

# Self-Esteem and Perceived Control in Adolescent Substance Use: Comparative Tests in Concurrent and Prospective Analyses

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The relationship of positive and negative dimensions of self-esteem and perceived control to substance (tobacco, alcohol, and marijuana) use was tested with a sample of 1,775 adolescents, surveyed in 8th grade and followed up 1 year later. Esteem and control were highly correlated. Concurrent multiple regression analyses with simultaneous entry indicated internal control inversely related, and self-derogation positively related, to substance use; the unique contribution for control variables was 6.4 times the unique contribution for esteem variables. In prospective analyses, only internal control was significant. Self-attitudes were less relevant in general for substance use among Black adolescents compared with Hispanic and White adolescents; self-derogation was less relevant for adolescents in single-families compared with two-parent families. Previous findings on self-esteem and substance use may be partially reflecting the effect of perceived control.

The relationship between self-attitudes and substance use is of interest for theory on the psychological aspects of substance use. The proposition that substance use is related to self-attitudes has been a central postulate in some theoretical models (e.g., Kaplan, 1980). With regard to adolescents, the basic proposition is that risk for substance use derives from low self-esteem. It is posited that adolescents strive to maintain positive self-attitudes, but these may be undermined through failure to cope effectively with situations that have self-devaluing implications. Substance use has been viewed as a deviant

response to unfavorable self-attitudes, pursued as a means of obtaining self-enhancement (e.g., Kaplan, Martin, & Robbins, 1982).<sup>1</sup>

Although some findings of relationships between self-esteem and substance use have been noted (Kaplan, 1975; Kaplan et al., 1982), empirical evidence on self-attitudes and adolescent substance use provides a mixed picture, including several instances of null results. For the development of theory on self-attitudes and substance use it is important to resolve discrepancies in the evidence. In this article I discuss previous research, propose hypotheses about the basis for differing results in this area, and report a study testing these hypotheses. The basic hypothesis is that perceived control is more important than self-esteem for predicting substance use.

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## Self-Esteem and Adolescent Substance Use

A longitudinal study by Kaplan (1975; Kaplan et al., 1982; Kaplan, Martin, & Robbins, 1984) was based on a panel of 3,148 adolescents, first surveyed in seventh grade. This study used a

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<sup>1</sup> Other deviant responses are possible in theory, including aggression and precocious sexuality (Kaplan, 1980).

7-item scale termed *self-derogation* based on negative items from the Rosenberg (1965) Self-Esteem Scale. Concurrent and longitudinal analyses showed this measure related to indices of marijuana and narcotic drug use. Similar results were found by Ried, Martinson, and Weaver (1987), with a sample of fifth–eighth grade students, for a composite (tobacco, alcohol, and marijuana) substance use score.

However, nonreplications were noted in several studies. Jessor and Jessor (1977) developed a 10-item esteem scale that was based on perceived competence in various areas, with samples of high school students and college students. This scale showed no significant relationship to composite indices of problem behavior, though there were some effects for predicting marijuana use versus nonuse. Labouvie and McGee (1986) used an 11-item self-evaluation scale (combining positive and negative items), with a sample of adolescents 12–18 years of age, and found no effect of this scale for predicting a composite substance use score. Kandel, Kessler, and Margulies (1978) used a brief self-image difference measure (negative–positive items) for analyses of 6-month liquor, marijuana, or illicit drug onset with subsamples from a panel of secondary-school students. No effect was found for this measure in predicting transition from nonuse to use of these substances.

For studies in which peer-group affiliation was used as the predictor, results have also been inconsistent. Sussman et al. (1990), with samples of 7th and 10th graders, found that self-nominated “dirts,” who showed the highest rate of cigarette smoking, were significantly lower on the 10-item Rosenberg Self-Esteem Scale, compared with members of four other groups. However, Mosbach and Leventhal (1988), with a sample of 353 middle-school students, found no significant difference between self-nominated dirts and other high-use groups on a single-item esteem measure.

Studies in which other measures were used also indicate complexity of results. Butler (1982) used the Tennessee Self Concept Scale with a sample of middle-school students, with alcohol consumption as the criterion measure. Results were nonsignificant for the total esteem score and six other scales, but drinkers scored lower on the Behavior Esteem Scale. Similar results were found by Penny and Robinson (1986) with a sample of secondary-school students, using the Piers-Harris Children’s Self Concept Scale as the

predictor and daily smoking as the criterion. Because measures of behavioral undercontrol are strong predictors of adolescent substance use (e.g., Tarter, 1988), this introduces a troublesome confound for interpretation of these data. Finally, this study and one by Mitic (1980), using the Coopersmith Inventory with an age-ranged sample of school students, found esteem based on peer-group acceptance positively related to substance use (cf. Wills & Vaughan, 1989). These studies together indicate that specific components of self-concept may correlate with substance use in different directions.

### Perceived Control and Adolescent Substance Use

Studies of perceived control and substance use with adolescents have mainly used the Nowicki-Strickland (1973) Locus of Control Scale for Children. Williams (1973), with a sample of 9th-grade students, found external control related to current smoking, as did Clarke, McPherson, and Holmes (1982) with a sample of 7th-grade students. Penny and Robinson (1986) obtained a similar finding with their sample of secondary-school students. Hirschman, Leventhal, and Glynn (1984) used a 4-item scale of helplessness (indexing the perception of not doing well with problems), with a sample of 386 students in 2nd–10th grades, and found this scale predicted transition to second and third cigarettes, given initial trial.

Newcomb and Harlow (1986) used a 3-item scale indexing lack of control in two studies with an age-ranged sample of 376 New Jersey residents and a sample of 640 California young adults; they used a composite substance use construct as the criterion. In these analyses significant correlations between the lack of control and substance use constructs were found for both samples. Here, structural models suggested the impact of perceived control was mediated through perceived meaninglessness in life. The latter measure contained items reflecting difficulty in making decisions and not knowing what to do about problems, hence this may be similar to the helplessness scale used by Hirschman et al. (1984).

The only null result in this area is from the research by Jessor and Jessor (1977), who used 18–22 item scales intended to tap internal control. Results showed some inverse effects for male high

school students, but these were not replicated in the college sample. The authors stated that they had problems in scale development and noted that even the final version of the scale had low homogeneity (Jessor & Jessor, 1977, p. 59), so here there is a question about the measure.

### Derivation of Hypotheses

Evidence on self-esteem and substance use is mixed, with two studies in which a relationship was found, but a number of studies showing null results. In this literature the combining of positive and negative items on esteem may be responsible for some null results. If the actual effect is driven primarily by negative items, then combining these with positive items may weaken the observed effect. Confounding of generalized self-regard with indices of behavioral control and peer sociability may contribute to variable results, as these specific aspects correlate with substance use in different directions. Research on perceived control and substance use has been more consistent in findings, but this consistency could be attributable to the fact that these studies mostly used the same measure, whereas studies of self-esteem used a variety of measures.

Hypotheses for the present research were derived as follows. First, a relationship between self-esteem and perceived control is predicted. This postulate is inherent in several theories of coping and adaptation (e.g., Bandura, 1982; Carver & Scheier, 1982; Folkman, 1984; Harter, 1986) and is consistent with field research. For example, in a community study of adults (Ilfeld, 1978), a correlation of .56 between the 10-item Rosenberg Scale and a 7-item measure of perceived control was found. Because of the relationship between esteem and control, there is a theoretical ambiguity about which process is more central for substance use. Resolving this issue requires measurement of esteem and control in the same study.

Second, there is the distinction between positive and negative dimensions. Previous work has shown self-attitudes among adolescents tend to comprise several independent dimensions (Wills, 1985), and this is consistent with research on subjective well-being (e.g., Diener, 1984; Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992). Thus there is ambiguity about the relative importance of positive and negative dimensions for prediction of substance use. Both existing

theory (Kaplan, 1980) and previous research (Hirschman et al., 1984; Newcomb & Harlow, 1986) suggest negative dimensions are more relevant for substance use. Resolving this issue requires measurement of positive and negative dimensions in the same study.

A third question involves methodological issues. Because esteem and control are related to family structure and socioeconomic status (e.g., Dornbusch et al., 1985; Ilfeld, 1978; Mirowsky & Ross, 1990), and adolescent substance use also is related to these variables (e.g., Flewelling & Bauman, 1990; Jessor, Chase, & Donovan, 1980; Murray, Perry, O'Connell, & Schmid, 1987), a troublesome confound exists in previous research. Resolving this issue involves testing hypotheses about self-attitudes and substance use in a heterogeneous sample and controlling for demographic characteristics of the respondents.

To investigate these hypotheses, I obtained measures of generalized esteem and control and a composite measure of substance use for a multiethnic sample of urban adolescents. Separate scales measured positive and negative dimensions of esteem and control, and analyses controlled for gender, ethnic group, family structure, and socioeconomic status. Specific predictions were that self-esteem and perceived control will be correlated, positive and negative dimensions will be relatively independent, negative dimensions will be more important for predicting substance use than positive dimensions, and control will be more important than esteem for predicting substance use.

## Method

### Subjects

The subjects were 1,775 adolescents in public school districts in the New York metropolitan area. Subjects were initially surveyed at the beginning of eighth grade (mean age was 13.5 years) and were followed up 1 year later. Self-reported ethnic identification indicated the sample was 30% Black, 25% Hispanic, 34% White, and 11% other racial/ethnic groups and included comparable proportions of female (47%) and male (53%) subjects. Data on family structure indicated 54% of the sample was living with both biological parents, 35% was with a single parent, and 10% was in a blended family (one biological parent and one stepparent). Data on parental education indicated the mean educational level

on a 1–6 scale was 3.7 ( $SD = 1.4$ ) for both fathers and mothers, indicating a level just above high school graduate. The median level and modal level was high school graduate, so the sample would be characterized as working class on the average.

### Procedure

Data were collected in fall 1991 through a self-report questionnaire administered in school classrooms by project staff, who followed a standardized protocol in giving instructions to students and answering questions about individual items. Questionnaires were identified only with a code number, and subjects were instructed they should not write their name on the survey; they were assured that their answers were strictly confidential and were protected through a certificate of confidentiality from the Department of Health and Human Services. During the questionnaire administration, subjects provided a sample of alveolar air, which was analyzed for carbon monoxide with automated equipment (the Breath CO Analyzer, Vitalograph Corporation), and were informed that the samples provided an accurate indication of cigarette smoking. This procedure has been shown to increase the validity of self-reported substance use in some research with adolescents (Murray, O'Connell, Schmid, & Perry, 1987). Subjects were assured that these data were also strictly confidential.

Subjects participated under a consent procedure in which parents were sent a notice informing them of the nature of the study and the breath measurement. The parent could elect to have his or her child excluded from the data collection if he or she wished. Subjects were informed they could refuse or discontinue participation at the time of the survey. The completion rate for the eighth-grade survey (number of surveys completed divided by total class enrollment from school lists) was 88%, with case loss occurring because of student absenteeism (10%), parental exclusion (1%), and student withdrawal (1%). The subjects were resurveyed at the beginning of their ninth-grade year. The completion rate for the ninth-grade survey was 84%, with the majority of case loss coming from student absenteeism. The overall follow-up rate from eighth to ninth grade was 76%.

### Measures

The questionnaire included demographic items and scales for the self-esteem and perceived-control variables. All scores were constructed such that a higher score indicates more of the named attribute.

*Demographic.* The respondent was asked about his or her age, sex, and ethnic group membership. An item on family structure asked what adult(s) the student currently lived with (eight options); responses were subsequently recoded to three global categories (intact family, single parent, or blended family). Two questions asked about the level of education for mother and father, respectively; response points were *grade school*, *some high school*, *high school graduate*, *some college*, *college graduate*, and *post college* (master's or doctoral degree).

*Self-esteem.* A 10-item measure of generalized self-esteem was based on the multidimensional inventory of Fleming and Watts (1980) and previous research with adolescents (Wills, 1985). Items were administered using a 1–5 Likert response scale ranging from *not at all true* (1) to *very true* (5). The measure comprised a 5-item scale for positive esteem (e.g., "I feel equal to most of the people around me" and "I feel that I have a number of good qualities," Cronbach  $\alpha = .86$ ) and a 5-item scale for negative esteem (e.g., "I feel I do not have much to be proud of" and "I often feel discouraged about myself,"  $\alpha = .83$ ).<sup>2</sup>

*Perceived control.* A 10-item measure of generalized perceived control was based on the Spheres of Control Inventory (Paulhus, 1983) and previous research with adolescents (Wills, 1985). Items were administered with the same 5-point response scale. The measure comprised a 5-item scale for positive control (e.g., "When I make plans, I'm sure I can make them work" and "The things I achieve are due to my hard work and ability,"  $\alpha = .74$ ) and a 5-item scale for negative control ("I often feel helpless in trying to deal with

<sup>2</sup>The term *negative esteem* is something of an oxymoron, but it is used for the sake of symmetry and simplicity; it is comparable to what has previously been termed self-derogation. The term *positive control* is comparable to internal locus of control; the term *negative control* is similar to what has been termed helplessness or external locus of control.

problems" and "I feel I have little control over things that happen to me,"  $\alpha = .69$ ; see footnote 2).

*Substance use.* Substance use was indexed with items that asked about typical frequency of cigarette, alcohol, and marijuana use. Responses were on a 1–6 scale ranging from *never used* (1), *tried once–twice* (2), *tried three–four times* (3), *use every month* (4), *use every week* (5) to *use every day* (6). A fourth item, with a 3-point response scale, asked whether there was a time in the last month when the subject had three or more drinks on one occasion; response points were *no*, *happened once*, and *happened twice or more*. The items were combined with equal weight in a composite score, consistent with methodological research (e.g., Needle, Su, & Lavee, 1989). Internal consistency was  $\alpha = .69$  for the 4-item scale.

## Results

Prevalence of substance use in eighth grade with the indicated time frame was 10.0% for cigarette smoking (monthly or greater), 6.7% for alcohol use (monthly or greater), 2.0% for marijuana (tried four or more times), and 5.4% for heavy drinking (twice or more in past month). In ninth grade, the rates were 18.5% for smoking, 13.2% for alcohol, 9.5% for marijuana, and 9.5% for heavy drinking. These prevalence rates are consistent with other recent data for adolescents (e.g., Johnston, O'Malley, & Bachman, 1989; Oetting & Beauvais, 1990) and reflect a considerable increase in substance use from the eighth grade to ninth grade.

## Descriptive Statistics

Table 1 presents intercorrelations of the esteem and control scales, with descriptive statistics. Means for the subscales indicate subjects tended to endorse positive aspects more than negative aspects. The positive esteem scale was somewhat skewed (skewness index =  $-1.02$ ), but the mean, skewness, and variance were not greatly different from those for the positive control scale. Intercorrelations of esteem and control scales were substantial:  $r = .67$  for positive dimensions and  $r = .66$  for negative dimensions. This supports the first hypothesis and indicates self-esteem and perceived control are substantially related. The positive and negative dimensions were not highly correlated:  $r = -.23$  for self-esteem and  $r = .00$  for perceived control. This supports the second hypothesis and indicates self-attitude dimensions in adolescents represent relatively independent domains, consistent with research on subjective well-being (Diener, 1984). Both positive and negative dimensions were correlated with the substance use score, and correlations for the individual indices were significant ( $p < .05$ ) in 15 of 16 tests. These findings replicate previous research showing correlations of self-esteem and perceived control with adolescent substance use.

Demographic effects were tested using a 2 (sex)  $\times$  3 (race: Black vs. Hispanic vs. White)  $\times$  3 (family structure)  $\times$  2 (parental education: high school vs. college) analysis of variance model. Four analyses were conducted, with the scales of positive–negative esteem and control as criterion variables. Some significant main effects were found. In general, adolescents from intact families

Table 1  
Scale Intercorrelations, Zero-Order Correlations With Substance Use, and Distributional Characteristics for Esteem and Control Scales

Variable	1	2	3	4	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
1. Pos. esteem	—				19.99	4.57	-1.02	.66
2. Neg. esteem	-.23	—			12.07	5.23	.51	-.51
3. Pos. control	.67	-.10	—		19.22	4.20	-.69	.20
4. Neg. control	-.08	.61	.00	—	13.32	4.49	.37	-.24
5. Cigarette use	-.11	.12	-.16	.10				
6. Alcohol use	-.06	.08	-.09	.05				
7. Heavy drink	-.02	.12	-.02	.12				
8. Marijuana use	-.08	.06	-.10	.04				
9. Sub. use score	-.10	.14	-.15	.10				

Note. All measures scored on 5–25 scale.  $ns = 1,664$ – $1,673$  for correlations and descriptive statistics. Correlation of  $r = .05$  is significant at  $p < .05$ ,  $r = .09$  is significant at  $p < .001$ . Pos. = positive; Neg. = negative; Sub. = substance.

had more favorable self-attitudes (both esteem and control), compared with adolescents from blended or single-parent families ( $ps = .05-.01$ ). Adolescents from families with college education had more positive control compared with adolescents from families with high school education ( $p = .03$ ). Hispanic and Black adolescents were elevated on lack of control compared with White adolescents ( $p < .001$ ). A Sex  $\times$  Race interaction was found for positive esteem ( $p < .01$ ): Black female adolescents had higher esteem relative to Hispanic or White female adolescents, whereas White male adolescents had higher esteem relative to Black or Hispanic male adolescents.<sup>3</sup> For substance use, there were significant main effects: White adolescents had more use compared with Black or Hispanic adolescents ( $p < .001$ ); adolescents from blended or single-parent families had more use compared with adolescents from intact families ( $p < .0001$ ); and adolescents from high school educated families had more use compared with adolescents from college-educated families ( $p < .001$ ). These demographic effects on substance use are consistent with previous research (e.g., Bachman et al., 1991; Dornbusch et al., 1985; Headen, Bauman, Deane, & Koch, 1991; Hetherington, 1989). Because of the significant effects for predictor and criterion variables, subsequent analyses were performed with complete demographic controls.

### Comparative Tests

To test the other hypotheses, I performed hierarchical multiple regression analyses, with substance use score as the criterion variable. In a first step the demographic controls were entered as a set, including indices for gender, ethnic group (two indices), family structure (two indices), and parental education. In the second step for two analyses, positive and negative dimensions were entered together for a given dimension (esteem or control). In a final step, the set of four esteem and control scales was entered together. Results for concurrent analyses are presented in Table 2.<sup>4</sup>

Results for the second step of the analysis indicate positive and negative dimensions made independent contributions. For the esteem measures, positive esteem was related to less substance use ( $p < .01$ ), and negative esteem was related to more substance use ( $p < .01$ ); these

Table 2  
Multiple Regression for Esteem and Control Variables, Substance Use Score as Criterion

Variable	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>
Model 1				
Pos. esteem	-.048	.017	-.08	2.77**
Neg. esteem	.051	.015	.10	3.45**
$R^2 = .067$				
Model 2				
Pos. control	-.106	.018	-.17	5.84****
Neg. control	.057	.016	.10	3.48***
$R^2 = .083$				
Model 3				
Pos. esteem	.015	.022	.03	0.68
Neg. esteem	.036	.018	.07	1.94*
Pos. control	-.110	.023	-.18	4.72****
Neg. control	.033	.021	.06	1.54
$R^2 = .086$				

Note. Values are for coefficients in full model with demographic controls (not tabled).  $R^2$  for demographics alone = .043. Pos. = positive; Neg. = negative.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . \*\*\*\* $p < .0001$ .

were independent effects. For the control measures, positive control was related to less substance use ( $p < .0001$ ), and negative control was related to more substance use ( $p < .001$ ); these also were independent effects. The hypothesized effect for negative dimensions received only partial support; although negative esteem had a larger effect than positive esteem, this was not the case for perceived control, in which positive control had a larger effect.<sup>5</sup> When all four scales

<sup>3</sup> There was also a two-way interaction of Race  $\times$  Family Structure for both positive esteem ( $p < .01$ ) and substance use ( $p = .02$ ). The form of the interaction was that single-parent structure had no effect among Black adolescents, whereas it had adverse effects (lower esteem or more substance use) among Hispanic and White adolescents; for esteem, Black adolescents from single-parent families had higher esteem than those from intact families.

<sup>4</sup> For concurrent analyses, numbers were 1,642 without demographic controls and 1,237 with demographic controls. For prospective analyses, numbers were 1,270 without demographic controls and 949 with demographic controls.

<sup>5</sup> Recall that within each set the positive and negative scales had comparable reliability, so this result cannot be attributed to differential reliability of the scales.

were entered together, positive control had a significant effect,  $\beta = -.18$ ,  $t(1235) = 4.72$ ,  $p < .0001$ , and the effect for negative esteem was marginal,  $\beta = .07$ ,  $t(1235) = 1.94$ ,  $p = .05$ . The other two scales were nonsignificant in this model.<sup>6</sup>

The comparative effect of esteem and control in relation to substance use was indexed through unique effects (Cohen & Cohen, 1983). The incremental contribution when control measures were added to esteem measures was compared with the incremental contribution when esteem measures were added to control measures. In this test, the unique effect ( $R^2$  increment) for the two control measures net of demographics and the shared variance was .020, whereas the unique effect for the two esteem measures net of demographics and the shared variance was .003. This indicates perceived control is more important than self-esteem for substance use. Note that the shared variance (.021) was substantial, reflecting the correlation between self-esteem and perceived control.

Prospective analyses were performed in multiple regression. With Grade 9 substance use as the criterion variable, predictors were demographics, four Grade 8 measures for self-esteem and perceived control, and Grade 8 level of substance use. This model tests the ability of esteem and control variables to predict change in substance use over the 1-year follow-up. Results indicate that internal control was inversely related to change in substance use,  $\beta = -.07$ ,  $t(947) = 2.53$ ,  $p = .01$ . None of the other esteem or control variables was significant. Thus, only internal control predicted change in substance use over time.

### Interaction Tests

Interaction tests examined whether the relationship between self-attitudes and substance use differed by gender, ethnic group, family structure, or socioeconomic status. Analyses were performed for eighth-grade data using multiple regression, with substance use score as the criterion variable. The basic analytic model entered a demographic index together with the four main effect terms for esteem and control variables and included the cross-product of the demographic index and one predictor variable

(e.g., Gender  $\times$  Positive Esteem); this analysis was then repeated for each of the three other self-attitude variables. A significant effect for a cross-product term in this model indicates the relationship of the predictor to substance use differs for demographic subgroups. Analyses for ethnic-group membership used one dichotomous variable contrasting Black adolescents with Hispanic or White adolescents, another contrasting Hispanic adolescents with Black or White adolescents. Analyses for family structure used one dichotomous variable contrasting subjects in single-parent families with subjects in blended or intact families, another contrasting subjects in blended families with subjects in single-parent or intact families. Significant interactions were interpreted by computing separate regressions for the relevant demographic subgroups. Results for two analyses are presented in Table 3.

Interaction effects indicate the relationship of esteem and control with substance use differed for Black adolescents, compared with Hispanic and White adolescents. Self-attitudes had lower predictive value for Black adolescents, and positive control was only marginally significant ( $p = .07$ ). Negative esteem and positive control were significant predictors among Hispanic and White adolescents. For White adolescents, negative control had a significant effect, whereas this was not true for the two other ethnic groups.

For family structure, results suggested internal control was more important for adolescents from single-parent families; among this subgroup, negative esteem had no significant effect. For adolescents from blended families, negative esteem was significant, but positive control had no significant effect.

For the other demographic variables (not tabled), results indicate one significant effect for gender, interaction  $t(1642) = 2.76$ ,  $p < .01$ ; there was a significant relationship between negative control and substance use among female adolescents ( $\beta = .13$ ,  $p < .01$ ) but no relationship among male adolescents ( $\beta = -.04$ , *ns*). Relationships of self-esteem and internal control to substance use were not significantly different for

<sup>6</sup> The analyses also checked for quadratic relationships (cf. Shedler & Block, 1990) by entering the squared term for a predictor with the linear term. There were no significant quadratic effects.

Table 3  
*Coefficients for Regression of Substance Use on Self-Attitudes by Ethnic Group and by Family Structure*

Variable	Ethnic group			Family structure						
	Black ( <i>n</i> = 472)	Hispanic ( <i>n</i> = 392)	White ( <i>n</i> = 577)	Contrast A ( <i>t</i> )	Contrast B ( <i>t</i> )	Single ( <i>n</i> = 568)	Blended ( <i>n</i> = 167)	Intact ( <i>n</i> = 902)	Contrast A ( <i>t</i> )	Contrast B ( <i>t</i> )
Pos. esteem	.08	-.04	.08	2.14*	1.94*	.07	-.12	.02	1.40	1.49
Neg. esteem	.05	.11†	.13*	2.11*	0.88	.04	.18*	.13**	2.84**	1.63†
Pos. control	-.11†	-.18**	-.19***	2.59**	1.30	-.18***	-.03	-.14***	0.08	0.27
Neg. control	.04	.00	.11*	1.44	1.24	.00	.01	.07	2.33*	0.50
R <sup>2</sup>	.01	.06****	.08****			.02*	.06*	.05****		

*Note.* For regressions, tabled values are standardized coefficients for variables in full model. For contrasts, tabled value is *t* for cross-product term, net of main effects. For ethnic group analyses, Contrast A tests Black adolescents against others, and Contrast B tests Hispanic adolescents against others. For family structure analyses, Contrast A tests single-parent families against others, and Contrast B tests blended families against others. Pos. = positive; neg. = negative.

†*p* < .10. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001. \*\*\*\**p* < .0001.

female and male adolescents. For parental education, there were no significant interactions.

### Discussion

I conducted this research to provide a comparative test of self-esteem and perceived control in relation to adolescent substance use. Results indicate measures of esteem and control show significant relationships with adolescent substance use and effects were maintained with control for demographic characteristics. The results show positive and negative dimensions make independent contributions to the criterion, so the multidimensional approach to self-attitudes (Fleming & Watts, 1980; Paulhus, 1983) is clearly a useful one. The data indicate self-esteem and perceived control are substantially related, hence the correlation between esteem and control must be considered in research on self-attitudes. Comparative tests in multivariate analyses indicated perceived control, not self-esteem, was the primary predictor of adolescent substance use.

A conclusion from this research is that with respect to adolescent substance use, perceived control is more important than self-esteem, as the unique effect for the control variables was considerably greater than the effect for the esteem variables. In the concurrent analysis (Table 2, Model 3), the effect for positive control was the major effect in the model. In the prospective analysis, only positive control was significant. This suggests previous research may have underemphasized the importance of the control aspect of self-attitudes (cf. Carver & Scheier, 1982; Folk-

man, 1984), and previous results may have been influenced by the correlation between self-esteem and perceived control. The present findings cannot be attributed to differential reliability because the esteem and control scales were of comparable reliability. In fact, the control scales had somewhat lower reliability than the esteem scales, which (other things equal) would work against the finding of unique effects for the control variables.

The present data show relationships of esteem and control variables to demographic characteristics that are generally consistent with previous research, but they elaborate previous findings in some ways. The relationship of family structure to decrements in esteem and control is consistent with previous research about the effects of divorce on adolescents (e.g., Dornbusch et al., 1985; Flewelling & Bauman, 1990; Hetherington, 1989; Hetherington, Arnett, & Hollier, 1988) and indicates that family disruption has significant effects on both types of self-attitudes, resulting in feelings of lower self-esteem and perceived control. The finding that relationships of self-attitudes to substance use are weaker among Black adolescents is consistent with previous findings on the generally lower predictability of substance use for this demographic group (Bachman et al., 1991; Barnes & Welte, 1986; Headen et al., 1991; Newcomb, Maddahian, Skager, & Bentler, 1987; Windle, 1990). Consistent with the Windle study, the present results on the effect of self-attitudes show gender differences were minimal compared with the differences between ethnic



groups. It has been shown that ethnic-group differences in self-reported substance use are corroborated by a biochemical measure, carbon monoxide, and that reliability of psychosocial measures is comparable across ethnic groups (Vaccaro & Wills, 1994). Consistent with analyses of national-sample data indicating comparable reliability and validity of reporting by Black, Hispanic, and White youth (Wallace & Bachman, 1993), this suggests that the observed differences in prediction of substance use are not attributable to methodological artifact. The impact of family structure, socioeconomic status, and ethnic group differences on adolescent substance use therefore is indicated as an important topic for further investigation (cf. De La Rosa & Adrados, 1993).

The ethnic-group differences in self-esteem are also noteworthy. Though previous research has often found no difference between Black and White adolescents in self-esteem, some studies have reported that Black children score higher on measures of self-regard (Rosenberg & Simmons, 1972; Wylie, 1979). In the present data an elevation of positive esteem that was specific to Black female adolescents was found, extending previous findings and drawing attention to gender differences in the effect. Detailed discussion of the theoretical process that underlies this effect is beyond the scope of this article (see, for example, Crocker & Major, 1989; Porter & Washington, 1979), but the data suggest further research about the differential impact of minority-group status on male and female adolescents.

A possible limitation in the present research is that self-attitudes were measured at one age level in adolescence (13–14 years). Developmental research has indicated a shift in self-concept with age, from an emphasis on abilities to an emphasis on inner thoughts and feelings (Rosenberg, 1986), so it is possible that the relative contributions of esteem and control could change with age. Further research, with multidimensional measures and different age groups, would be useful to determine the relations of esteem and control to substance use at different developmental periods. It should also be noted that the magnitude of relationships of esteem and control with substance use was generally modest in absolute terms, but this is expected from a theoretical standpoint because self-attitudes have the status of distal rather than proximal factors in the substance use process (Jessor & Jessor, 1977;

Kaplan, 1980). As has been found with parental substance use, distal factors with relatively weak zero-order effects may have substantial relationships with mediating factors such as life stress and maladaptive coping, which in turn are related to more proximal factors such as affiliation with deviant peers (Wills, Schreibman, Benson, & Vaccaro, 1994). Further research is suggested to explore the relationship of perceived control to other variables that are involved in the sequence of processes leading to trial and adoption of different types of substance use (cf. Hirschman et al., 1984; Kaplan et al., 1984).

### *Role of Control and Esteem in Self-Theory*

The results of this study provide evidence that the relationship between self-attitudes and substance use is a theoretically significant one and encourage pursuit of further research in this area. The data suggest two alternate models of the way in which self-attitudes are involved in the substance use process. The first model suggests that positive perceived control, a generalized sense of efficacy, enables persons to be more resistant to pressures or temptations for deviant behavior (Hays & Ellickson, 1990; Wills & Shiffman, 1985). It is assumed that positive control is embedded in patterns of competence and effective coping, as suggested by Kaplan (1980), and that a sense of efficacy is an essential component of psychological well-being, as posited in various ways by Bandura (1982), Harter (1986), and Rosenberg (1986). Thus the perception of positive control in this model is accorded a central role and serves as a protective factor through its relation to resistance efficacy.

A second approach is similar to the model outlined by Kaplan (1980), but with negative control, as well as negative self-regard, implicated in the process. This model would posit that both negative esteem and negative control are based on inability to meet normative expectations. The distress arising from perceived incompetence could lead to involvement with deviant peers and adoption of deviant behaviors that afford an alternative means of self-enhancement (Blechman & Wills, 1992; Wills & Hirky, in press). Additionally, pharmacologic properties of substances may provide distraction from a focus on unfavorable self-attributes (Steele & Josephs, 1990; Wills & Shiffman, 1985), and though the

distraction may only be temporary, the easy access and controllability of consciousness through substance use may contribute to its use as a coping mechanism among persons who are less able to obtain perceptions of competence and control through other means of coping.

A direction for further testing these models would involve research with representative samples or high-risk groups of adolescents, using measures of positive and negative self-attitudes together with measures of peer-group associations, normative competencies and coping patterns, and specific social skills and efficacy to resist drug use offers. A control-based model, as outlined above, would suggest a direct effect of positive control on efficacy and substance use outcomes, whereas the esteem-based model as elaborated by Kaplan (1980) suggests a series of indirect effects based more on negative dimensions of control and esteem, which may relate to adoption of deviant behaviors and coping responses that are self-defeating but are pursued as motivationally acceptable alternatives when self-enhancement through more normative modes is difficult or unavailable.

### *Self-Esteem, Depression, and Substance Use*

Because low self-esteem has been related to depression in both adults and adolescents (e.g., Harter, 1993), the theoretical relation among these constructs is worth noting. In adult research the relation between depression or low self-esteem and substance abuse has been theoretically problematic because of the lack of prospective studies in which the personality constructs are measured before the onset of substance abuse (see, for example, Cox, 1987). In this study I did find a significant prospective effect for perceived control, providing evidence that low internal control is temporally antecedent to increase in substance use and indicating that it is perceived control, not self-esteem, that seems to be the primary factor in this process. This evidence adds to other recent studies that have found relationships of depressive affect to substance abuse with different populations in retrospective, concurrent, and prospective designs (Covey & Tam, 1990; Deykin, Levy, & Wells, 1987; Wills, Vaccaro, & McNamara, 1992; Wilsnack, Klassen, Schur, & Wilsnack, 1991). Thus there are grounds for expecting that low self-esteem, lack of perceived

control, and feelings of helplessness are significant factors in producing risk for adolescent depression and substance use, and further research on this question may be useful to clarify the respective roles of self-esteem and perceived control in this process.

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