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Psychosocial Predictors of Substance Use Among
Urban Black Male Adolescents¹

Kenneth I. Maton

University of Maryland Baltimore County

Marc A. Zimmerman

University of Michigan

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Abstract

Three sets of variables--Lifestyle, Social Support/Stress, and Well Being--were used to predict frequency of alcohol, marijuana, and hard drug use among urban African-American male adolescents. A sample of 150 adolescents, most of whom had dropped out of school, participated in an initial 90-minute interview and a follow-up interview six months later. The prevalence rates for illicit substance use among this sample of Black males were higher than the National average. Using a hierarchical regression approach, different psychosocial variables were found to predict use of different substances. Lifestyle was a significant predictor of marijuana and hard drug use at both measurement points, and a predictor of alcohol use at one of two measurement points. Support/Stress explained significant variance in alcohol use at both measurement points, and in marijuana use at one of two measurement points. Among individual predictor variables, in cross-sectional analyses (with all predictor variables entered) independent variance in substance use was explained by in-school status (alcohol and marijuana use), spirituality (marijuana and hard drug use), and life event stress (marijuana use). In longitudinal analyses with Time One substance use controlled, Time Two in-school status and life event stress each explained significant variance in alcohol use, while Time Two parent support was related to marijuana use. Finally, in prospective analyses with Time One substance use controlled, low self-esteem at Time One predicted to increased marijuana use six months later. Suggestions for future research and implications for preventive intervention are discussed.

INTRODUCTION

Research on the etiology of substance use among adolescents has generated a diverse set of empirical predictors and theoretical explanations (Bennett, 1982; Hawkins, Lishner, & Catalano, 1985; Murray & Perry, 1985; Newcomb & Bentler, 1989). However, the vast majority of researchers have studied middle class, in-school youth. Especially glaring has been the absence of research on urban, minority adolescent samples (Prendergast, Austin, Maton, & Baker, 1989). This is unfortunate since urban minority adolescents represent a group that is particularly at high risk for various problem behaviors, including substance use. A large number of minority youth drop out of school and are unemployed, and available research suggests that unemployed, school dropouts have substantially higher rates of substance use than in-school or employed peers (Bachman, O'Malley & Johnson, 1978; Kandel, 1980; Johnston & O'Malley, 1986). In one of the few research studies focused explicitly on urban minority teenagers, Brunswick, Merzel, and Messeri (1985) reported higher rates of substance abuse among urban Black adolescents than in the general population (NIDA, 1988). Clearly, an understanding of the psychosocial factors predictive of drug abuse among high-risk African-American teenagers is a high priority for drug use researchers.

Several psychosocial paradigms have been proposed to explain substance use and abuse for general samples of adolescents. Perhaps most support exists for the lifestyle paradigm, which posits that substance use results when adolescents lack conventional aspirations, engage in a socially deviant lifestyle, and lack the psychosocial

controls which follow from daily involvement in meaningful activity (Hawkins & Weis, 1984; Jessor, Chase, & Donovan, 1980). School involvement and religiosity appear especially important as meaningful activities which may buffer adolescents from a non-conventional lifestyle, and the accompanying high levels of drug use (Jessor & Jessor, 1977; Donovan & Jessor, 1978; Selnow, 1985).

A second, social support/stress model focuses on the etiological role of low quality social relationships, and high levels of stress, leading to psychosocial problems, including substance use. Low quality support relationships are those lacking in the provision of love, acceptance, emotional support, advice, and tangible help (cf. Cohen & Wills, 1985). Perhaps most important in terms of substance use is the quality of the adolescent's support relationships with parents, as poor quality family relationships are generally considered to constitute a risk factor for adolescent substance use (Maddahian, Newcomb, & Bentler, 1988). High levels of stress (e.g., experiencing multiple negative life events) may lead to substance abuse because the individual feels overwhelmed by environmental demands (Brown, 1989; Newcomb, Maddahian, & Bentler, 1986; Wills, 1986).

A third, psychological well-being paradigm views substance use as the consequence of impaired psychological well being (cf. Cox, 1982). In this model, substance abuse is viewed neither as a way of life nor as a function of inadequate support systems and high levels of life stress. Rather, it is viewed as reflecting an underlying, intrapsychological deficiency. In adolescent substance use research, psychological symptoms (e.g., depression, anxiety) and self-esteem are

representative of the well-being variables studied (cf. Murray & Perry, 1985). To date, the psychological well-being model has received only mixed support (e.g., Jessor, 1981; Wingard, Huba, & Bentler, 1980) in general samples of adolescents.

Few researchers have tested all three of these models--lifestyle, support/stress, and psychological well being--in the same study. Furthermore, as noted above, most previous research on adolescents has included only in-school samples, has not focused on high-risk, minority populations, and has been cross-sectional in nature. The current research represents one of the few (short-term) longitudinal studies of psychosocial predictors of substance use among a high-risk minority sample--urban, male Black adolescents, most of whom have dropped out of school and are unemployed. Lifestyle, social support/stress, and well-being measures were used as predictor variables. The findings from the research will hopefully help to guide policy makers and professionals in developing preventive intervention programs which are specifically tailored to this most important youth population.

METHOD

Research Participants

The sample contains 150 Black male adolescents from inner-city Baltimore who completed both Time One and Time Two interviews. Four additional youth who completed both sets of interviews were not included due to the perceived invalidity of their data (see below). An additional 66 youth completed Time One interviews but did not complete Time Two interviews (30% of the initial sample). Analyses

indicated that non-completers did not differ significantly from completers on age, recruitment source (see below), eight of nine predictor variables, and two of three substance use measures (Time One). However, non-completers did report somewhat higher levels than completers of stressful events, $r(215) = .14$, $p < .05$, and marijuana use, $r(215) = .14$, $p < .05$.

At Time One, the average age of the 150 youth in the final sample was 17.2 (range from 15 through 19). At Time One, 107 of the youth (71%) in the final sample reported they were not attending school. At Time Two (six months later), 88 youth (59%) reported they were not attending school; 19 youth had returned to school. Among youth not attending school at Time One, the last grade completed ranged from 7th to 11th (median=9th); furthermore, about half had been out of school 6 or fewer months, while the other half had been out from 7 months to 48 months (median=6 months). Ninety-one youth (61%) reported that their father was employed (43 did not know), and 113 (75%) said their mother was employed (5 did not know). Sixty-six of the youths (44%) said they did not spend any time with their father, and only 29 (19%) reported spending more than 10 hours per week with their father.

Procedure

Four recruitment strategies were used to solicit youth involvement in the study: mail solicitations to previous year school dropouts whose names were provided by a large, urban school district (48 dropouts; 6 re-enrolled in-school); on-the-street recruitment by peer recruiters who were paid to recruit youth in their neighborhood (42 dropouts; 25 in-school); referrals from agencies such as the Urban

League and Urban Services (6 dropouts; 6 in-school); and solicitation through media, posters and flyers (11 dropouts; 6 in-school). In all cases, special emphasis was placed on recruiting youth who had dropped out of school. For all youth, only those who were currently unemployed (defined as working less than 10 hours per week) were included in the study. Chi-square analyses indicated that significantly different proportions of school drop-outs were recruited across the four recruitment methods, $\chi^2 (3)=12.82, p < .01$.

All youth were informed that the purpose of the research was to learn about the life stresses, daily activities, and well being of male teenagers, and that some questions focused on drug use. Participants were informed that all information was confidential, and that the confidentiality of information about drug use was legally protected by a federal certificate (described below). The youth were paid \$15 for an initial 90-minute interview, and \$35 for a six-month follow-up. The measures used in the current study were verbally administered by trained interviewers (following which a 45-minute semi-structured interview was administered). Along with written consent from participants, parental written consent was obtained for all non-emancipated youth under the age of 18. Nine trained student interviewers, both blacks and whites and males and females, performed the interviews. The interviewers ranged in age from 21 to 40, and included both advanced undergraduates and graduate students. Interviewers and interviewees were matched on gender or race only in those occasional instances when a youth indicated a gender or race preference in response to a question about whether they had a

preference. Analyses did not indicate any effects of interviewer ethnicity or gender on reported levels of alcohol, marijuana, or hard drug use at either measurement point.

Measures

Independent Variables. The three Lifestyle predictor variables were school status, spirituality, and self-perceived participation in meaningful activities. School status was dummy coded into in-school and drop-out categories. Spirituality was assessed with a three item measure, which had achieved good reliability and expected relationships with criterion variables in previous research (Maton, 1989). The three items are: "I experience a personal, close relationship with God"; "I experience God's love and caring on a regular basis"; and "My religious faith helps me to cope during times of difficulty." The items were completed on a 5-point Likert-type scale (ranging from "not at all accurate" to "completely accurate"). The alpha reliability of the measure in the current research (Time One) was .80. The meaningful activities measure included six items, and had achieved acceptable reliability and expected relationships with criterion variables in previous research (Maton, 1990). The items assess frequency of involvement in the past week in activities related to goal achievement, contributing to others, and the use of valued skills. The items were completed on a 5-point Likert type scale (ranging from "not at all" to "very often"). In the current research, the alpha reliability of the measure (Time One) was .73.

The three Support/Stress predictor variables were ^①perceived social support from parents, ^②perceived social support from friends,

and ^③total negative, uncontrollable life events. Parent support and friend support were assessed with shortened forms of Procidano and Heller's (1983) parents and friends scales, derived by factor analysis (Maton, Gouze, & Keating, 1987). The items were completed on a 5-point Likert type scale (ranging from "not at all accurate" to "completely accurate"). An example of an item from the 12-item parent support scale was "I rely on my parents for emotional support." An example of an item from the 10-item friend support scale was "I rely on my friends for emotional support." The alpha reliabilities for parent support and friend support (Time One) were .91 and .78, respectively. The life stress measure included 35 events, primarily focused on death, illness and injury which happened during the past 6 months to family members and friends.

The three Well-Being predictor variables were symptoms, self-esteem, and life satisfaction. The 12-item symptoms measure combined the 6-item Depression and 6-item Anxiety scales from the Brief Symptom Inventory (Derogatis & Spencer, 1982), and assessed the extent to which various symptoms were experienced during the past week. (The two scales were combined to provide a general measure of distress, and to maintain the same number of Well-being as Lifestyle and Support/Stress predictors). The items were completed on a 5-point Likert type scale (ranging from "not at all" to "extremely"). Self-esteem was assessed with Rosenberg's (1979) 10-item scale. Life satisfaction was assessed with Diener, Emmons, Larsen, & Griffin's (1985) 5-item scale. The self-esteem and life satisfaction items were completed on a 5-point Likert type scale (ranging from "not at

all accurate" to "completely accurate"). Each of the well-being measures has established reliability and validity. In the current sample, the alpha reliabilities for symptoms, self-esteem, and life satisfaction (Time One) were .78, .75, and .81, respectively.

Demographic Variables. Age was calculated from the date of birth information provided at the time of each interview. The variable "Father present while growing up" was dummy coded from the respondent's response to the question, "Was your father living with you while you were growing up." Unfortunately, a measure of socioeconomic status (SES) could not be constructed given the large amount of missing data and the lack of detailed information youth were able to report about both mother's and fathers's education and occupation.

Dependent Variables. Measures of alcohol use, marijuana use, and hard drug use were designed for this research, based upon measures used by Newcomb and Harlow (1986). Each measure asked youth to indicate the frequency of use over the past six months, using the same 6-point scale (0 = not at all; 1 = once or twice; 2 = a few times; 3 = once a month; 4 = once a week; 5 = once a day; 6 = more than once a day).

Alcohol use was assessed by summing the frequency ratings for beer and hard liquor consumption. Marijuana use was assessed by a single item assessing the frequency of use over the past six months. Hard drug use was assessed by summing the frequency ratings for cocaine/crack, hallucinogens, heroin, stimulants, depressants, and phencyclidine (PCP). The correlations of the alcohol, marijuana, and hard drug use measures with a social desirability scale (from

Jackson's Personality Research Form, Jackson, 1967) were not significant at either Time One or Time Two, providing some assurance that the levels of use reported were not simply a function of social desirability. Additional possible concerns about the quality of the data are discussed below.

Quality of the Data

The truthfulness of the respondents' answers is of concern because the interview included questions about unlawful behavior (i.e., illicit substance use) and because disenfranchised minority adolescents are not expected to be completely truthful to university researchers. We employed several strategies to help ensure that we were obtaining accurate data. However, it is still possible that our data underestimates substance use.

One strategy was to build youths' trust by guaranteeing confidentiality. We assured the interviewees that we would not use the data for any purpose other than the current research, and that name and address information were collected only so we could contact them for the follow-up interview. We also obtained a federal "Confidentiality Certificate" (i.e., subpoena protection) from one of our granting agencies (National Institute of Drug Abuse) and presented it to the youths at the first interview.

We also trained our interviewers to work on building rapport with the youths so they might be more likely to trust our intentions. As part of the training, each interviewer observed an interview, and then conducted a number of practice interviews before they were sent out to conduct actual interviews. The practice interviews were done with

male Black adolescents who were paid for taking part, and who were involved in a community program designed to help them obtain their GED (i.e., high school equivalency degree) and develop job skills. The practice interviews were observed and/or tape recorded, and each interviewer received feedback about their style and the interview process.

We also asked for feedback from the youths when the practice interview was completed. We spoke to them about the issues of accuracy, content and relevance of the interview, and possible problems with white or female interviewers. They agreed that the gender or ethnicity of the interviewer was less important than the rapport that is developed. They also suggested that this rapport was the best strategy for ensuring truthful responses. In addition, they indicated that the content of the interview would be acceptable and relevant for their peers. As noted above, for both Time One and Time Two data, neither sex nor ethnicity of interviewer were significantly related to any of the dependent measures.

Finally, to help ensure that the data collected in the study were useful and valid, interviewers rated every interview in the research for consistency of response, comprehension of the questions, flow or ease of the interview, youth's attention, and youth's overall attitude about the interview. They used a three point scale (1 = good; 2 = neutral; 3 = bad). They also rated their impression of the validity of the data for each measure in the interview. They indicated whether or not they thought the responses were valid, questionable, or invalid. These ratings were partly based on the interviewers' overall

impressions, and in part on responses to interviewer probing about items, especially those which were reverse coded. Any respondent who had more than four invalid or bad ratings were eliminated (four individuals).

RESULTS

The percentages of youth reporting at least some use of substances during the past six months (Time One) were 61% for alcohol, 39% for marijuana, and 16% for hard drugs (most often used were cocaine, by 10%; smack, by 7%; and depressants, by 5%). The National Household Survey of Drug Abuse (NIDA, 1988) indicated lower rates of use during the past 12 months among black 12-17 year old males: 38% for alcohol, 18% for marijuana and 4% for cocaine (comparable data on other hard drugs was not reported). The three substance use criterion variables were moderately and significantly correlated: among Time One criteria the correlations ranged from .36 (alcohol and hard drugs) to .47 (alcohol and marijuana), and among Time Two criteria from .32 (alcohol and marijuana) to .55 (marijuana and hard drugs).

The correlations among the predictor variables are reported in Table 1. In general, the pattern of correlations among life style, support/stress, and well-being variables were consistent in magnitude and direction with that reported in the empirical literature, supporting the general validity of the data set (for instance, lifestyle variables were significantly related to well-being variables in expected directions). Since the highest intercorrelation among variables was only $r = -.53$ (symptoms and self-esteem), multicollinearity does not appear to be a problem. The Time One-Time

Two intercorrelations (not shown in Table 1) averaged $r=.58$ for the nine psychosocial predictor variables, with a range from .38 to .74. (Interestingly, the three lowest Time One-Time Two intercorrelations, $r=.38$ for Meaningful Activity, $r=.46$ for Stress, and $r=.53$ for Symptoms, were for the three scales which asked individuals to focus on a specified, recent, time period--e.g., the past week--when responding to the items).

 Insert Table 1 Here

Primary Analyses

The data analytic strategy involved first carrying out multivariate multiple regression analyses, to test for the overall significance of the relationship between predictor variables and all three substance use criteria. If significant, then separate regression analyses were carried out for the alcohol, marijuana and hard drug use criteria. For each criterion variable, four analyses were carried out: Time One predictors and Time One substance use criterion (Cross-sectional Analysis); Time Two predictors and Time Two substance use criterion (Cross-sectional Analysis); Time One predictors and Time Two substance use criterion, with Time One substance use controlled (Prospective Analysis); and Time Two predictors and Time Two substance use criterion, with Time One substance use controlled (Longitudinal Analysis).

For the Cross-sectional Analyses, the following hierarchical procedure was used: first, age and/or father in household when growing

up were entered into the equation only if a significant amount of variance were explained; second, the three Lifestyle independent variables were entered as a set; third, the three Support/Stress variables were entered as a set; and fourth, the three Well-Being predictors were entered as a set. Lifestyle was entered before the other predictor sets because it has consistently been found in adolescent research to be related to substance use (e.g., Donovan & Jessor, 1985; Hundleby, 1987; Jessor & Jessor, 1977). Support/Stress was entered next because of the central importance of current social relationships and life stress to adolescent well being (e.g., Compas, 1987; Newcomb & Bentler, 1988). Well-Being was entered last since a large body of theory and research suggests that it may be directly caused by levels of Social Support/Stress (e.g., Cohen & Wills, 1985; Vaux, 1988). For each analysis, the percent of variance accounted for by the predictor set is presented in the tables, as well as the standardized beta from the final equation, reflecting the contribution of each variable to the criterion independent of every other entered variable. Finally, the zero-order correlations of all variables are reported.

Two modifications were made when carrying out the Prospective (Time One predictors) and Longitudinal (Time Two predictors) Analyses. First, Time One substance use was entered as a covariate (the other covariates were next entered only if they explained additional variance). Second, the predictor variables within each predictor set were made available for entrance in step-wise (i.e., "forward") fashion, so that only the variable(s) that explained a significant

amount of remaining variance was entered. This procedure, rather than forced entry of all three variables in a set was followed to reduce the probability that predictors in a set with overlapping variance would all drop below significance following entrance (given the relatively smaller amount of variance remaining to be explained in the criterion following the entrance of Time One substance use). First, the three Lifestyle predictors were made available for entrance, in stepwise fashion, next the three Support/Stress predictors, in stepwise fashion, and finally the three Well-Being predictors, in stepwise fashion. In all analyses reported below, the minimum tolerance level of any predictor variable was .69, indicating the absence of multicollinearity among predictors.

Missing data on the independent variables were replaced through means substitutions. Among Time One predictors, two predictor variables were missing three cases, and five were missing one case. Among Time Two predictors, one variable was missing seven cases, one variable was missing two cases, and two variables were missing one case. The results were generally similar when analyses without means substitution were compared with those reported below.

Multivariate Multiple Regression Analyses. The multivariate tests of significance of the predictor variables on the three criteria were highly significant (all less than $p < .01$) for the Time One, Time Two, Prospective, and Longitudinal analyses. The results of the separate regression analyses for each criterion variable are reported below.

Alcohol Use. Table 2 reports the results for the cross-sectional

multiple regression analyses with alcohol consumption as the criterion. When entered first in the equation, in both Time One and Time Two analyses age was positively and significantly related to alcohol use (explaining 7.4% and 5.5% of the variance, respectively). In the Time One analysis, independent of age the Support/Stress variables explained an additional, significant amount of variance (7.8%). In the Time Two analysis, Lifestyle (7.8%) and Support/Stress (4.5%) each explained significant amounts of variance. The Multiple R for the final Time One equation (.452) represents a significant 20.4% of the variance in alcohol use accounted for by predictors, $F(10,139)=3.56$, $p < .01$. The Multiple R for Time Two (.447) indicates a comparable, significant 20.0% of variance accounted for, $F(10,139)=3.47$, $p < .001$.

 Insert Table 2 Here

With all variables entered into the equation, only in school status, $B=-.25$, $p < .05$, for Time Two, remained significantly related to alcohol use. Specifically, independently of all other factors, youth who were still attending school reported lower levels of alcohol use.

Table 3 reports the results for the prospective and longitudinal analyses with alcohol consumption (Time Two) as the criterion. Although four of the psychosocial predictors from Time One had significant zero-order correlations with Time Two alcohol use, none explained significant variance beyond that accounted for by Time One

alcohol use (which itself explained 27.3% of variance). In the longitudinal analysis, however, both Time Two in-school status, $\beta = -.15$, $p < .05$, and Time Two life event stress, $\beta = .14$, $p < .05$, were significantly related to alcohol use in expected directions, independent of Time One alcohol use. Thus, youth who were not attending school at Time Two, and youth reporting a higher number of stressful life events during the preceding six months each were more likely to report increased drinking compared to six months earlier.

Insert Table 3 Here

Marijuana Use. Table 4 reports the results of the cross-sectional analyses for marijuana use, which were similar in some but not all regards to the findings for alcohol use. As with alcohol use, age was positively related to marijuana use, explaining a significant 4.9% of variance at Time One and 3.5% of variance at Time Two. Lifestyle explained a large 17.5% of variance at Time One, and 10.3% of variance at Time Two. Support/Stress explained a significant 4.5% of variance in marijuana use, at Time One only. The Multiple R for the final Time One equation (.536) represents a significant 28.7% of the variance in marijuana use accounted for by predictors, $F(10,139) = 5.60$, $p < .001$. The comparable Multiple R for Time Two (.415) was smaller in magnitude, indicating 17.2% of variance was accounted for, $F(10,139) = 2.88$, $p < .01$.

Insert Table 4 Here

With all variables entered into the equation, in school status, $\beta = -.19$, $p < .05$, and spirituality, $\beta = -.32$, $p < .001$, were inversely and significantly related to marijuana use at Time One, while life event stress, $\beta = .17$, $p < .05$, was positively and significantly related. Only in school status, $\beta = -.20$, $p < .05$, was significantly related to marijuana use at Time Two, with all variables entered.

Table 5 reports the results for the prospective and longitudinal analyses with marijuana use (Time Two) as the criterion. Although five of the psychosocial predictors from Time One had significant zero-order correlations with Time Two marijuana use, only self-esteem, $\beta = -.16$, $p < .05$, explained significant variance beyond that accounted for by Time One marijuana use (which itself explained 27.3% of variance). Thus, youth with lower levels of self-esteem at Time One were more likely to report increased levels of marijuana use six months later. In the longitudinal analysis, only parent support, $\beta = .15$, $p < .05$, was significantly related to marijuana use independent of Time One use. Thus, youth who reported lower levels of parent support at Time Two were more likely to have had increased levels of marijuana use over the preceding six months.

Insert Table 5 Here

Hard Drug Use. Table 6 reports the results of the cross-sectional analyses for hard drug use. Only Lifestyle was significantly related to hard drug use, explaining 7.7% of the

variance at Time One and 5.5% at Time Two. Interestingly, age, which had been significantly related in each of the previous analyses, was not significantly related to level of hard drug use. The Multiple R for the final Time One equation (.403) represents a significant 16.2% of the variance in hard drug use accounted for by the predictors, $F(9,140)=3.01$, $p < .01$. With all variables entered, the comparable Multiple R for Time Two (.309) indicates a non-significant 9.6% of variance accounted for, $F(9,140)=1.64$, $p < .11$.

 Insert Table 6 Here

Table 7 reports the results for the prospective and longitudinal analyses with hard drug use (Time Two) as the criterion. Although six of nine predictors from Time One had significant zero-order correlations with Time Two hard drug use, only spirituality, $\beta = -.24$, $p < .01$, explained significant variance beyond that accounted for by Time One hard drug use. Thus, youth who reported lower levels of spirituality at Time One were more likely to report increased levels of hard drug use six months later. Concerning the longitudinal analysis, although spirituality and two other Time Two predictors had significant zero-order correlations with Time Two hard drug use, none of the three explained significant variance beyond Time One hard drug use (which itself explained 41.5% of variance).

 Insert Table 7 Here

DISCUSSION

The current research provides new information about the psychosocial correlates of substance abuse among male, urban, African-American adolescents, and supports contentions that this sample is at higher risk than the general population. The higher rates of illicit drug use in the present sample than in national samples were expected, since the sample included a large number of individuals who did not complete high school and who were unemployed. These characteristics have been identified as risk factors for substance use (Kandel, 1980).

The pattern of results for the regression analyses suggests that Lifestyle is a substantive and consistent predictor of marijuana and hard drug use, in both Time One and Time Two analyses. Specifically, leaving school before graduating was associated with greater marijuana use at both points in time, while spirituality was associated with less marijuana and hard drug use, independent of all other variables in Time One analyses. In addition, in a longitudinal analysis, leaving school before graduating (assessed at Time Two) was predictive of increased levels of alcohol consumption from Time One to Time Two. Several investigators have found similar patterns of results for involvement in conventional activities (Hawkins & Weiss, 1984; Jessor et al., 1980) and for religious commitment (Donovan & Jessor, 1978; Selnow, 1985) for more heterogenous samples. Our research extends these results to a sample of high-risk, urban male Black adolescents.

The Support/Stress variables, as a set, predicted to level of alcohol use at both measurement points, and to level of marijuana use at one of two measurement points. In terms of specific predictor

variables, with all other variables entered, higher levels of life event stress were related to higher levels of marijuana use, at Time One. In addition, in a longitudinal analysis, higher levels of life event stress (reported at Time Two) were predictive of increased levels of alcohol use from Time One to Time Two. Finally, in a prospective analysis, lower levels of parent support (reported at Time One) were predictive of increased levels of marijuana use, six months later. Interestingly, the variable friend support was not a significant correlate of substance use. The lack of significant findings for friend support may reflect the mixed role of the peer group for adolescents--serving both to encourage, or discourage, substance use depending on the nature of the peer's own usage and values.

As a set, the Well-Being variables did not explain a significant amount of variance in any of the cross-sectional analyses. Furthermore, with all variables entered into the cross-sectional equations, individual well-being variables did not explain independent variance, even though eight of eighteen possible zero-correlations were significant. Interestingly, however, in the prospective analysis of marijuana use, lower self-esteem (reported at Time One) was predictive of higher levels of marijuana use, six months later. The general lack of significant relationships between substance use and the distress and self-esteem variables is contrary to some previous research (e.g., Newcomb & Harlow, 1986). It may be due in part to the fact that previous researchers did not examine the contribution of these variables after Lifestyle and Support/Stress variables were

already entered. Interestingly, the well-being variable which most consistently achieved significant zero-order relationships with substance use criteria was life satisfaction, both in terms of cross-sectional (five of six) and across-time (Time-One-Time Two, both directions; five of six) correlations. Previous substance use theory and research with adolescents has not generally included life satisfaction as a variable of interest. The consistent zero-order relationships obtained in the current study, however, suggest the value of including life satisfaction as a possible antecedent, intervening, or outcome variable in future theoretical and empirical work.

The current research is one of the few studies that has examined predictors of substance use among high risk urban Black youths. Other studies that included some information on minority substance use typically included samples of in school youth (Newcomb, Maddahian, & Bentler, 1986; Johnston & O'Malley, 1985). A notable exception is the longitudinal research on black Harlem youth carried out by Brunswick; however, Brunswick's program of research primarily focused on substance use as a predictor of health status (e.g., Brunswick & Messeri, 1986). Overall, the findings of the current research indicate that various psychosocial predictor variables and models each explain some variance in substance use. This finding suggests that the multiple psychosocial risk-factor approach proposed for etiological research on adolescents in general (cf. Newcomb & Bentler, 1989) may also be suited for research on high-risk minority youth.

The truthfulness of the youths' responses regarding substance use

is an important issue when asking interviewees about unlawful behaviors. The youths may have under-reported their substance use, although the relative levels of use reported across youth may have been veridical. The fact that substance use rates from our sample are similar to those from other studies (e.g., Brunswick et al., 1985) with comparable samples provides some confidence in the data. It is quite likely, however, that respondents are under-reporting drug use in all of these studies. Under-reporting may partly explain why the univariate correlations between the predictors and substance use are generally small (though significant).

A limitation of this research is the absence of follow-up data over a longer time period. Ideally, longitudinal designs in which high-risk, inner city samples are assessed before they commence drug use, and for an extensive period of time afterwards, are necessary to more fully examine the psychosocial factors involved in use. The Time Two completion rate of 70% in the current study suggests that longitudinal research is possible for inner city, high risk minority samples. In future research, a larger and more representative sample of inner city youth is also desirable. While diverse recruitment methods were used, it is not clear if an adequate cross-section of inner city youth was obtained. A larger sample would contribute to more confidence in the robustness of the findings; it might also contribute to more variance in the criterion measures, especially hard drug use, which in turn may lead to a greater predictive power of the psychosocial variables.

A final limitation of the study is that we did not distinguish

between substance use and abuse. An occasional substance user may not have a high risk lifestyle, low social support, or experience a diminishment in well-being to the same extent as a youthful drug abuser. This is not to say that substance use under some conditions is warranted or might not be dysfunctional for adolescents. In fact both substance use and abuse during adolescence are associated with delinquency, precocious sexual behavior, deviant attitudes, and school dropout (Newcomb & Bentler, 1989). The point is, however, that occasional users may have a different pattern of psychosocial predictors than abusers. Future research needs to develop and employ measures to distinguish between substance use and abuse.

Implications for Intervention

The results suggest possible intervention approaches to prevent and reduce substance use among young urban African-American males. The results on in-school status, for instance, suggest that interventions aimed at keeping Black male adolescents in school may have the added benefit of reducing substance use for the "gateway" drugs. One way to reduce substance use in urban settings may be to improve the structure and quality of schools, so they can be more relevant, interesting, and responsive to the concerns and issues of its students. It is not coincidental that public concerns about substance use is highest in the same communities (i.e., large urban areas) where the school systems have received the most criticism, and appear to have the fewest resources. Additionally, interventions to maintain church and family involvements which contribute to personal spirituality, if carefully and sensitively developed, represent

another intervention implication of the findings (Maton & Pargament, 1987).

Interventions designed to enhance the support skills and relationships among family members, especially parents, may be an effective strategy for combatting substance use among this high risk group. Bowman (1984) asserts that social alienation and a lack of a social identity may be central factors leading to substance abuse. Innovative family interventions which bring youth and parents together in engaging and meaningful activities, and, equally important, which link the family to community support resources and support networks may simultaneously enhance the support and skills of parents and of youth.

These intervention strategies avoid the problems of more traditional approaches that focus only on the drug culture. Bangert-Drowns (1988) conducted a meta-analysis of school-based drug education programs that focused on educating youths about the effects of the drugs, the social culture surrounding drug use, and the problems associated with the individual drug user. Bangert-Drowns concludes that the benefits of interventions with these approaches are limited. In a similar analysis of 143 adolescent prevention programs, Tobler (1986) found that the most effective interventions for the most high risk populations were programs promoting alternative activities. These approaches targeted both the individual user and environmental factors to help the adolescent develop personal skills (e.g., leadership) and participate in community and leisure activities. Interventions that focus on social and behavioral factors that are

associated with substance use, but are not specifically targeted on drugs and drug related behaviors may be more effective in reducing substance use than more traditional programs that focus on the drug culture and drug attitudes.

This research provides a first step in understanding the psychosocial predictors of substance use among a group that is particularly vulnerable to the deleterious effects of substance use (Prendergast, Austin, Maton, & Baker, 1989). Future research should continue to focus on minority populations, extending focus to other minority groups that are known to have both high and low rates of substance use. The long term goal for research in this area must be to develop viable, multi-faceted interventions and public policies designed to lessen the negative impact that drugs and associated problems have on youth and the urban minority community.

References

- Bachman, J.G., O'Malley, P.M., & Johnston, J. (1978). Youth in Transition: Adolescence to Adulthood--Change and Stability in the Lives of Young Men. (Volume Six). Ann Arbor, MI.: Institute of Social Research.
- Bangert-Drowns, R.L. (1988). The effects of school-based substance abuse education: A meta-analysis. Journal of Drug Education, 18, 243-264.
- Bennett, G. (1982). Youthful substance abuse. In G. Bennett, C. Vourakis & D.S. Wolf (Eds.), Substance Abuse: Pharmacologic, Developmental, and Clinical Perspectives. John Wiley & Son: N.Y.
- Bowman, P.J. (1984). A discouragement-centered approach to studying unemployment among black youth: Hopelessness, attributions, and psychological distress. International Journal of Mental Health, 13, 68-91.
- Brown, S.A. (1989). Life events of adolescents in relation to personal and parental substance abuse. American Journal of Psychiatry, 146, 484-489.
- Brunswick, A.F., & Messeri, P.A. (1986). Drugs, lifestyle, and health: A longitudinal study of urban Black youth. American Journal of Public Health, 76, 52-57.
- Brunswick, A.F., Merzel, C.R., & Messeri, P.A. (1985). Drug use initiation among urban Black youth: A seven-year follow-up of developmental and secular influences. Youth and Society, 17, 189-216.
- Cohen, S., & Wills, T.A. (1985). Stress, social support, and the

- buffering hypothesis. Psychological Bulletin, 98, 310-357.
- Compas, B.E. (1987). Coping with stress during childhood and adolescence. Psychological Bulletin, 101, 393-403.
- Cox, W.M. (1982). Personality correlates of substance abuse. In M. Galizio & S.A. Maistro, (Eds.), Determinants of Substance Abuse: Biological, Psychological, and Environmental Factors. New York: Plenum.
- Derogatis, L.R., & Spencer, P.M. (1982). The Brief Symptom Inventory (BSI): Administration, Scoring and Procedures.
- Diener, E., Emmons, R.A., Larsen, R.J., & Griffin. S. (1985). The Satisfaction With Life Scale. Journal of Personality Assessment, 49, 71-75.
- Donovan, J.E. & Jessor, R. (1978). Adolescent problem drinking - Psychosocial correlates in a national sample study. Journal of Studies in Alcohol, 39, 1506-1524.
- Donovan, J.E. & Jessor, R. (1978). Structure of problem behavior in adolescence and young adulthood. Journal of Consulting and Clinical Psychology, 53, 890-904.
- Hawkins, J.D., Lishner, D. & Catalano, R.F. Jr. (1985). Childhood predictors and the prevention of adolescent substance abuse. In C.R. Jones & R.J. Battjes (Eds.) Etiology of Drug Abuse: Implications for Prevention, NIDA Monograph no. 56, Rockville, MD.
- Hawkins, J., Weiss, J.G. (1984). The social development model: An integrated approach to delinquency prevention. Journal of Primary Prevention, 5, 21-36.
- Hundleby, J.D. (1987). Adolescent drug use in a behavioral matrix: A

- confirmation and comparison of the sexes. Addictive Behaviors, 12, 103-112.
- Jackson, D.N. (1967). Personality Research From Manual. Goshen, N.Y.: Research Psychologists Press.
- Jessor, R. (1981). Critical issues in research on health promotion. In D. Coates (Ed.), Promoting Adolescent Health: A Dialogue on Research and Practice. New York: Academic Press (pp. 447-465).
- Jessor, R., Chase, J.A., & Donovan, J.E. (1980). Psychosocial correlates of marijuana use and problem drinking in a national sample of adolescents. American Journal of Public Health, 70, 604-613.
- Jessor, R., & Jessor, S.L. (1977). Problem Behavior and Psychosocial Development: A Longitudinal Study of Youth. Academic Press: New York.
- Johnston, L.D., & O'Malley, P.M. (1986). Why do the nation's students use drugs and alcohol: Self-reported reasons from nine national surveys. Journal of Drug Issues, 16, 29-66.
- Kandel, D.B. (1980). Drug and drinking behavior among youth. Annual Review of Sociology, 6, 235-285.
- Maddahian, E., Newcomb, M.D., & Bentler, P.M. (1988). Risk factors for substance use: Differences among adolescents. Journal of Substance Abuse, 1, 11-23.
- Maton, K.I. (1989). The stress-buffering role of spiritual support: Cross-sectional and prospective investigations. Journal for the Scientific Study of Religion, 28, 310-323.
- Maton, K.I. (1990). Meaningful involvement in instrumental activity

- and well-being: Studies of older adolescents and at-risk inner-city teenagers. American Journal of Community Psychology, 18, 297-320.
- Maton, K.I., Gouze, K.R., & Keating, D.P. (1988). Social support directionality in friendship and mutual help-group contexts: Direct and stress-buffering relationships to well-being. Unpublished manuscript.
- Maton, K.I., & Pargament, K.I. (1987). Roles of religion in prevention and promotion. In Jason, L.A., Felner, R.D., Hess, R., & Mortisugu, J.N., (Eds.), Prevention: Toward a Multidisciplinary Approach. New York: Haworth Press (pp. 161-206).
- Murray, D.M. & Perry, C.L. (1985). The prevention of adolescent drug abuse: Implications of etiological, developmental, behavioral, and environmental models. In Jones, C.R., & Battjes, R.J., (Eds.), Etiology of Drug Abuse: Implications for Prevention. NIDA Monograph no. 56, Rockville, Md.
- Newcomb, M.D. & Bentler, P.M. (1988). Impact of adolescent drug use and social support on problems of young adults: A longitudinal study. Journal of Abnormal Psychology, 97, 64-75.
- Newcomb, M.D. & Bentler, P.M. (1989). Substance use and abuse among children and teenagers. American Psychologist, 44, 242-248.
- Newcomb, M.D., & Harlow, L.L. (1986). Life events and substance use among adolescents: Mediating effects of perceived loss of control and meaningfulness in life. Journal of Personality and Social Psychology, 51, 564-577.
- Newcomb, M.D., Maddahian, E., & Bentler, P.M. (1986). Risk factors for drug use among adolescents: Concurrent and longitudinal

- analyses. American Journal of Public Health, 76, 525-531.
- NIDA [National Institute on Drug Abuse]. (1988). National Household Survey on Drug Abuse: Main Findings 1985. DHHS Publication No. (ADM)88-1565. Washington, D.C.: U.S. Government Printing Office.
- Prendergast, M.L., Austin, G.A., Maton, K.I., & Baker, R. (1989). Substance Use among Black Youth. Prevention Research Update 3, Spring. Los Alamitos, CA: Western Center for Drug-Free Schools and Communities.
- Procidano, M.E., & Heller, K. (1983). Measures of perceived social support from friends and from family: Three validation studies. American Journal of Community Psychology, 11, 1-24.
- Rosenberg, M. (1979). Conceiving the Self. New York: Basic Books.
- Selnow, G.W. (1985). Using a stratified approach in substance intervention and prevention programs among adolescents: An empirical analysis. Journal of Drug Education, 15, 327-341.
- Tobler, N.S. (1986). Meta-analysis of 143 adolescent drug prevention programs: Quantitative outcome results of program participants compared to a control or comparison group. Journal of Drug Issues, 16, 537-568.
- Vaux, A. (1988). Social Support: Theory, Research and Intervention. New York: Praeger.
- Wills, T.A. (1986). Stress and coping in early adolescence: Relationships to substance use in urban school samples. Health Psychology, 5, 503-529.
- Wingard, J.A., Huba, G.J., & Bentler, P.N. (1980). A longitudinal analysis of personality structure and adolescent substance use.

Personality and Individual Differences, 1, 259-272.

Author Note

Correspondence should be addressed to Kenneth I. Maton, Department of Psychology, University of Maryland Baltimore County, Baltimore, Maryland 21228.

Table 1

Correlation Matrix of Predictor Variables (Time One Above Diagonal; Time Two Below Diagonal)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|----------------------|-------------------|------|-------------------|------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|
| 1 Age | | .03 | -.41 ^c | -.09 | -.10 | -.15 | -.08 | .05 | .08 | -.02 | -.18 ^a |
| 2 Father Growing Up | .05 | | .08 | -.03 | .09 | .17 | -.07 | -.09 | -.19 ^a | .11 | .11 |
| 3 In School | -.36 ^c | .08 | | .25 ^b | .16 ^a | .18 ^a | .09 | -.22 ^b | -.01 | .12 | .34 ^c |
| 4 Spiritual | -.14 | .02 | .10 | | .37 ^c | .28 ^c | .10 | -.05 | .08 | .15 | .24 ^b |
| 5 Activity | -.05 | .01 | .14 | .31 ^c | | .32 ^c | .28 ^c | .07 | -.03 | .26 ^b | .30 ^c |
| 6 Parent Support | -.12 | .01 | .18 ^a | .34 ^c | .32 ^c | | .08 | -.23 ^b | -.22 ^b | .35 ^c | .42 ^c |
| 7 Friend Support | -.12 | -.10 | -.01 | .13 | .32 ^c | .24 ^b | | .01 | -.01 | .20 ^a | .09 |
| 8 Stress | .06 | .04 | -.14 | .02 | .03 | -.12 | .11 | | .26 ^c | -.20 ^a | -.31 ^c |
| 9 Symptoms | .11 | -.16 | -.01 | -.02 | -.17 ^a | -.19 ^a | -.03 | .19 ^a | | -.53 ^c | -.26 ^c |
| 10 Self-Esteem | .03 | .15 | .13 | .15 | .30 ^c | .22 ^b | .22 ^b | -.10 | -.42 ^c | | .48 ^c |
| 11 Life Satisfaction | -.25 ^b | .11 | .27 ^c | .27 ^c | .31 ^c | .38 ^c | .17 ^a | -.09 | -.20 ^a | .30 ^c | |

a $p < .05$

b $p < .01$

c $p < .001$

Table 3

Zero-Order Correlations and Multiple Regression Results for Alcohol Use: Prospective (Time One Predictors, Time Two Criterion) and Longitudinal (Time Two Predictors, Time Two Criterion) Analyses

| Predictor Set | Prospective | | Longitudinal | |
|-----------------------|-------------------|-------------------------|-------------------|-------------------------|
| | r | Final Beta | r | Final Beta |
| <u>Covariates</u> | | | | |
| Time One Alcohol Use | .52 ^c | .52 ^c | .52 ^c | .48 ^c |
| Age | .24 ^b | | .24 ^b | |
| Father Growing Up | -.13 | | -.05 | |
| | | <u>.273^c</u> | | <u>.273^c</u> |
| <u>Lifestyle</u> | | | | |
| In School | -.25 ^b | | -.32 ^c | -.15 ^a |
| Spirituality | -.12 | | -.14 | |
| Meaningful Activity | -.00 | | .01 | |
| | | | | <u>.026^a</u> |
| <u>Support/Stress</u> | | | | |
| Parent Support | -.20 ^a | | -.23 ^b | |
| Friend Support | .05 | | .06 | |
| Life Event Stress | .19 ^a | | .16 ^a | .14 ^a |
| | | | | <u>.020^a</u> |
| <u>Well Being</u> | | | | |
| Symptoms | .08 | | .11 | |
| Self-Esteem | -.04 | | .04 | |
| Life Satisfaction | -.22 ^b | | -.20 ^a | |
| | | | | |

Note. For both analyses, Time One Alcohol Use was entered first. Then, Age and Father in Home were made available for entrance in stepwise fashion. Finally, the variables within the other three Sets were simultaneously made available for entrance, in stepwise fashion. The betas listed are the standardized betas from the final equation, i.e., with all entered variables.

a $p < .05$ b $p < .01$ c $p < .001$

Table 2

Zero-Order Correlations and Multiple Regression Results for Alcohol Use:
Time One (Predictors and Criterion) and Time Two (Predictors and Criterion)
Cross-Sectional Analyses

| Predictor Set | Time One | | Time Two | |
|----------------------------------|-------------------|-------------------------|-------------------|-------------------------|
| | r | Final Beta | r | Final Beta |
| <u>Covariates</u> | | | | |
| Age | .27 ^c | .16 | .24 ^b | .09 |
| Father Growing Up | -.01 | | -.05 | |
| <u>Step R² change</u> | | <u>.074^c</u> | | <u>.055^b</u> |
| <u>Lifestyle</u> | | | | |
| In School | -.27 ^c | -.12 | -.32 ^c | -.25 ^b |
| Spirituality | -.05 | .04 | -.14 | -.09 |
| Meaningful Activity | -.05 | .04 | .01 | .10 |
| <u>Step R² change</u> | | <u>.028</u> | | <u>.078^b</u> |
| <u>Support/Stress</u> | | | | |
| Parent Support | -.25 ^b | -.13 | -.23 ^b | -.16 |
| Friend Support | -.12 | -.11 | .06 | .07 |
| Life Event Stress | .28 ^c | .15 | .16 ^a | .08 |
| <u>Step R² change</u> | | <u>.078^b</u> | | <u>.045^a</u> |
| <u>Well Being</u> | | | | |
| Symptoms | .20 ^a | .14 | .11 | .11 |
| Self-Esteem | -.13 | .10 | .04 | .15 |
| Life Satisfaction | -.27 ^c | -.13 | -.20 ^a | -.08 |
| <u>Step R² change</u> | | <u>.023</u> | | <u>.021</u> |

Note. For both analyses, the Predictor Sets were entered in the order listed above. The variables within the Covariate Set were made available for entrance in stepwise fashion; the variables within the other three Sets were entered simultaneously. The betas listed are the standardized betas from the final equation, i.e., with all entered variables.

a $p < .05$ b $p < .01$ c $p < .001$

Table 4

Zero-Order Correlations and Multiple Regression Results for Marijuana Use: Time One (Predictors and Criterion) and Time Two (Predictors and Criterion) Cross-Sectional Analyses

| Predictor Set | Time One | | Time Two | |
|----------------------------------|-------------------|-------------------------|-------------------|-------------------------|
| | r | Final Beta | r | Final Beta |
| <u>Covariates</u> | | | | |
| Age | .22 ^b | .09 | .19 ^a | .04 |
| Father Growing Up | -.09 | | -.15 | |
| <u>Step R² change</u> | | <u>.049^b</u> | | <u>.035^a</u> |
| <u>Lifestyle</u> | | | | |
| In School | -.37 ^c | -.19 ^a | -.28 ^c | -.20 ^a |
| Spirituality | -.35 ^c | -.32 ^c | -.25 ^b | -.16 |
| Meaningful Activity | -.05 | .13 | -.16 ^a | .00 |
| <u>Step R² change</u> | | <u>.175^c</u> | | <u>.103^c</u> |
| <u>Support/Stress</u> | | | | |
| Parent Support | -.12 | .08 | -.26 ^c | -.11 |
| Friend Support | -.10 | -.08 | -.10 | -.03 |
| Life Event Stress | .27 ^c | .17 ^a | .01 | -.05 |
| <u>Step R² change</u> | | <u>.043^a</u> | | <u>.019</u> |
| <u>Well Being</u> | | | | |
| Symptoms | .08 | .07 | .09 | .05 |
| Self-Esteem | -.10 | .07 | -.11 | .02 |
| Life Satisfaction | -.29 ^c | -.16 | -.28 ^c | -.13 |
| <u>Step R² change</u> | | <u>.020</u> | | <u>.015</u> |

Note. For both analyses, the Predictor Sets were entered in the order listed above. The variables within the Covariate Set were made available for entrance in stepwise fashion; the variables within the other three Sets were entered simultaneously. The betas listed are the standardized betas from the final equation, i.e., with all entered variables.

a $p < .05$ b $p < .01$ c $p < .001$

Table 5

Zero-Order Correlations and Multiple Regression Results for Marijuana Use: Prospective (Time One Predictor Time Two Criterion) and Longitudinal (Time Two Predictors, Time Two Criterion) Analyses

| Predictor Set | Prospective | | Longitudinal | |
|----------------------------------|-------------------|-------------------------|-------------------|-------------------------|
| | r | Final Beta | r | Final Beta |
| <u>Covariates</u> | | | | |
| Time One Marijuana Use | .58 ^c | .56 ^c | .58 ^c | .55 ^c |
| Age | .19 ^a | | .19 ^a | |
| Father Growing Up | -.14 | | -.15 | |
| <u>Step R² change</u> | | <u>.332^c</u> | | <u>.331^a</u> |
| <u>Lifestyle</u> | | | | |
| In School | -.23 ^b | | -.28 ^c | |
| Spirituality | -.24 ^b | | -.25 ^b | |
| Meaningful Activity | -.10 | | -.16 ^a | |
| <u>Step R² change</u> | | | | <u>.022^a</u> |
| <u>Support/Stress</u> | | | | |
| Parent Support | -.17 ^a | | -.26 ^c | -.15 ^a |
| Friend Support | -.09 | | -.10 | |
| Life Event Stress | .13 | | .01 | |
| <u>Step R² change</u> | | | | <u>.022^a</u> |
| <u>Well Being</u> | | | | |
| Symptoms | .12 | | .09 | |
| Self-Esteem | -.21 ^b | -.16 ^a | -.11 | |
| Life Satisfaction | -.27 ^c | | -.28 ^c | |
| <u>Step R² change</u> | | <u>.025^a</u> | | |

Note. For both analyses, Time One Marijuana Use was entered first. Then, Age and Father in Home were made available for entrance in stepwise fashion. Finally, the variables within the other three Sets were simultaneously made available for entrance, in stepwise fashion. The betas listed are the standardized betas from the final equation, i.e., with all entered variables.

a p < .05 b p < .01 c p < .001

Table 6

Zero-Order Correlations and Multiple Regression Results for Hard Drug Use: Time One (Predictors and Crite and Time Two (Predictors and Criterion) Cross-Sectional Analyses

| Predictor Set | Time One | | Time Two | |
|----------------------------------|-------------------|-------------------------|-------------------|-------------------------|
| | r | Final Beta | r | Final Beta |
| <u>Covariates</u> | | | | |
| Age | .06 | | .04 | |
| Father Growing Up | -.13 | | -.13 | |
| <u>Step R² change</u> | | | | |
| <u>Lifestyle</u> | | | | |
| In School | -.14 | -.01 | -.19 ^a | -.14 |
| Spirituality | -.27 ^c | -.24 ^b | -.16 ^a | -.13 |
| Meaningful Activity | -.08 | .07 | -.06 | .02 |
| <u>Step R² change</u> | | | | |
| | | <u>.077^b</u> | | <u>.055^a</u> |
| <u>Support/Stress</u> | | | | |
| Parent Support | -.21 ^b | -.05 | -.15 | -.06 |
| Friend Support | .03 | .07 | .04 | .05 |
| Life Event Stress | .19 ^a | .06 | .19 ^a | .15 |
| <u>Step R² change</u> | | | | |
| | | <u>.039</u> | | <u>.036</u> |
| <u>Well Being</u> | | | | |
| Symptoms | .18 ^a | .09 | .10 | .07 |
| Self-Esteem | -.24 ^b | -.09 | -.05 | .04 |
| Life Satisfaction | -.28 ^c | -.15 | -.14 | -.04 |
| <u>Step R² change</u> | | | | |
| | | <u>.046</u> | | <u>.005</u> |

Note. For both analyses, the Predictor Sets were entered in the order listed above. The variables within the Covariate Set were made available for entrance in stepwise fashion; the variables within the other three Sets were entered simultaneously. The betas listed are the standardized betas from the final equation, i.e., with all entered variables.

a $p < .05$ b $p < .01$ c $p < .001$

Zero-Order Correlations and Multiple Regression Results for Hard Drug Use: Prospective (Time One Predictors, Time Two Criterion) and Longitudinal (Time Two Predictors, Time Two Criterion) Analyses

| Predictor Set | Prospective | | Longitudinal | |
|------------------------|------------------|-------------------------|-------------------|-------------------------|
| | r | Final Beta | r | Final Beta |
| <u>Covariates</u> | | | | |
| Time One Hard Drug Use | .64 ^c | .64 ^c | .64 ^c | .64 ^c |
| Age | .04 | | .04 | |
| Father Growing Up | -.13 | | -.13 | |
| | | <u>.414^c</u> | | <u>.414^c</u> |
| <u>School</u> | | | | |
| School | -.12 | | -.19 ^a | |
| Academic Achievement | -.13 | | -.16 ^a | |
| Meaningful Activity | -.07 | | -.06 | |
| | | | | <u>.414^c</u> |
| <u>Support/Stress</u> | | | | |
| Parent Support | -.04 | | -.15 | |
| Friend Support | -.03 | | .04 | |
| Life Event Stress | .12 | | .19 ^a | |
| | | | | <u>.414^c</u> |
| <u>Well Being</u> | | | | |
| Symptoms | .11 | | .10 | |
| Self-Esteem | -.09 | | -.05 | |
| Life Satisfaction | -.14 | | -.14 | |
| | | | | <u>.414^c</u> |

Note. For both analyses, Time One Hard Drug Use was entered first. Then, Age and Father in Home were made available for entrance in stepwise fashion. Finally, the variables within the other three Sets were simultaneously made available for entrance, in stepwise fashion. The betas listed are the standardized betas from the final equation, i.e., with all entered variables.

a $p < .05$ b $p < .01$ c $p < .001$