "What kind of alcohol do you drink most often?" "Have you ever gotten drunk during school?" "In the past year, have you ever been too drunk or hung over to stay at school?"). An overall alcohol score, is the summed total of the individual responses to each of these nine equally weighted questions. Rather than simply assessing frequency of use, the alcohol scale taps into other factors that contribute to the severity of alcohol-use problems. As a case in point, a student who reports drinking on average three beers at a time every week during the weekends, and has occasionally gotten drunk during school would receive a higher score on the alcohol measure than a peer who reports drinking a six pack of beer at a time about once a month during the weekends, and has never gotten drunk during school. However, if this latter student has occasionally gotten drunk during school, then he or she would receive the same score as the former student. Scaling and scoring procedures were similar for each of the substance use measures.<sup>6</sup>

For the urban school, inter-item reliability for cigarettes was .82, for alcohol .86, for marijuana .78, and for harder drugs .73. For the suburban school, inter-item reliability for cigarettes was .86, for alcohol .84, for marijuana .82, and for harder drugs .92.

### *Procedure*

Parental consent forms were distributed and collected prior to questionnaire administration. Consent forms provided a brief description of the study and emphasized the confidentiality of student responses. In addition, prior to completing the questionnaires, all students were verbally assured of full confidentiality. Questionnaires were identified by number codes rather than student names. The researchers maintained a list with participants' names and corresponding code numbers for the purpose of identifying students for follow-up interviews.

<sup>6</sup>Throughout this paper, the phrases "levels of substance use" or "levels of cigarette, alcohol, marijuana use or harder drug" are intended to describe patterns of use inclusive of but not limited to frequency of use.

All 406 participants completed the questionnaires during one class period. To maximize the comfort of participants and the likelihood of honest responses, teachers were asked to leave the classroom during questionnaire administration. At least two research team members were present throughout the administrations to distribute and collect questionnaires, monitor student contact, and respond to students' questions and concerns. The use of simple language made the questionnaires accessible to most students. However, in a small number of cases ( $N = 8$ ) where reading deficiencies were profound, a team member read the questions aloud to students in a private setting.

## Results

### *Comparisons Across Schools*

*Means Analysis.* The mean scores and standard deviations for depression and substance use, and a comparison of means across schools are shown in Table II. Levels of reported depression did not differ significantly across schools. The mean depression score (9.2) and the range of scores (0–31) in the suburban school were very similar to the mean depression score (9.4) and range (0–29) in the urban school. There were significant differences between schools, however, in reported prevalence of students' drug and alcohol use. Suburban students reported using significantly more cigarettes, alcohol, and harder drugs than the urban students.<sup>7</sup> The average score for marijuana use was similar across schools (see Table II).

*Correlation and Multiple Regression Analyses.* The results of analyses of correlation among depression and different substances are shown in Table III. In both schools, all forms of substance use were highly intercorrelated. Depression scores among the students in the suburban sample were positively correlated with cigarette use ( $r = .33, p < .0001$ ), with marijuana use ( $r = .24, p < .0021$ ), and with harder drug use ( $r = .22, p < .0037$ ). Depression and alcohol use was not significantly correlated ( $r = .14, p < .074$ ); however, the nonsignificant correlation went in the same direction as the other significant correlations. A multiple regression analysis showed that substance use (the combined effect of cigarettes, alcohol, marijuana, and harder drugs) explained 16% of the variability ( $p < .001$ ) in depression

<sup>7</sup>For the urban students, relatively little harder drug use was reported, resulting in a non-normal distribution for this variable. However, harder drug use was normally distributed in the suburban sample. This discrepancy should be kept in mind when examining the results regarding harder drug use.



**Table II.** Mean Scores, Standard Deviations, and Comparisons of Means Across Schools<sup>a</sup>

	Suburban school	Urban school	<i>p</i> Value
Depression	9.2 (7.1)	9.4 (5.9)	NS
Cigarette smoking	5.5 (5.9)	3.7 (4.9)	.001
Alcohol use	16.8 (10.1)	11.7 (8.4)	.0001
Marijuana use	6.8 (6.7)	6.4 (5.9)	NS
Harder drug use	24.0 (6.0)	22.2 (1.1)	.001

<sup>a</sup>Standard deviations are in parentheses.

**Table III.** Correlations Among Depression and Substance Use

	Suburban school				
	Depression	Cigarette smoking	Alcohol use	Marijuana use	Harder drug use
Depression	—	.33 <sup>a</sup>	.14	.24 <sup>b</sup>	.22 <sup>b</sup>
Cigarette smoking		—	.58 <sup>a</sup>	.65 <sup>a</sup>	.41 <sup>a</sup>
Alcohol use			—	.57 <sup>a</sup>	.39 <sup>a</sup>
Marijuana use				—	.72 <sup>a</sup>
Harder drug use					—

  

	Urban school				
	Depression	Cigarette smoking	Alcohol use	Marijuana use	Harder drug use
Depression	—	.06	-.04	-.06	.07
Cigarette smoking		—	.53 <sup>a</sup>	.42 <sup>a</sup>	.22 <sup>a</sup>
Alcohol use			—	.54 <sup>a</sup>	.23 <sup>a</sup>
Marijuana use				—	.26 <sup>a</sup>
Harder drug use					—

<sup>a</sup>*p* < .0001.

<sup>b</sup>*p* < .01.

for the suburban sample. Depression, however, was not significantly correlated with *any* of these substances in the urban sample.

### Comparisons Within Schools

#### *Gender Differences*

*Means Analyses.* Means and standard deviations for depression and each substance, for boys and girls across both schools, are shown in

Table IV. In the urban sample, males and females did not have significantly different depression scores, yet the girls were overrepresented in the top 10% of the sample, with 19 of the 24 highest depression scores.<sup>8</sup> The findings were similar for our suburban sample: males and females did not have significantly different depression scores, but again, the girls were overrepresented in the top 10% of the sample with 11 of the 16 highest depression scores.

Females in the suburban sample used significantly less alcohol, marijuana, and harder drugs than males (see Table IV). There was no gender difference for cigarette use. Urban girls' scores on cigarettes, alcohol, marijuana, and harder drugs were not significantly different from boys' scores. However, when we looked at differences between girls and boys within the dominant ethnic groups in the urban school (African-American, Puerto Rican, and Haitian), we found that African-American girls, on average, scored significantly lower on the marijuana scale than African-American boys (means = 6.6 and 10.3, respectively,  $p < .03$ ). No other statistically significant gender differences in substance use were found within or across ethnic groups.

*Correlation and Multiple Regression Analyses.* The results of the correlation analyses for the depression and substance use scores for girls and boys can be seen in Table V. Similar to the findings for the entire urban sample, data from urban girls alone and from urban boys alone revealed no significant correlation between depression and substance use of any kind.

Table IV. Means and Standard Deviations Across Gender Within Each School<sup>a</sup>

	Suburban school			Urban school		
	Girls	Boys	<i>p</i> Value	Girls	Boys	<i>p</i> Value
Depression	9.8 (7.7)	8.5 (6.4)	NS	10.1 (6.1)	8.6 (5.5)	NS
Cigarette smoking <sup>b</sup>	5.2 (6.0)	5.8 (5.8)	NS	4.2 (5.2)	3.1 (4.5)	NS
Alcohol use	14.5 (9.6)	19.4 (10.1)	.002	11.0 (8.2)	12.5 (8.8)	NS
Marijuana use	5.3 (4.6)	8.6 (8.3)	.004	5.9 (5.2)	7.1 (6.6)	NS
Harder drug use	22.8 (3.3)	25.4 (9.2)	.03	22.1 (1.1)	22.2 (1.2)	NS

<sup>a</sup>Standard deviations are in parentheses.

<sup>b</sup>Standard deviations are high relative to the means for cigarette smoking because the analyses include nonsmokers, which lowers the means. This results in a wide range of variation above each mean for smokers.

<sup>8</sup>Six of these 19 were Haitian girls, revealing that a highly disproportionate percentage of very depressed girls were Haitian (only 12% of our sample were Haitian). The mean depression score for Haitian girls was 14.8, by far the highest mean in our sample.

**Table V.** Pearson Correlations Between Depression and Substance Use Across Gender Within Each School

	Urban		Suburban	
	Females	Males	Females	Males
	Depression	Depression	Depression	Depression
Cigarette smoking	.07	.07	.40 <sup>a</sup>	.24 <sup>b</sup>
Alcohol use	.01	-.10	.21 <sup>b</sup>	.10
Marijuana use	-.04	-.05	.35 <sup>a</sup>	.23 <sup>b</sup>
Harder drug use	.07	.08	.36 <sup>a</sup>	.26 <sup>b</sup>

<sup>a</sup> $p < .001$ .<sup>b</sup> $p < .05$ .

For the girls in the suburban sample, depression was correlated with the use of cigarettes ( $r = .40, p < .0001$ ), alcohol ( $r = .21, p < .05$ ), marijuana ( $r = .36, p < .0006$ ) and harder drugs ( $r = .36, p < .0006$ ). For the boys in the suburban sample, there were significant correlations between depression and the use of cigarettes ( $r = .24, p < .03$ ), marijuana ( $r = .22, p < .05$ ), and harder drugs ( $r = .25, p < .03$ ), but not between depression and alcohol use.

These correlational findings suggest that the relationship between depression and substance use may be stronger for girls than for boys in the suburban sample. To test this possibility, multiple regression models were created using interaction effects of gender and each of the substances (separately) in the prediction of depression. These multiple regression models revealed that gender interacted significantly with marijuana and with harder drugs in the prediction of depression. Marijuana alone accounted for 5% of the variance in depression in the suburban school ( $p < .002$ ). Although the main effect of gender ( $p < .07$ ) did not significantly enhance the prediction of depression ( $R^2 = .07$ ), the addition of the interaction variable for marijuana and gender ( $p < .03$ ) to the model containing both main effects did significantly enhance the explained variance in depression ( $R^2 = .10$ ). The picture was similar for harder drug use and gender. Harder drug use alone accounted for 5% of the variance in depression in the suburban school ( $p < .003$ ). The addition of gender ( $p < .09$ ) to the model was not significant ( $R^2 = .06$ ); however, the addition of the interaction variable for harder drug use and gender ( $p < .007$ ) to the model significantly enhanced the explained variance in depression ( $R^2 = .11$ ). Gender did not interact significantly with alcohol or cigarettes in the prediction of depression.

These multiple regression findings indicate that, as suggested by the correlational findings, there are significant gender differences in the relationship between depression and marijuana use, and between depression and harder drug use within the suburban sample. However, there are no significant gender differences in the relationship between depression and alcohol use or depression and cigarette use.

### *Grade Differences*

*Analysis of Variance.* The grade differences in reported levels of depression and cigarette, alcohol, marijuana, and harder drug use within the two schools are shown in Table VI. Within the suburban school, there were significant differences between grades in levels of cigarette ( $p < .0005$ ), alcohol ( $p < .0001$ ), and marijuana use ( $p < .0001$ ). Students in the eleventh and twelfth grades reported greater alcohol use than did the ninth- and tenth-grade students, and greater cigarette use than the tenth-grade students. The twelfth graders also reported heavier patterns of marijuana use than the ninth and tenth graders, while the eleventh graders reported a heavier pattern of marijuana use than did the ninth graders. Within the urban school, grade differences were found only for alcohol use ( $p < .01$ ). Eleventh graders reported greater alcohol use than did twelfth graders. No other grade differences were found in patterns of substance use in the urban school (see Table VI).

*Multiple Regression Analyses.* Interactions between grade level and substance use were examined to determine whether they predicted depression. No significant interaction effects were found in either school. For each grade, the relationships between depression and substance use of each type were similar to the overall relations (i.e., across all grades) between these variables in each school.

## QUALITATIVE ANALYSIS

### **Method**

Perhaps our most noteworthy quantitative finding was the distinction between the two schools in patterns of substance use as predictors of depression. Depression was significantly correlated with cigarette, marijuana, and harder drug use in the suburban school, whereas in the urban school, depression was not significantly correlated with any type of substance use. As an initial step in exploring possible explanations for this finding, we

Table VI. Mean Differences Across Grade for Depression and Substance Use

Suburban school							
	Grades				<i>F</i> value	Scheffé contrasts	<i>N</i>
	9	10	11	12			
Depression	9.9	7.5	9.2	9.8	.93	NS	163
Cigarette smoking	4.6	2.7	7.6	7.2	6.26 <sup>a</sup>	10 < 11 and 12	160
Alcohol use	10.8	13.5	20.4	21.8	14.80 <sup>a</sup>	9 and 10 < 11 and 12	162
Marijuana use	4.1	4.5	8.7	9.5	8.05 <sup>a</sup>	9 and 10 < 12, 9 < 11	160
Hard drug use	22.4	22.2	25.2	25.9	3.29	NS	157
Urban school							
	Grades				<i>F</i> value	Scheffé contrasts	<i>N</i>
	9	10	11	12			
Depression	7.8	8.8	8.9	10.8	3.08	NS	231
Cigarette smoking	4.6	4.0	4.4	3.1	1.41	NS	230
Alcohol use	11.4	14.5	13.6	9.6	4.02 <sup>b</sup>	12 < 11	224
Marijuana use	5.8	8.4	6.9	5.8	1.74	NS	225
Hard drug use	22.0	22.0	22.3	22.3	.87	NS	222

<sup>a</sup>*p* < .001.<sup>b</sup>*p* < .01.

analyzed interviews from the most depressed students (according to the CDI) in both schools.

Our analyses focused on the following questions: (a) How might students with similarly high depression levels across the two schools differ in their perspectives on substance use? (b) How might these possible differences in perspectives begin to explain why depression and substance use are differentially related across the schools?

### Subjects

Our qualitative analyses were conducted on interview data from the 19 students across both schools who scored in the top 10% of our sample on the CDI, with depression scores ranging from 19 to 30. This range is consistent with the top 10% of scores reported by Kovacs (1985) in her large normative sample for the CDI. The 19 students comprise all of the subjects in the top 10% of the CDI scores who were interviewed.<sup>9</sup>

<sup>9</sup>From the total sample in each school, interviews were conducted with 90 students in the suburban school and 85 students in the urban school. These students were randomly selected

The suburban sample included 10 students: four boys (1 ninth grader, 1 tenth grader, 1 eleventh grader, and 1 twelfth grader) and 6 girls (3 ninth graders, 1 tenth grader, 1 eleventh grader, and 1 twelfth grader). Nine of the students were white and one was African-American. Our urban sample included 9 students; 2 boys (a ninth grader and a twelfth grader) and seven girls (1 ninth grader, 2 tenth graders, 2 eleventh graders, and 2 twelfth graders). Of the 2 boys, 1 was Haitian and the other Puerto Rican; of the 7 girls, 3 were African-American, 2 were Puerto Rican, 1 was Haitian, and 1 was white.

### *The Interview*

The interview is semi-structured, and designed to explore the extent, nature, and quality of the participants' thoughts and feelings about a range of personal, interpersonal, and behavioral phenomena. The interview process is guided by open-ended questions that lead into topical areas including substance use. Initial responses to interview questions (such as "How often do you drink?" "What is it that you like about drinking?" "Why don't you drink more than you do?") were probed by the interviewer to invite increasingly detailed and thoughtful reports of students' self-perspectives on their substance use or nonuse. These kinds of questions were asked for each substance (e.g., "Why do you think you haven't tried marijuana?" "Why do you smoke cigarettes?" etc.). The goal of the interview is to explore the meaning and attributions that the students assign to their behavior.

### *Procedure*

Interviews were conducted by advanced doctoral students in counseling or developmental psychology. Participants were interviewed in one-on-one meetings held in private rooms at the respective school sites. We assured all participating students of full confidentiality.

Our interview analyses consisted of detailed readings of students' perspectives on substance use and their reasons for choosing to use or abstain from use. Typical of many qualitative approaches, our method involved a content analysis in which interview data were partitioned into content domains for the comparison of themes across individual cases (Strauss, 1987). Three trained readers independently read for common themes in students'

from each school sample (only 2 or 3 students in each school refused to be interviewed). The 19 students whose interviews were used for this qualitative analysis were all the students whose CDI scores were in the top 10% in the sample, and who were randomly selected to be interviewed from the total sample.

descriptions of their substance use patterns. Themes were identified and compared within and across schools. Only those themes that were identified by all three readers *independently* were considered common themes in the interviews. The following results section describes the common themes detected from the interviews of the urban and suburban depressed sample by the three data analysts.

## Results

### *Differences in Substance Use*

The interviews indicated that substance use was more pervasive among the depressed students in the suburban sample than among those in the inner-city sample. Seven of the 10 students in the suburban sample reported active substance use. Among the 7 current substance users, all reported smoking cigarettes, 6 reported drinking alcohol, 2 reported smoking marijuana, and 1 reported using harder drugs. In contrast to the students at the suburban school, only 3 of the 9 depressed inner-city teens reported active substance use. Of those 3, 2 claimed to smoke cigarettes and drink alcohol, and the third claimed only to drink alcohol. None of the depressed students in the inner-city sample reported current use of marijuana or experimentation (current or past) with drugs harder than marijuana.

### *Differences in Meaning*

The readers independently identified three common differences across the two schools in the ways that these depressed youth spoke about substance use.

*Substance Use: Escape from Problems or Cause of Problems?* Five of the 10 depressed students at the suburban school spoke about cigarettes, alcohol, marijuana, and harder drugs as a way to “escape” problems or “relax,” while only 1 out of 9 depressed students in the inner-city drew an association between substance use and “escaping” or “relaxing.” Among most of the depressed urban youth (8 out of 9), substance use was described as a cause of stress, rather than as an escape from it. In contrast, in the suburban school, only 4 out of 10 depressed students mentioned problems that have resulted or could result from using substances. While both ways of describing substance use (an escape from problems and a source of problems or stress) were almost equally evident (5 vs. 4) in the suburban school,

in the urban school, the view that substance use causes problems was clearly predominant among the depressed students.

Included among students' responses from the suburban school is that of Millie, a tenth grader with a history of "off-again-on-again" cigarette and marijuana use, who reports resuming smoking cigarettes after a breakup with her boyfriend: "I got mad and started smoking [cigarettes] again [and] I was smoking weed all the time because I wanted to escape." Janice, a ninth grader at the same high school, smokes about eight cigarettes a day and claims that "something about it relaxes me—if I had to quit now I'd probably get real tense." She also views alcohol as a way to relax, even though "it makes you tired afterwards." Nicole, another ninth grader who smokes about a pack of cigarettes a day, says "I just like the way it makes me feel—it relaxes me sometimes." Drinking for Nicole is one way to "laugh a lot and forget about my problems." Alex, a junior at the suburban high school who has been heavily involved in drugs for many years, claims that while he does not necessarily use drugs to "run away," he views them as "a good way to get away." He also states that he uses LSD and other drugs "not *just* as an escape but because I like it."

In contrast, Roxie, a sophomore from the urban sample who occasionally drinks alcohol "but only a little bit," states that she sees no benefit to using, only costs:

Smoke, I think it smells . . . . Why, why should you risk the point of drinking, you know? I see it as pointless, I guess, to get drunk and have a hangover the next morning . . . . I don't see what's the point in doing those things. It'll mess your head up.

Glen, a freshman at the inner-city school, who occasionally drinks alcohol, says he does not want to drink more than he does because he sees the bad health effects drinking has had on his father. He also says he does not want to use marijuana because he watches his friends smoke and realizes that it leads only to problems. When asked by the interviewer why he stays away from marijuana, he says:

Just, you cut school, people use it in school, my friends, before school starts and they all be dazed and they got a headache and stuff like that. I don't want to get that.

Vera, a sophomore at the inner-city school who occasionally smokes cigarettes and drinks "sips" of alcohol claims that she controls her use of these substances because she thinks using them often is "stupid" and pointless. She has decided to stop using marijuana because she had a bad experience with it and believes that using drugs just leads to trouble:



Because to me I think that cigarettes are just like weed. Because I'm like, none of them. Cigarettes always gave me nothing. All weed gave me was that [a "bad trip" on marijuana]. You know, I could have died . . . . It was so scary . . . . So it's like dumb you know, why people do it. Now I think why do they do it? I mean they could die.

Mara, a senior, who does not use any substances, claims that she does not drink because:

Sometimes when you get drunk you might react improperly, and then you might hit someone and hurt someone that you—that's close to you. So I don't want it to affect anyone.

With regard to drugs, she claims the following:

Drugs can make people very, very, very—not unattractive, but they might look like someone who is sick and I don't want to look like someone—when people's on the diet and they never eat—they become skinny, skinny and you see bones only . . . . They look like that when they do drugs all the time and never stop.

Yolanda, a freshman in the urban school, claims that she does not use drugs because "I just hear too many people dying . . . of overdose . . . I don't want to be one of them."

In short, substance use was depicted primarily as a cause of problems by the depressed students in the inner-city sample. In the depressed suburban sample, by contrast, substance use was described both as an escape and as a potential problem. It is important to note that the depressed students from each school who depicted substance use as a cause of problems included both substance users and nonusers.

*Interpersonal Relationships and Substance Use.* Students from both the urban and suburban samples discussed the connection between substance use and relationships with family and friends. However, there were differences between the two samples in the way that relationships were reported to affect their substance use decisions. Six out of 10 of the depressed students from the suburban sample emphasized the fear of disappointing or angering someone important to them as a primary inhibitor of substance use, while only 1 out of 9 inner-city students mentioned these factors as reasons not to use. On the other hand, most of the depressed inner-city students (7 out of 9) cited examples of the negative impact drugs or alcohol has had on someone close to them and on people in the community, and stated that this influenced their decisions to abstain or use at low levels. Only 3 out of 10 depressed students from the suburban sample mentioned seeing the negative effects on others as a reason to abstain or modulate use.

Alisann, a senior at the suburban school, stopped using LSD and cocaine because of disapproval from friends. Gaby, a junior at the suburban school, has decided not to drink more than two bottles of beer at a time "because like my parents, they're trusting me tonight, and look what I'm doing, they'll never be able to trust me again and I wouldn't drink that much, you know." And Terence, a suburban freshman, told the interviewer how he could possibly lose friends if he used drugs, and "I don't think my mother would like it either."

Unlike these suburban teens, stories from the depressed, inner-city teens speak poignantly of the negative impact of substance use on people close to them. For example, Tara, a senior at the inner-city school, talks about earlier childhood memories of her mother's heavy use of marijuana and alcohol, recalling that "when she was high or drunk she was the meanest person in the world." Such memories, Tara says, make her want to prevent similar experiences for her own children:

The reason why I don't do it [drugs], because my mother used to do it, and now because I got two kids. So I said I'm not even gonna—I mean, I don't want them to grow up the way I grew up. So I'm not even gonna do it.

Glen, an urban freshman, says he does not want to drink because he sees the effects on his alcoholic father:

I don't want to be like him, I don't want to drink that much. Because I think sometimes he's going to pass away because of his liver—because he drinks too much.

In addition, he says he does not use marijuana or cocaine because he has watched his ex-best friend and his uncle become heavily involved in drugs and destroy their lives. Similarly, Elena, an urban junior, has decided not to drink anymore because she has seen the negative impact of alcohol on a boy whom she liked.

Relationships are mentioned among both the suburban and urban students as influencing their decision to abstain or modulate their use of substances. However, the specific effects of their relationships differed: At the suburban school, the majority of students cited a reluctance to disappoint others, whereas in the urban school, almost all of the teenagers stated that seeing the negative impact on others was one of their main reasons to modulate or abstain from use.

*Peer Pressure and Substance Use.* Six of the 10 depressed students in the suburban sample reported succumbing to peer pressure to use substances, while none of the depressed students in the urban sample reported being influenced by peer pressure to use or not to use substances. Five of

these urban students explicitly stated that they have avoided peer pressure, while none of the depressed suburban students spoke about avoiding peer pressure.

A suburban sophomore, Millie, provided this telling account of peer pressure:

I don't like drinking, I don't enjoy it, but everyone else was partying so what else is there to do . . . I don't want to drink but I want to have a good time with everybody so I do.

Millie adds that when she is at a party drinking she is afraid that she would accept harder drugs if someone were to ask her. Blane, a suburban senior, says he has recently stopped drinking, and that doing so required his complete disassociation from all of his friends who drink. He said the pressure to drink when he was with them would have prevented his efforts toward abstinence. Terence, a suburban freshman, says that while he has not yet experienced pressure to use substances, he can imagine drinking to fit in at a party "but that hasn't happened yet." Alisann, a suburban senior, openly acknowledges that she began to smoke and drink because her friends were doing it. However, she said she eventually stopped because she switched friends and her current friends disapprove of her drinking and using drugs. MaryAnn, a suburban freshman, says that she has increased the number of cigarettes she smokes a day "not because of any reason—just because of the kids I've been hanging around with increased, so I've just increased and there's no reason why I have."

In contrast, Elena a junior at the inner-city school, stresses her independent stance with her friends:

If my friends choose to do it, they do it. But they know me. They know me, I don't do it [use substances]. If I wanted to do it, I'd do it, but they have [no] control over me . . . They know that I'll do what I want to do when I want to do it, and they can't tell me.

Mara, an inner-city senior, matter-of-factly states "I don't do drugs just because I don't want to do it." Glen, a freshman, claims that there is peer pressure to use marijuana but that he "just stays out of that." But, he adds, he feels pressure from his father to drink and he finds that kind of pressure harder to resist. Yolanda and Roxy, a freshman and sophomore, respectively, say that they are aware of peer pressure to use substances but that they have never felt it personally. Yolanda says the pressure has not affected her because nobody in her family or among her friends drinks or uses drugs. In sum, the suburban depressed students report being more

influenced by peer pressure to use substances than their counterparts in the urban sample.

## SUMMARY AND DISCUSSION

This comparative study of urban and suburban high school students found between-school similarities in levels of reported depression, differences in levels of reported substance use, and most importantly, differences in the *relationships* among depression and substance use. In addition, our qualitative analyses provide possible explanations for the quantitative differences revealed in the relationships among depression and substance use across the two schools.

It is noteworthy, in our quantitative findings, that levels of depression were similar across the urban and suburban school samples. This finding stands in contrast to what one might expect given the relatively more stressful environment of the inner-city. It is possible that inner-city adolescents may develop psychological and emotional resilience in response to the extraordinary stresses of their social environment, resulting in levels of depression that do not exceed what might be expected in other populations of adolescents.

While there were no significant gender differences in the mean level of depression within each school, girls were overrepresented in the top 10% of depression scores in both schools, suggesting gender differences in the severity, if not the overall prevalence, of depression. The lack of significant gender differences in mean depression scores on the CDI is consistent with previous findings in other large scale studies (Doerfler *et al.*, 1988; Green, 1980; Kovacs, 1983; Weissman *et al.*, 1980). However, similar to our findings, studies that have looked beyond the mean scores on the depression scale have found, typically, that more girls score in the higher range of depression scores on the CDI than boys (McCauley *et al.*, 1988; Reinherz *et al.*, 1991; Worchel *et al.*, 1987).

Our failure to find grade differences in levels of depression within either school is consistent with previous findings on the relationship between age and depression among adolescents (Doerfler *et al.*, 1988; Green, 1980; Kovacs, 1983; Weissman *et al.*, 1980). The CDI has been administered to children and adolescents from varying backgrounds and has consistently revealed no significant relationship between the age of the respondent and the severity of self-rated depressive symptomatology (Doerfler *et al.*, 1988; Weissman *et al.*, 1980).

The suburban school students in our study reported higher levels of cigarette, alcohol, and harder drug use than the inner-city school students,

while there were equal levels of reported marijuana use in both schools. These findings are similar to related research that has found a lower rate of reported drug use among African-American youth when compared with other ethnic groups such as European-Americans (Darling and Brown, 1992; McCord, 1990). When interpreting our findings, however, one must consider the drop-out rates of public education. The inner-city school, which is quite typical of urban public schools, has a drop-out rate approximately eight times higher than that of the suburban school (32% vs. 4% respectively). Our school-based study, therefore, excludes those adolescents who have left school, perhaps as a result of substance use problems or other high-risk behaviors. It is important to remember, however, that not only were there equal levels of reported marijuana use across the two schools, but the distribution of cigarette, marijuana, and alcohol use was normal in both schools. Therefore, the exclusion of many of the urban dropouts did not lead to the exclusion of urban alcohol and drug users.<sup>10</sup>

Levels of reported substance use differed by gender and by grade in the suburban school; in the urban school, alcohol use varied by grade, and marijuana use differed only by gender for the African-American youth. These findings are somewhat similar to those of other studies, which have found age and gender differences in levels of substance use among adolescents; younger adolescents and girls have reported less substance use than older adolescents and boys respectively (Andrews *et al.*, 1992). However, contrary to findings in previous studies, our data from the urban school indicate that younger adolescents were not less likely to use cigarettes, marijuana, or harder drugs than older adolescents, and with the exception of marijuana use among African-American youth, girls were not less likely to use substances than boys. The finding that African-American girls used significantly less marijuana than African-American boys is similar to the finding among Caucasian youth in the suburban school.

A possible explanation for this lack of grade differences in the level of substance use in the urban sample is that drugs may be more accessible to adolescents not yet in high school in the inner-city than they are for their peers in the suburbs. Therefore, urban adolescents who decide to experiment with substances may begin at an earlier age (e.g., seventh or eighth grade) than their peers in the suburbs. Thus, when the relationship between age and substance use is examined in a high school population, transitions from not using to experimentation, or from experimentation to

<sup>10</sup>This may not be the case for harder drug users. Since few students in the urban school reported using harder drugs, we believe the high dropout rate in the inner-city may have led to a very negatively skewed distribution of harder drug use in the urban school. Mensch and Kandel (1988) concluded, in their research on dropouts, that there is a strong positive association between heavy drug use and dropping out of school.

regular or heavy substance use, are not as readily apparent among inner-city students as among suburban students. Another equally plausible explanation for the lack of grade differences in substance use in the urban school is that the urban students who increase their use of substances during high school may be more likely to drop out than their peers in the suburban school. Therefore, the expected relationships among grade and substance use are not apparent in the urban sample because the older adolescents who may use more substances than the younger adolescents simply are not in school anymore.

Our findings indicated gender and school differences in the relationships among substance use and depression. In the suburban sample, gender differences were detected specifically in the relationships between depression and marijuana use, and between depression and harder drug use. The relationships between depression and these substances, respectively, was greater for suburban girls than for suburban boys. This finding replicates previous findings regarding the differences between white girls and boys in the relationships among depression and substance use (Paton and Kandel, 1978; Reinhertz *et al.*, 1991). If suburban girls are more likely to be socially stigmatized for using drugs, such as marijuana or harder drugs, than suburban boys (in middle class communities, at least, there may be more pressures for girls not to use drugs than boys), then perhaps the suburban girls who decide to engage in drug use (ignoring the social consequences) may be more likely to experience or be experiencing psychological difficulties (i.e., feeling depressed) than the suburban boys who engage in drug use. For suburban boys, drug use may be more commonly sanctioned and, therefore, suburban male substance users may be more psychologically or socially heterogeneous than their female counterparts (i.e., it may not only be the boys who are feeling depressed who choose to use drugs). Suburban boys may be also less likely to become depressed after using drugs because they may not be as socially stigmatized for using drugs as are suburban girls. Because of the possible social stigmatization for suburban girls who use drugs, those who decide to use drugs may be more likely to be on the "fringe" of their female peers. Those on the "fringe" may more likely be depressed or become depressed as a result of the social stigmatization of either using drugs or simply being on the "fringe."

There were no gender differences, however, in the urban school with respect to the relationships among depression and substance use. There were no relationships among depression and substance use for either the boys or the girls. Given these findings, it is difficult to explain the apparent absence of gender differences in these relationships. It appears that the phenomena of substance use and depression are different among the urban students from those among the suburban students. These phenomena for

urban adolescents must be explored further before hypotheses can be made concerning the lack of gender differences between depression and each of the substances.

With regard to school differences, depression in the suburban school was positively correlated with the use of cigarettes, marijuana, and harder drugs, while in the urban school, depression was not correlated with the use of any substances. This finding lends support to Siegel and Ehrlich's (1989) and Paton and Kandel's (1978) contention that "adolescents from different ethnic [and] or socio-economic backgrounds may take drugs for different reasons" (Siegel and Ehrlich, 1989, p. 925). This finding also suggests that depression may be associated with different behaviors depending on the social context. Darling and Brown (1992) recently found that delinquency, including heavy drug use, and academic disengagement were related among adolescents in rural and suburban areas, but not in urban areas. They assert, along with Sutherland and Cressey (1978), that problem behaviors may cluster differently depending on the social context in which the child lives. With respect to the current study, depression may simply be a different type of phenomenon for urban youth than for suburban youth.

However, it is important to remember that *both* schools revealed no significant correlations between alcohol use and depression (although the relationship was significant for suburban girls, there were no gender differences found in the interactional analyses). Given the prevalence and social acceptability of alcohol use among many high school students, one of the reasons for this finding may be that those students who do use alcohol to deal with their depression or become depressed after using alcohol may be outnumbered by those who use alcohol to have "fun" or "relax" with their peers in a socially acceptable way. This type of phenomenon could explain the nonsignificant correlation between depression and alcohol use in both schools.

The qualitative analyses described in this paper focused on one major finding of this study, namely, the differential relationship between depression and substance use across the suburban and inner-city school samples. Analyses of interview data from the most depressed students in each school elucidated possible reasons for this dissimilar relationship. First, the view that substance use is a vehicle for relaxation or "escape" may be a perspective unique to individuals living in relatively sheltered environments. Our interview data suggest that depressed children in the inner-city sample are markedly more in touch with the deleterious effects of substance use than are depressed students from the suburban school. The urban students commonly gave examples of the negative effects of drug and alcohol use on close family members or friends. The suburban depressed students rarely gave such responses; when they did speak about the negative aspects of

substance use, these students primarily focused on their fears of disappointing others if they engaged in substance use. Since the urban students seem to be more acutely aware of the potential negative effects of substance use itself, perhaps these students may be less likely than the suburban students to use substances to cope with depression.

Varying perspectives on depression may further explain school differences in the relationships among depression and substance use. For example, the belief that depressed or painful feelings are "treatable" (e.g., through the use of substances) may be more common among people living in relative privilege than among people for whom depression associated with life's difficulties may seem as endemic as the difficulties themselves.

The aforementioned interpretations, however, assume depression to be a cause, rather than a consequence, of substance use. Given that our quantitative analyses highlight associations rather than directionality between the variables, no conclusions are being drawn about cause and effect between depression and substance use.<sup>11</sup> However, if substance use is causing depression rather than vice versa, perhaps the social stigmatization that suburban substance users may feel leads them to become increasingly depressed. Social stigmatization may occur for suburban boys who are *heavily* involved with substances as opposed to suburban girls for whom it may occur at all levels of involvement with substances. There were stories in the interviews among the nondepressed girls and some of the nondepressed boys that conveyed a sense of disgust at their peers, girls or boys, whom they thought were heavily involved in drugs.

Finally, depressed students in the inner-city who are reporting less susceptibility to peer pressure and reporting a perspective that substance use augurs trouble rather than relief may be describing aspects of a need to preserve a measure of personal security that the urban environment cannot consistently provide for them. A commitment to avoid drugs in the interest of maintaining personal safety may prevail especially in the face of depression or despair when life may feel particularly out of one's control. In contrast, children raised in the suburbs may feel a greater personal freedom to take certain risks when they are feeling depressed, or to consciously experience depression when they are using substances, believing that the fundamental securities of their environment will nonetheless remain intact.

Our qualitative study of depressed students' beliefs and attitudes about substance use suggests that depressed urban and suburban students may differ in their views about substance use. These different attitudes and beliefs may be centrally important to understanding why depression and

<sup>11</sup>Given that our study assesses one point in time and does not include a control group, we were not able to determine causality among the variables.



substance use are differently related across schools. However, in future studies it would be important to examine beliefs and attitudes concerning substance use held by a broader population of students, including those reporting no, low, or moderate levels of depression. Such an examination could help determine whether the attitudes and beliefs revealed in our qualitative analyses are unique to depressed students (and somehow related to "being depressed") or whether these beliefs are typical of the larger student body in each school.

## IMPLICATIONS

Our finding concerning urban and suburban school differences in the relationship between substance use and depression has implications for future research, and potentially, for the goals of adolescent substance use treatment programs. First, subsequent research is needed to determine whether the apparent relationship between depression and substance use for suburban students, and the apparent absence of this relationship for urban students, is representative of the experiences of urban and suburban adolescents in other geographical areas. If, as suggested by our study and by previous research, the psychological correlates of substance use typically vary across urban and suburban populations of adolescents, then the effective treatment of adolescent substance use and abuse will necessarily rest upon a consideration and incorporation of these differences. Effective treatment for suburban adolescents, for example, should include a concurrent focus on the depression that may both motivate and ensue from substance use, particularly for adolescent girls. In addition, further research on the psychological correlates of urban adolescents' substance use is needed to enhance the efficacy of treatment programs for this population. Increasing evidence that the psychological diversity of adolescent substance users is informed by factors such as gender, ethnicity, and environmental context argues strongly for prevention and intervention efforts that are sensitive to the role of these differences in the etiology and psychological consequences of substance use.

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