Lifestyle and Substance Use Among Male African-American Urban Adolescents: A Cluster Analytic Approach[123]

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Abstract

Four variables--school attendance, employment, church attendance, and delinquency--were cluster analyzed to develop lifestyle profiles. Data from 218 African-American urban adolescents were used in the study. Five meaningful clusters were retained and subjected to criterion validity analyses using measures of spirituality, participation in a voluntary organization, self-esteem, and friend's substance use. The five clusters were then compared on cigarette, alcohol, marijuana, and hard drug use. The results suggest that instrumental lifestyle behaviors may compensate for other detrimental lifestyle behaviors when examining risk factors associated with adolescent alcohol and substance use. For example, youth who left high school before graduation, but were involved in church reported less alcohol and substance use than youth who left school and were not involved in any meaningful instrumental activity. Implications for intervention and future research on high risk behaviors are discussed.

Introduction

This research examines the relationship of lifestyle patterns and alcohol and substance use among African-American male adolescents. Lifestyle refers to the collective actions that characterize an individual's typical behavioral pattern. This may include daily behaviors such as going to school or commuting to work; weekly actions such as weekend alcohol use or church attendance; or less regular, but consequential behaviors such as illicit acts. A lifestyle approach does not necessarily suggest that individuals alone are responsible for their lifestyle. Contextual factors may be a salient feature of the activities in which one engages. The availability of resources, opportunities to engage in different activities, and the relevance of institutional programs (e.g., school programs) may hinder or facilitate lifestyle choices and actions. The research literature suggests that alcohol and substance use are related to lifestyle. Lifestyle behaviors such as dropping out of school or delinquency have been related to increased alcohol and substance use. The goal of this research is to explore the notion that potentially detrimental lifestyle behaviors may be compensated for by other more instrumental activities.

Involvement in "meaningful instrumental activities" (Maton, 1990, p. 298) may have a positive effect on adolescent health and well being. Maton (1990) defines meaningful instrumental activities as task or skill related experiences which have

positive implications for one's psychological well-being and sense of environmental mastery. Instrumental activities may help to overcome the apparent negative effects of other lifestyle behaviors. For example, leaving high school before graduation may be related to drug use among some adolescents; however, others who leave school, but who are involved in a potentially beneficial activity such as church participation may show different patterns of alcohol and substance use. Instrumental activity (e.g., school attendance, church involvement) has been associated with self-esteem (Maton, 1990) and life satisfaction (Maton, 1990; Feather and O'Brien, 1986) in samples of adolescents. Research also suggests that meaningful participation may be related to an increased sense of psychological empowerment (Berger and Neuhaus, 1977; Kieffer, 1984; Zimmerman and Rappaport, 1988) and learned hopefulness (Zimmerman, 1990).

A number of investigators have explored lifestyle predictors of adolescent alcohol and substance use (Dembo, Schmeidler, and Burgos, 1980; Jessor, Chase, and Donovan, 1980; Hawkins and Weiss, 1984; Farrow and French, 1986; Bachman, Johnston, O'Malley and Humphrey, 1988; Hartnagel and Krahn, 1989; Newcomb, McCarthy, and Bentler, 1989). The lifestyle variables that are consistently examined in this literature include deviant behavior (Jessor et al., 1980; Dembo et al., 1980; Hartnagel and Krahn, 1989), school attendance (Johnston, 1973; Bachman, O'Malley, and

Johnston, 1980; Friedman, Glickman, Utada, 1985; Bachman, Johnston, O'Malley and Humphrey, 1988), employment status (Steinberg, Greenberger, Garduque, Ruggiero, and Vaux, 1982; Hartnagel and Krahn, 1989), and religious involvement (Donovan and Jessor, 1978; Selnow, 1985; Bachman, Johnston, O'Malley and Humphrey, 1988).

Hartnagel and Krahn (1989) interviewed 168 youth who left school before graduation about their substance use, criminal activity, work status, and financial status. They found currently unemployed males reported more frequent use of marijuana, while number of months unemployed regardless of gender predicted frequent use of alcohol. Use of other drugs was predicted only by the number of months since leaving school. This research suggests that different lifestyles may predict different alcohol and substance use patterns.

Dembo et al. (1980) found that junior high school students' participation in spare-time activities in a drug and street culture was related to their drug use. These results were replicated across three different urban neighborhoods distinguished by the youths' perceptions of the degree of toughness and drug involvement of their neighborhoods (Dembo, Allen, Farrow, Schmeidler, and Burgos, 1985). Jessor et al. (1980) also found socially deviant lifestyles that lacked purposeful involvement in daily activities related to adolescent substance use in a national sample.

Friedman et al. (1985) examined the relationship of alcohol and substance use to school attendance (i.e., dropping out) among a heterogenous sample of public high school students (36% of the sample was African-American). They found that students who left school before graduation reported more alcohol and substance use than students who graduated, but one in four of the graduates did report more than casual use. They also found that increases in the use of alcohol and substance use over time predicted leaving school before graduation. In a cross sectional analysis, Johnston (1973) reported that students who left school before graduation reported more use of marijuana and other drugs. Similarly, Kandel (1975) found school absenteeism was related to greater alcohol and substance use.

Steinberg et al. (1982) studied the relationship between high school students' work status and alcohol and substance use within a predominantly white sample. They found that marijuana use increased as a function of the amount of time youths spent working. A similar relationship was found for cigarette use, but it was mediated by social class and grade level. Lower social class and older students reported more cigarette use. No relationship was found between working and alcohol consumption.

To date, most investigators have studied adolescent alcohol and substance use with general samples of mostly white youths (Prendergast, Austin, Maton, and Baker, 1989). The special characteristics of African-Americans--minority culture, often

disenfranchised, and concentrated in urban areas--suggest that we may expect quite different research findings than those usually reported with majority samples. Urban African-American male adolescents are often (and perhaps unfairly) singled out and characterized as being at particularly high risk for school dropout, substance use, and delinquency. Research that examines within-group differences for minorities, rather than comparisons to majority groups, may allow for a richer, more accurate, and culturally sensitive understanding of adolescent alcohol and substance use in different ethnic groups. Further, examination of within group variation may allow a more specific assessment of the independent effects of social class and education level on these behaviors.

Research examining the relationship between lifestyle and substance use among African-American adolescents is lacking. Crawford, Washington, and Senay (1980) examined the relationship between substance use and lifestyle among African-American adults. They found heavy users and addicts were more involved in deviant lifestyles such as criminal behavior. These results are, however, somewhat limited as their sample consisted of adults only and grouped respondents based on their heroine use. Brunswick and Messeri (1986) studied lifestyle longitudinally among a sample of urban African-American youths. Their lifestyle variables included formal participation, obtaining public assistance, and a summative index of in jail, idleness, and high

school dropout. They examined lifestyle effects on health, however, and did not specifically study substance use.

In summary, research suggests that adolescent lifestyle behaviors are associated with alcohol and substance use. School attendance and church involvement have been found to be negatively associated with alcohol and substance use. Delinquent behaviors are associated with more alcohol and substance use among adolescents. Work status has been found to be related to marijuana use, but not to alcohol consumption. These studies, however, have examined lifestyle variables in isolation. Univariate approaches may not fully capture the complex nature of lifestyle patterns. In addition, these studies have typically explored lifestyle variables among predominantly white samples. Multivariate approaches and research on African-American youth are lacking (Prendergast, Austin, Maton, and Baker, 1989).

A primary goal of this research is to investigate a compensatory hypothesis that suggests some lifestyle behaviors (e.g., church involvement) may offset the effects of other potentially harmful lifestyle behaviors (e.g., school dropout). We use a multivariate approach, cluster analysis, to form lifestyle profiles that combine school attendance, work status, church attendance, and delinquent behavior. We test the compensatory hypothesis by examining the association between empirically derived lifestyle profiles and alcohol and substance use.

Methods

Research Participants

The sample consists of 218 urban African-American male adolescents with a mean age of 17 years (SD = 1.49). Seventy percent (N = 153) left school before graduation. Most of the youths left school in the ninth (N = 45; 29%) and tenth (N = 41; 27%) grades (X = 9.4; SD = 1.19). At the time of the interview youths no longer attending school had been out of school for an average of 10.7 months (SD = 9.98).

Procedure

Youths were recruited to participate in the study in four ways: 1) mail solicitations of randomly selected youths from school district dropout lists (n = 72; 33%); 2) recruitment by peers paid to enlist youths from their neighborhoods (n = 35; 16%); 3) referrals from community programs such as the Urban League (n = 80; 37%); and 4) solicitation through media, posters, and flyers (n = 29; 13%). Two cases had missing data.

Participants were informed that all information shared with the research team was confidential and was legally protected from subpoena. They were paid $15 for an initial 90-minute interview. Structured interviews and questionnaires were verbally administered by trained interviewers. These measures were followed with a series of open-ended questions. Consent forms from both the youths and their parents (if they were under 18 years of age) were obtained. Nine trained interviewers, both

African-Americans (n = 4) and Whites (n = 5) and males (n = 2) and females (n = 7), performed the interviews.

Quality of the Data

The truthfulness of the youths' responses is a concern because the interview included questions about unlawful behavior (i.e., illicit substance use). We used three strategies to help address this problem. The first strategy was to build their trust by guaranteeing confidentiality. We assured the youth that we would not use the data for any purpose other than research. We also obtained subpoena protection (i.e., Federal Confidentiality Certificate) from one of our granting agencies to assure the youths that the information they shared with us could not be obtained by the police or the courts. We presented the certificate to them at the beginning of the interview.

Second, we trained interviewers to work on building rapport with the youths. Interviewers conducted several supervised practice interviews with male African-American adolescents from the community. Feedback was sought from these youths about response accuracy, interview content, and interview relevance. The youths noted that the interview seemed like it would be relevant and acceptable to their peers, and emphasized that developing rapport was the best strategy for ensuring truthful responses.

Finally, interviewers rated each interview they conducted on several dimensions using a three point scale (good, bad,

neutral). They rated the youths' consistency of response, comprehension of the questions, flow or ease of the interview, and the youths' attention. The interviewers rated their overall impression of the youths' attitudes about the interview and also rated their impression of the validity of responses for each measure in the interview using a three point scale (valid, questionable, not valid). Any respondent with more than four invalid or questionable ratings was dropped from the study. Four youths were eliminated using this procedure. Despite these efforts to improve the accuracy of the youths' reports of alcohol and substance use behavior, it is still possible that the youths did not accurately report their substance use.

Data Analytic Procedure

Three primary data analytic procedures were used in this study. First, a cluster analysis was performed on two randomly divided subsamples (approximately a 60%/40% split) to establish a cross validation of the cluster solution. The sample as a whole was then clustered for the purpose of defining groups for subsequent analyses. Ward's method, which uses squared euclidean distances as a proximity measure, was the clustering technique used. This method was used because we had no a priori grounds for narrowing down the number of clusters which iterative procedures (e.g., k-means procedure) usually require.

Two procedures recommended by Aldenderfer and Blashfield (1984) were used to determine the number of clusters to retain.

These were: 1) graphing the number of clusters by the proximity coefficients and inspecting the jump in values of the proximity coefficients; and 2) examining the theoretical meaningfulness of different solutions (see also Everitt, 1974).

The next analytic step examined the validity of the clusters. Several criterion measures were compared across the groups defined by the cluster solution using a one way analysis of variance. The final step examined group differences on alcohol and substance use. Several subanalyses were also conducted to examine recruitment effects, interviewer effects, demographic (e.g., age, socioeconomic status) differences, and social desirability.

Measures

Cluster Variables. Four lifestyle variables--school attendance, employment status, church attendance, delinquency--were used in the cluster analysis. School attendance and employment status were dichotomous variables indicating whether or not the youth was in school or left before graduation, and whether or not he was working. Youth who worked 10 hours or more per week were considered to be working. Church attendance was measured by a single 5-point Likert item asking the youth how often he attended church (Maton, 1989). Delinquency was measured by summing four dichotomous items asking the youth if he had ever been in trouble with the police, been arrested, appeared before a juvenile court, or been incarcerated. Delinquency scores could

range from 4 (no delinquency) to 8 (very delinquent). The internal reliability (Cronbach Alpha) of the 4-item delinquency measure was .79.

Criterion Validity Variables. Four criterion validity measures--organizational involvement, spirituality, self-esteem, and friend's drug use--were used to test the meaningfulness of the clusters. Organizational involvement was measured by a single 5-point Likert item. Youth were asked to indicate how often during the past week they contributed to the goals of a group or organization (5 was coded as very often). Three 5-point Likert items were used to measure spirituality (Maton, 1989). A representative item read: " I experience a close personal relationship with God". Rosenberg's (1965) self-esteem scale was also used.

The youths were also asked about a friend's alcohol and substance use over the past six months. This measure, adapted from Newcomb and Harlow (1986), used a 6-point Likert scale to indicate the frequency of use over the past six months (6 was coded as more than once a day, 1 was coded as not at all). They rated how often their friends used each of the following substances during the past six months: liquor (beer, wine and, hard liquor); marijuana; cocaine and its derivatives; pills (barbiturates and amphetamines); hallucinogens; phencyclidine (PCP); and heroin. A composite measure of friend's drug use was developed that summed frequencies across all substances.

Alcohol and Substance Use. The youths were asked to rate their frequency of use over the past six months for each of the following substances: cigarettes, alcohol, marijuana, and hard drugs. The same procedures were used as when rating their friend's drug use. A composite alcohol use variable was developed by summing each youth's frequency ratings for beer, wine, and hard liquor. Similarly, hard drug use was a composite of the ratings for cocaine and its derivatives, heroin, hallucinogens, pills, and PCP. Marijuana and cigarette use were each measured by one item.

Socioeconomic Status. Socioeconomic status (SES) was measured by the number of years of school completed by the youths' parents. If data from both parents were available the one with the highest educational level was used; otherwise information on whichever parent the youth reported was used. The coding for this variable ranged from 1 (less than junior high school) to 7 (at least some education beyond college).

Social Desirability. The social desirability scale from Jackson's Personality Research Form (Jackson, 1967) was used to measure response bias.

Results

Cluster Analysis. A five cluster solution was chosen to represent the data because the graph of the proximity measures indicated some flattening at the fourth and fifth clusters, the jump in proximity coefficients was the largest between four and

five clusters, and a five cluster solution separated groups that were conceptually consistent with previous research. Means of the cluster analyzed variables for the two subsamples are reported in Table 1. The solutions for each subsample indicate

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Insert Table 1 Here

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very similar profiles. For example, the most delinquent group (cluster one) was also the group lowest on church attendance in both subsamples. A five cluster solution was then used for the total group cluster analysis.

Means for the four clustered variables and group size for the total sample five cluster solution are reported in Table 2. The first cluster is the largest group (n = 62) and the fifth cluster is the smallest group (n = 26). The solution replicates

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Insert Table 2 Here

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the split sample analyses. The first cluster includes the most delinquent and youths least involved in school, work, or church. The second cluster is distinguished by the highest church attendance. The third cluster is notable by its low score on all four variables (i.e., not delinquent, but also not involved in school, work, or church). The fourth cluster includes the school attenders and cluster 5 is the only group that includes employed

youths.

Similar cluster assignments were made for 93% (n = 202) of the respondents in both the split half and total sample analyses. The most discrepancies where found between groups 4 and 2 (n = 9). In the final analysis, cluster 2 included some youths who were in-school, however, this group includes mostly youths who left school as evidenced by the mean and standard deviation of school attendance for this group (1.3 and .45, respectively). The church attendance variable probably accounted for the discrepant group assignments in the two subsamples.

Cluster Validation. Means, standard deviations, and paired comparisons across the five clusters for the criterion validity measures are reported in Table 3. No differences were found

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across groups for self-esteem (F = .30; df = 4, 212; ns), but spirituality did differ across groups (F = 5.09; df = 4, 213; p < .01). The group reporting the most church attendance also reported the most spirituality. The clusters also differed on group contribution (F = 4.16; df = 4, 212; p < .01). The youths most involved in school or work reported the most contribution to a voluntary organization. The church attendance group did not differ from any other group on this variable. Youths in different clusters also reported different drug use among their

friends (F = 2.55; df = 4, 212; $p < .05$). Friends substance use was the highest among the most delinquent group, but it was only significantly higher than groups 2 (church attenders) and 4 (school attenders).

Alcohol and Substance Use. The last analysis examined group differences for alcohol and substance use. The percentage of youths reporting no use of substances during the past six months was 58% for cigarettes (X = 2.1; SD = 2.7), 36% for alcohol (X = 2.1; SD = 2.5), 59% for marijuana (X = 1.1; SD = 1.7), and 86% for hard drugs (X = .64; SD = 2.6). Table 4 reports the correlations among the alcohol and substance use variables. The

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Insert Table 4 Here

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correlations are all significant.

Table 5 reports the means, standard deviations, and paired comparisons for the alcohol and substance use measures across the five clusters. The clusters differed on all substances, but in

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Insert Table 5 Here

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different ways. The first cluster (the delinquent group) consistently reported more use of all substances; however, group 3 (low involvement group) also reported more use of cigarettes and alcohol than the school group (cluster 4). Similarly, both

group 3 (low involvement group) and group 5 (employed group) reported more marijuana use than either the church (cluster 2) or school (cluster 4) attending youths. Hard drug use was highest for the delinquent group (cluster 1).

A secondary analysis identical to that described in Table 5 was performed, except that it eliminated those youth in the church participation group (cluster 2) that were in school (n = 10). The main effects of cluster membership for all the dependent variables remained significant, but Duncan paired comparison tests indicated some differences from the total sample analysis. Cluster 2 remained second lowest for alcohol and marijuana use. Cluster 2 was not significantly different from the other groups for alcohol use, but remained significantly lower than the delinquent group (cluster 1) for both marijuana and hard drug use. The paired comparisons for cigarette use were the only analyses that actually changed in the secondary analysis. In this secondary analysis, cluster 2 changed from being second lowest in cigarette use to second highest and was higher than the in-school group (cluster 4).

Demographic and Other Effects. Socioeconomic status (F = 1.65; df = 4, 181; ns) and social desirability (F = .94; df = 4, 211; ns) did not differ across the five clusters. Age did differ across clusters (F = 5.11; df = 4, 211; $p < .01$). The employed group (cluster 5) comprised the oldest youths, while the school attenders (cluster 4) were the youngest. When age was entered as

a covariate in an analysis of cluster differences for alcohol and substance use all main effects remained significant.

Alcohol and substance use were compared across the four recruitment strategies used in the study. Only cigarette use differed by recruitment strategy ($F = 6.13$; $df = 3, 214$; $p < .01$). Youths recruited through random mailings reported the most cigarette use. When a two way analysis of variance was computed for recruitment strategy by cluster membership (4x5 ANOVA) with cigarette use as the dependent variable, the interaction effect was not significant and the main effect for cluster membership remained significant.

The analysis of interviewer effects for both gender and race of the interviewer on reported alcohol and substance use revealed mixed results. No differences for alcohol or substance use was reported by youths interviewed by male versus female interviewers. Only marijuana use differed for interviewer race ($F = 4.88$; $df = 1, 218$; $p < .05$). Youths with African-American interviewers reported more marijuana use than those with white interviewers. No interaction effects were found when interviewer race was included in a two way ANOVA, and the main effect for cluster membership remained significant beyond the .01 level.

Discussion

The results suggest that some lifestyle behaviors--instrumental activities such as church involvement--may have a compensatory effect on other potentially harmful lifestyle

behaviors. We found that the 5 lifestyle profiles (clusters), defined by youths' school and church attendance, work status, and delinquency, were differentially associated with alcohol and substance use among urban male African-American adolescents. Interestingly, four of the five profiles included youth who left school before graduation, yet differences in the quantity of alcohol and substance used were found across the five groups. These results suggest that there may be significant heterogeneity within a single ethnic group.

The 5 lifestyle profiles can be described as: 1) delinquent youth; 2) church attenders; 3) uninvolved youth; 4) school attenders; and 5) employed youth. The uninvolved youth left school, were not working, did not attend church, and were not delinquent. They differ from the delinquent youth only in that they did not report being in trouble with the police. The church attenders left school before graduation, were not delinquent, and did not work. School attenders did not work, attend church, or get into trouble with the police. The employed group comprised some youth who were in school and some who left school, but whose common characteristic was some type of employment. These youth did not attend church regularly, nor were they delinquent. The results suggest that single behavioral measures may not provide sufficient information for determining risk factors for alcohol and substance use. A multivariate approach may provide a more meaningful representation of youths' lifestyle.

Previous research identified high school dropout as a risk factor for alcohol and substance use, however, our data suggest that leaving school before graduation is not necessarily related to alcohol and substance use. Rather, other lifestyle behaviors may offset the potential negative effects of leaving school before graduation. Specifically, we found that dropouts who attended church regularly reported low levels of alcohol and substance use. Although we did replicate previous findings that school attendance (Johnston, 1973; Bachman, et al., 1980; Friedman, et al., 1988) and church involvement (Donovan and Jessor, 1978; Selnow, 1985; Bachman et al., 1988) are related to less alcohol and substance use, some youths in our sample who left school before graduation, but were not church goers also reported low use. The multivariate lifestyle approach used in this study builds upon previous univariate studies by suggesting that different lifestyle behaviors may interact to produce a more complex risk factor profile than earlier believed. For example, leaving school before graduation may not lead to subsequent alcohol and substance use if other lifestyle behaviors are also present (e.g., church involvement).

An alternative explanation of the results might suggest that it is simply a combination of high school dropout and delinquency that is predictive of alcohol and substance use. Indeed, the uninvolved youth reported less alcohol and substance use than a group of youths (i.e., delinquent) with similar lifestyles on

every dimension except delinquency. A refined compensatory model suggesting that lifestyle behaviors interact to either offset or enhance the effects (beneficial or harmful) of other behaviors may be required. Further research may be needed before the compensatory model is modified because we did not measure many potentially offsetting lifestyle behaviors. For example, the uninvolved youth may have been involved in activities that would be expected to compensate for leaving school before graduation (e.g., Boys Club, community radio, vocational skills training), but were not measured.

A potential threat to the validity of the compensatory hypothesis is the fact that the church participation group (cluster 2) included some in-school youth. A secondary analysis that eliminated school attenders from cluster 2 provided a more stringent test of the compensatory hypothesis. This analysis indicated only slight differences from the total sample analysis for alcohol, marijuana, and hard drug use. Cluster 2 remained second lowest for all these dependent variables. Results for cigarette use did change in the secondary analysis. Cluster 2 changed from being second lowest to second highest on cigarette use. This result may be partly due to the fact that church participation may inoculate youth from alcohol and drug use because of moral concerns, but does not address the less morally questionable behavior of cigarette use. This may suggest that targeting smoking prevention efforts (and health promotion

activities) for adolescents in settings outside of the school may be necessary. Overall, the secondary analysis results provide additional validation that future research on the compensatory hypothesis is justified.

Perhaps the most interesting pattern of alcohol and substance use was for the employed group. They reported the highest levels of alcohol consumption, and their marijuana use was similar to the uninvolved group. As 60% of the youth in this group remained in school, this result suggests that staying in school may not be a panacea for adolescent alcohol and substance use. Specifically, working while attending school may moderate the potential benefits provided by school. Work may expose youths to older co-workers who consume alcohol and influence their behaviors, the demands of both work and school may increase stress that results in alcohol use as a coping mechanism, or working may simply provide a material means for purchasing alcohol. Studies that examine the relationship between school attendance, work status, and alcohol and substance use may be a useful direction for future research. This research could help identify circumstances under which youth employment is beneficial or detrimental to youth.

The negative effect of working while attending school is similar to that found by Steinberg, Greenberger, Garduque, Ruggiero, and Vaux (1982) who reported that youths who were working while attending high school indicated high levels of

cigarette and marijuana use. Their sample differs from the one reported in this research in several ways: 1) they were predominantly white; 2) over half of their sample included females; and 3) all of their respondents were in school. These differences may explain why we found high levels of alcohol consumption as opposed to cigarette use in the working group. For instance, one reason for our dissimilar results might be related to gender differences. Smoking prevalence among adolescents is greater among women than men (DHHS, 1980). Another reason for the disparate results might be related to the school status of the youths. Youths who leave school before graduation have reported more alcohol use than their in-school counterparts (Friedman et al., 1988).

Our confidence in the results are enhanced by the relatively minor influence of several external factors. Though random mailings located more cigarette smokers than other recruitment strategies, it did not interact with or reduce the main effect of lifestyle. Similarly, age did not eliminate the main effects of alcohol and substance use on cluster membership, even though the employed group comprised older adolescents. Interviewer race and sex were also not significant factors in explaining the association between cluster membership and, alcohol and substance use.

A limitation of the research was the use of a single method of measurement. While an interview method was selected to help

develop rapport and generate accurate information, all of the data were based on self-report. The limits of the self-report data are somewhat attenuated by the fact that social desirability did not differ across groups. We also employed several strategies to help improve the quality of the data reported in the study (e.g, interviewer training, subpoena protection, interviewer rating). Finally, we only measured frequency of alcohol and substance use, but did not measure intensity of use (i.e., amount consumed or used per occasion). Intensity of use may be a crucial element for understanding the detrimental effects of alcohol and substance use. For example, lifestyles which include experimental use may be related to positive adolescent adjustment (Shedler and Block, 1990), however, adolescents whose lifestyles invite infrequent but large amounts of use may be at high risk for subsequent psychological and behavioral problems.

Another limitation of this and previous research is that the cross-sectional nature of the data does not address the issue of causal direction. Does substance use lead to leaving school early or does leaving school early lead to substance use? While the results of this study suggest that leaving school may not necessarily lead to substance use, future research should examine the relationship between school attendance and substance use longitudinally.

While specific combinations of lifestyle behaviors may be

predictive of substance use, this should not be interpreted as providing evidence that characteristics inherent in urban male African-American adolescents indicate eventual substance use. The lifestyle variables used in this research are very much related to behaviors connected to community institutions. For example, leaving school before graduation may be related to the characteristics of the urban school and not an inherent trait of the youths. Similarly, the accessibility of churches that target youth involvement may be a critical factor for church participation rather than specific attributes of the youths. Neighborhood characteristics and social ecology may also be substantial factors in determining a youth's lifestyle. Future research should begin to examine environmental factors that may facilitate or inhibit different lifestyle behaviors.

Fine (1983) suggests that school dropouts are not necessarily the socially deviant, unintelligent, and aggressive individuals as they are often stereotyped. Our results support this view as evidenced by the fact that youths who were not in school had diverse lifestyles outside of school. Some of these youths worked, others attended church regularly, and still others were different simply because they stayed out of trouble with the police. The fact that youth may leave school before graduation for different reasons may explain why we found different alcohol and substance use among students who left school early. For example, students who leave school out of boredom may use

substances to a lessor degree than those who leave because they cannot get along with teachers or peers, or because they experience poor academic achievement. Similarly, leaving school to work to support a family may have different consequences on adolescent substance use than leaving school because a youth was not doing well academically. Another area for future research might be to examine whether different reasons for leaving school have differential effects on subsequent alcohol and substance use or other health behaviors.

The results of this research suggest that lifestyles that engage urban African-American youths in alternative meaningful instrumental organizations and activities may help prevent adolescent alcohol and substance use. This approach suggests that the development of new programs or enhancement of existing settings to be more relevant and challenging to youth may be a worthwhile intervention strategy for preventing alcohol and substance use. Prevention efforts that focus on contextual factors to increase the lifestyle choices available for youth may be more effective than interventions that address individual behaviors. Efforts that focus on school structure and content, church programs, or voluntary organizations may help to enhance healthy lifestyles and reduce alcohol and substance use without blaming adolescents for their problems.

This research provides initial support for a multivariate lifestyle approach for understanding adolescent alcohol and

substance use. A benefit of a lifestyle approach is its emphasis on a repertoire of behaviors that interact in ways that may compensate for potentially deleterious behaviors, rather than focus on separate high-risk behaviors. This perspective emphasizes a positive approach to adolescents and encourages efforts to find what is right in their lives, rather than what is wrong. This may be an especially critical perspective for understanding minority youth who are often assumed to possess many of the high-risk factors related to drug use. This research may help challenge those stereotypes as they refer to young African-American males and dispute the notion that dropping out of high school is necessarily associated with alcohol and substance use as either a cause or consequence.

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Table 1 Descriptive statistics for the subsample (46%; 54%) cluster solutions.

Variable		Cluster				
		1	2	3	4	5
School Attendance						
46%	Mean	1.0	1.0	1.0	2.0	1.7
	SD	0	0	0	0	.47
54%	Mean	1.0	1.0	1.0	2.0	1.5
	SD	0	0	0	0	.52
Employment						
46%	Mean	1.0	1.0	1.0	1.0	2.0
	SD	0	0	0	0	0
54%	Mean	1.0	1.0	1.0	1.0	2.0
	SD	0	0	0	0	0
Church Attendance						
46%	Mean	1.2	4.3	1.4	2.6	2.2
	SD	.41	.82	.49	1.2	1.4
54%	Mean	1.5	4.8	1.7	2.3	2.1
	SD	.76	.45	.93	1.5	1.1
Delinquency						
46%	Mean	7.4	5.1	4.7	4.6	4.9
	SD	.49	1.4	.87	1.1	1.4
54%	Mean	7.5	5.8	5.1	5.0	5.3
	SD	.51	1.3	.80	1.2	1.4

Note: A score of 2 indicates in-school or working and a score of 1 indicates left school before graduation or not employed. Higher scores for church attendance and delinquency indicate more frequent attendance and more delinquency.

Table 2 Descriptive statistics for the full sample cluster solution.

Variable		Cluster				
		1	2	3	4	5
		n = 62	n = 38	n = 52	n = 40	n = 26
School Attendance						
	Mean	1.0	1.3	1.0	2.0	1.6
	SD	0	.45	0	0	.50
Employment						
	Mean	1.0	1.0	1.0	1.0	2.0
	SD	0	0	0	0	0
Church Attendance						
	Mean	1.4	4.4	1.3	1.9	2.1
	SD	.66	.75	.47	.81	1.2
Delinquency						
	Mean	7.4	4.9	4.9	5.0	5.2
	SD	.50	1.2	.87	1.3	1.4

Note: A score of 2 indicates in-school or working and a score of 1 indicates left school before graduation or not employed. Higher scores for church attendance and delinquency indicate more frequent attendance and more delinquency.

Cluster 1 is referred to as the delinquent group. Cluster 2 is referred to as the church group. Cluster 3 is referred to as the uninvolved group. Cluster 4 is referred to as the in-school group. Cluster 5 is referred to as the employed group.

Table 3 Means, standard deviations, and paired comparisons of criterion validity measures across the five cluster groups.

Variable	Cluster					
	1	2	3	4	5	Paired Comparisons*
Group Contribution						
Mean	2.4	2.9	2.6	3.4	3.3	5,4 > 1,3
SD	1.4	1.4	1.4	1.2	1.4	
	$F = 4.16$; df = 4, 212; $p < .01$					
Friend's Substance Use						
Mean	1.8	1.6	1.7	1.6	1.8	1 > 2,4
SD	.39	.50	.45	.50	.40	
	$F = 2.55$; df = 4, 212; $p < .05$					
Self-Esteem						
Mean	41.5	42.3	41.5	42.6	41.8	F-test not significant
SD	6.5	5.5	5.3	5.8	5.9	
	$F = .30$; df = 4, 212; ns					
Spirituality						
Mean	9.0	11.7	9.2	11.0	9.7	2,4 > 1,3
SD	4.1	2.6	3.5	2.9	3.4	2 > 5
	$F = 5.09$; df = 4, 212; $p < .01$					

* Duncan's multiple range procedure was used to examine group differences.

Note: Cluster 1 is referred to as the delinquent group. Cluster 2 is referred to as the church group. Cluster 3 is referred to as the uninvolved group. Cluster 4 is referred to as the in-school group. Cluster 5 is referred to as the employed group.

Table 4 Correlations among the alcohol and substance use measures*.

Variable	1	2	3	4
1. Cigarettes	---			
2. Alcohol	.40	---		
3. Marijuana	.47	.50	---	
4. Hard Drugs	.25	.36	.48	---

* All correlations are significant at the .01 level.

Table 5 Means, standard deviations, F-tests, and paired comparisons of substance use measures across the five cluster groups.

Variable	Cluster					
	1	2	3	4	5	Paired Comparisons*
Cigarettes						
Mean	3.1	1.7	2.1	.93	1.9	
SD	2.9	2.7	2.7	2.0	2.8	1 > 2,3,4 3 > 4
	$F = 4.58$; df = 4, 213; $p < .01$					
Alcohol						
Mean	2.6	1.4	2.3	1.1	3.0	
SD	2.7	2.1	2.5	1.6	2.6	1,5 > 2,4 3 > 4
	$F = 4.27$; df = 4, 211; $p < .01$					
Marijuana						
Mean	2.2	.53	1.2	.08	1.1	
SD	2.1	.95	1.6	.27	1.8	1 > 2,3,4,5 3,5 > 2,4
	$F = 12.67$; df = 4, 213; $p < .01$					
Hard Drugs						
Mean	1.8	.21	.45	.05	.12	
SD	4.4	1.3	1.3	.32	.43	1 > 2,3,4,5
	$F = 4.13$; df = 4, 211; $p < .01$					

* Duncan's multiple range procedure was used to examine group differences.

Note: Cluster 1 is referred to as the delinquent group. Cluster 2 is referred to as the church group. Cluster 3 is referred to as the uninvolved group. Cluster 4 is referred to as the in-school group. Cluster 5 is referred to as the employed group.