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Young Adult, Rural, African American Stimulant Users: Antecedents and Vulnerabilities

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Abstract

Early initiation of substance use appears to be an alarming trend among rural minorities. This study focuses on 18–21 year old African American stimulant users in the Arkansas Mississippi Delta. Most participants had no high school diploma and were unemployed; 74.5% had already been arrested. Substance use was initiated early, and nearly all of the men and three quarters of the women already met criteria for lifetime abuse or dependence. Only 18% reported they had ever received substance abuse treatment. The results suggest that substance use interventions in rural communities will require multi-faceted strategies addressing economic, educational and healthcare disparities.

Keywords

Stimulant Use; Substance Abuse; Rural; African American

Increases in stimulant use in the past five years (National Center on Addiction and Substance Abuse at Columbia University (CASA), 2000) have been attributed to widespread availability of methamphetamine as well as a growing popularity of powder and crack cocaine. Rural communities – once immune to high drug trafficking – have been particularly vulnerable to the escalating availability of such substances. For example, in a recent study of rural substance use, eighth graders were 75% more likely to have reported using crack in the past year than eighth graders in urban centers, and they were 52% more likely to have used cocaine (National Center on Addiction and Substance Abuse at Columbia University (CASA), 2000). In a recent study published of rural stimulant users, Booth and her colleagues (2006) found that both cocaine and methamphetamine use started, on average, at 20.7 and 23 years, respectively, with an age range of 10–51 and 9–54 years, respectively.

Although on a population basis African Americans are generally less likely to meet criteria for substance abuse or dependence (Turner & Gil, 2002; Wallace, Jr. et al., 2002; Zhang & Snowden, 1999), recent trends suggest rates of illicit drug use among rural, African Americans are higher than rates for rural Caucasians and are only slightly below rates for urban African Americans (Thomas & Compton, 2007). Based on surveys conducted in the past seven years, prevalence rates of stimulant use among African Americans vary for powder versus crack cocaine and methamphetamine. Powder cocaine users tend to be either black or white, depending on their location, and male, *aged 26 and over*, with varying economic backgrounds. (Prichett, 2001; Substance Abuse and Mental Health Services Administration: Office of Applied Studies, 2001b). Crack cocaine users are predominantly black males *older than 30* (Prichett, 2001). By comparison, methamphetamine users are mostly white, *ages 18–34*, and male, but female use rates are stable or increasing (Prichett, 2001; Substance Abuse and Mental Health Services Administration: Office of Applied Studies, 2001a; Substance Abuse and Mental Health Services Administration: Office of Applied Studies, 2001b)

Antecedents associated with higher risk for substance use initiation may be more prevalent among African Americans in rural areas when compared to their counterparts in urban regions. For example, rural African Americans are more likely to drop out of school and are half as likely to hold a college degree as urban African Americans (U.S. Department of Agriculture, 2004). In addition, rural counties with high concentrations of African Americans are frequently characterized by a greater degree of economic disadvantage than other rural counties, as evidenced by high levels of poverty and unemployment and low levels of income and earnings (U.S. Department of Agriculture, 2004). Higher rates of unemployment, high-school failure, and poverty among African Americans in general (Williams, Yu, Jackson, & Anderson, 1997) and specifically among African American substance users seeking treatment or incarcerated (Kosten, Rounsaville, & Kleber, 1985; Lee, Mavis, & Stoffelmayr, 1991; Petry, 2003; Rounds-Bryant, Motivans, & Pelissier, 2004) limit the social capital for African Americans, particularly in rural areas where resources, treatment options and social services are few or non-existent.

As substance use continues, African Americans also contend with more severe consequences of their behavior, including poorer health, more significant legal involvement, and increased risk of loss of or failure to be gainfully employed, when compared to Caucasians. For example, the rates of morbidity and mortality in African Americans for alcohol-related problems are two to five times the rates of Caucasians (Caetano, 2003; Grant et al., 2004), with African Americans reporting higher incidents of cirrhosis, cancer, birth defects, and alcohol-related deaths (D'Avanzo, Dunn, Murdock, & Naegle, 2000; Jones-Webb, 1998; Stinson & Dufour, 1993). African Americans are also at higher risk for medical problems associated with cocaine, due to their pre-existing vulnerability to various cardiovascular problems, such as hypertension (Bernstein et al., 2006). At least one study has also shown that rates of overdose deaths from other substances may also be higher among minorities, including African Americans (Galea et al., 2003). Moreover, rates of human immunodeficiency virus (HIV) infections related to high-risk sexual behaviors during substance use are the highest among Southern, African American women (Beckett, Burnam, Collins, Kanouse, & Beckman, 2003; Farley, 2006; Fleming, Lansky, Lee, & Nakashima, 2006; Timmons & Sowell, 1999). Particularly problematic for African American substance users is their increased risk of cocaine dependence soon after onset of cocaine use when compared to other racial groups (O'Brien & Anthony, 2005).

Legal problems coinciding with or as a result of substance use may compound the deleterious effects of substance use for African Americans. Up to 40% of all prison inmates are African American, despite the fact they represent only 12% of the general population (Bureau of Justice Statistics, 2006; Golembeski & Fullilove, 2005). A large percentage of these incarcerated

individuals (31% compared to 18% for Caucasians) have been arrested for drug-related crimes, primarily possession and trafficking (Bureau of Justice Statistics, 2004), despite the fact that drug abuse/dependence rates based on the Diagnostic and Statistical Manual (DSM) (American Psychiatric Association, 1994) are less for African Americans (64%) when compared to Caucasians (78%) (Bureau of Justice Statistics, 2005). Among African Americans incarcerated for drug offenses, crack cocaine is frequently involved (86%) followed by hallucinogens (42%) and powder cocaine (38%) (Bureau of Justice Statistics, 2001). Once arrested and convicted, African Americans' average sentencing for all offenses (88 months) far exceeds that of Caucasians (48 months), as does the average sentencing for drug-related offenses (110 months for African Americans and 68 months for Caucasians) (Bureau of Justice Statistics, 2003), resulting in a longer period of imprisonment and increased exposure to additional drug use, communicable diseases, and criminal peers, all of which have the potential to contribute to poorer outcomes upon release from prison.

The transition between adolescence and early adulthood---the ages of 18 to 21 years---is a critical developmental period, typified by such milestones as graduation from high school and entry into college or full-time employment. However, for other individuals, this phase of life may be particularly troublesome. Substance use, if initiated in adolescence, may worsen as the emancipated adult is increasingly exposed to substance-using peers in environments where there are more opportunities for experimentation. Conduct-disordered behaviors initiated in adolescence may become riskier, with increasing chances for arrest and incarceration within the adult penal system. Finally, without a high school education, young adults may have difficulty obtaining employment, which may prompt them to resort to illegal activities to survive and substance use to fill their leisure time and counteract symptoms of depression and anxiety.

Because of the disparities noted above for substance-abusing minorities and the developmental vulnerabilities faced by young adults, this study focuses on the 18–21 year old rural African American stimulant user, who is endowed with multiple risk factors associated with increased propensity to abuse substances and increased risk of poor outcomes once substance use is initiated. Although cocaine and crack cocaine have become more popular in the rural South, especially among minorities, little has been written about the antecedents and consequences of their use. Booth's study clearly demonstrates that initial use of stimulants in rural areas increasingly occurs prior to adulthood when educational, vocational, and social milestones are extremely vulnerable. However, because no studies have been conducted with rural, African American stimulant users, *who are neither in treatment nor imprisoned*, we do not fully understand their pattern of substance behaviors, the consequences of their substance use, and their educational, vocational and health needs. In addition, this study examined differences between African American male and female stimulant users in rates of arrests and incarceration, mental and physical health problems, and risky sexual behaviors. Therefore, this study is important for three reasons: 1) it addresses an as yet under-studied population susceptible to chronic difficulties through adulthood; 2) it highlights potential intervention targets to deter subsequent substance use and facilitate behaviors compatible with adult developmental tasks; and 3) it provides baseline data to identify high-risk subgroups within this population to subsequently examine longitudinal trajectories associated with increased substance use, legal involvement and/or treatment-seeking behaviors.

METHOD

The study was part of a larger multistate research project to examine not-in-treatment stimulant users (methamphetamine and cocaine) in Arkansas, Kentucky and Ohio (Booth, Leukefeld, Falck, Wang, & Carlson, 2006). The study used a natural history research design to identify a stratified community sample of rural stimulant users in each state selected to be non-

metropolitan areas by the Census definition, with small towns (usually the county seat) under 20,000 people to serve as a central recruiting base. Other requirements were that the counties were within manageable driving distance from the principal investigator's main campus, were either contiguous or close to other recruiting counties, and there was at least some evidence that either cocaine or methamphetamine was being used. Because we were interested in providing a range of sociodemographic characteristics, particularly racial and ethnic diversity, the east Arkansas area (the Arkansas "Delta" adjacent to the Mississippi River) was specifically chosen because of a high concentration of rural African Americans. Data for the current study are based upon this sample.

For the three counties sampled in Arkansas, the 2000 Census and other population data indicate a range of county characteristics in terms of socioeconomic status (University of Arkansas at Little Rock, 2006). The Arkansas counties were 49–59% African American. In 2005 (the most recent year figures are available), 946/1,000, 910/1,000, and 916/1,000 children in each county were eligible for free or reduced price lunches (compared to a rate of 530/1000 for the state). The unemployment rates in these three counties were 10.4%, 9.0%, and 8.3% compared to 4.9% in the state. In 2000 (the latest year for which figures are available), 34.7%, 42.8% and 43.3% of adults in each county did not have a high school diploma or general equivalency degree, compared to 24.6% of adults in the state.

Participants

The study used Respondent-Driven Sampling (Draus, Siegal, Carlson, Falck, & Wang, 2005; Heckathorn, 1997; Heckathorn, 2002; Wang et al., 2004), a variant of snowball sampling, to identify study participants. Such non-probabilistic sampling methods are critical for recruiting community "hidden populations" such as illegal drug users or those with HIV (See Booth et al, for a review of the sampling strategy).

Study eligibility was broad in order to capture the potential range of stimulant users age 18 or older: (1) used crack or powder cocaine or methamphetamine by any route of administration in any amount within the previous 30 days; (2) not in formal treatment within the past 30 days; (3) verified address within one of the targeted counties; (4) provided consent to participate in the study. Over-sampling occurred for the 18–21 year old African American population in the final twelve months of the project. Participants were remunerated \$50 for the baseline interview that took 2–3 hours. The study was approved by the relevant institutional review boards, and we received a Certificate of Confidentiality from NIDA.

Measures

Key portions of the baseline assessment were used to determine demographics and family background as well as lifetime (including age of onset) and recent substance use. Screening for specific health conditions and sequelae, as well as legal involvement also occurred.

Lifetime and Recent Substance Use—The baseline interview contained a "drug matrix" developed by Wright State University investigators for lifetime and recent use of a range of substances including cigarettes, alcohol, methamphetamine, cocaine, crack and powder cocaine, marijuana, heroin, non-prescription use of prescription tranquilizers and painkillers including Oxycontin® (Siegal, Falck, Carlson, Wang, & Rahman, 1998). Substance abuse and dependence were determined using 17 questions derived from the Substance Abuse Outcomes Module (SAOM) (Smith et al., 2006) based on criteria from the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) (American Psychiatric Association, 1994). The SAOM has high internal consistency ($\alpha = .89$) and high agreement on a diagnosis of substance abuse or dependence (93%) (Smith et al., 2006) with the Composite International Diagnostic Interview (CIDI-SAM) (Cottler, Robins, & Helzer, 1989).

Health—The Brief Symptom Inventory (BSI) (Derogatis, 1993) was used to measure recent (past week) psychological distress. The BSI consists of 53 items rated on a 5-point scale (0–4) with 0 indicating no distress and 4 indicating extreme stress. The BSI assesses nine symptom dimensions (subscales include: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoia, and psychoticism) and provides a summary index of distress, the Global Severity Index (GSI). The BSI has demonstrated good test-retest reliability for the sub-scales (reliabilities of 0.68–0.91), high internal consistency ratings (coefficient alphas of 0.71–0.85), and sensitivity to change (Derogatis, 1993). T-scores normed to the general population and a psychiatric outpatient sample were used for comparisons (Derogatis, 1993).

The Short Form 8 (SF-8) Health Survey is an eight-item self-report questionnaire assessing health-related quality of life (Ware, Loskinski, Dewey, & Gandek, 2001). Summary scores on eight scales can be obtained, which can also be aggregated into two (Physical Composite and Mental Composite) scales. Test-retest reliability of the SF-8 is high, and the instrument is highly correlated with its parent questionnaire, the SF-36. The scores are presented using the norm-based scoring in which each scale has a mean of 50 and a standard deviation of 10. All scores above and below 50 can be interpreted as above and below the US population norm, respectively.

Participants also completed the mental health component of the Addiction Severity Index Version 5 (ASI) (McLellan et al., 1990), which assesses six psychologically-oriented symptoms; two items inquiring about lifetime and past six-month use of substance abuse and mental health services; and a checklist of medical conditions.

Criminal Justice Involvement—Items were taken from the legal severity measure of the ASI, which queries respondents about number of days in the past 30 days of committing illegal acts for profit, number of arrests for specific types of crimes, age at which first arrest occurred, and days detained or incarcerated.

Analysis

Using chi-square tests of independence, we compared 18–21 African American males and females on 1) sociodemographic variables; 2) past month, past six-month and lifetime substance use; 3) rates of substance abuse/dependence; 4) lifetime legal involvement; and 5) health conditions and sequelae. Two-sample t-tests were used to compare the two groups on continuous outcome variables if the normality assumption was satisfied; otherwise, Wilcoxon's rank-sum tests were used.

Results

Ninety-eight 18–21 year old African Americans were recruited into the study. The majority of the sample was male ($n=62$; 65%). Mean age was 19.9 ($SD = 1.0$). As Table 1 shows, 98% had an income of less than \$10,000 in the past year. Only six (6%) were married or cohabitating, although 50% reported they had children. Seventy-four (74.4%) reported they were living in someone else's apartment, house or trailer; only 25 (25.5%) were living in their own home. One individual was living in a boarding or halfway house. There were no significant differences between men and women on demographic variables with two exceptions: There was a significant difference in the number of participants who had children (70% of women versus 40% of men, $\chi^2 = 7.7$, 1df, $p < .05$). In addition, 76% of women versus 40% of men lived with children, $\chi^2 = 11.2$, 1df, $p < .001$, although it is unknown whether these were their own children, relatives' children or other.

Education/Unemployment

Table 1 details the educational and employment status of participants. As shown, the majority of individuals had not graduated from high school, were unemployed, and had not worked within the past 30 days. Participants also reported few resources (e.g., a driver's license and access to a car) that might contribute to a change in their current employment status.

Substance Use

Fourteen (21.5%) and 45 (69.2%) men met criteria for lifetime substance abuse or dependence, respectively, while three (9.1%) and 22 (66.7% women) met criteria for lifetime abuse or dependence, respectively. More men (91%) than women (76%) had a lifetime diagnosis of substance abuse/dependence, $\chi^2 = 4.02$, 1df, $p < .05$; however, there were no significant differences between men (75.4%) and women (66.7%) for past six-month substance abuse/dependence. Table 2 shows the types and rates of substance use in the previous month. All participants reported some type of stimulant use in the past month, with crack and powder cocaine being the most frequent. Cocaine was ingested in the past six months primarily by sniffing powder (97%) or smoking crack (15%). There were no significant differences between males and females on types of substances used.

As shown in Table 2, age of first use varied by substance. Marijuana, on average, was the first substance used with an average age of initiation of 13.6 years, followed by alcohol, cocaine, non-prescription painkillers, and methamphetamine. Several study subjects admitted to very early age of first use (6 years for alcohol, 7 years for marijuana, and 8 years for both forms of cocaine). Given these extraordinary young ages of first use, we verified the data with the interviewers' qualitative summaries and the interviewers themselves. There were no significant differences between men and women on age of initiation for the various substances. More women (26; 78.8%) than men (32; 49.2%) reported one or both of their parents had a history of substance use problems, $\chi^2 = 7.9$, 1df, $p < .01$.

Only 18 (18.4%) participants reported they had ever received any treatment for alcohol or drug abuse; five of these received care in the past three years. Only two other individuals reported they had seriously sought treatment for substance-related problems in the past three years. Only 25 participants reported they had ever received any mental health treatment; 11 of these occurred in the past three years. Only seven individuals reported they had received both mental health and substance abuse treatment in their lifetimes.

Physical and Mental Health Status

Twenty-four (24%) of the participants reported they had experienced one or more days of medical problems in the past 30 days. These medical problems bothered the 24 individuals not at all (37.5%), slightly (20.8%), moderately (16.7%), considerably (8.3%), or extremely (16.7%). Participants reported they were bothered by medical problems a mean of two days ($SD=4.7$) in the past 30 days.

Sixty percent reported they had been told by a physician that they currently or in the past have had one or more potentially chronic medical problems, including anemia (15%), lung/respiratory problems (15%), sinus problems (10%), kidney/bladder problems (8%), high blood pressure (7%), migraines (7%), back problems (6%) and sexually transmitted diseases (6%). Fewer than 5% reported arthritis; convulsions, seizures or epilepsy; diabetes; heart disease; hernia or rupture; pneumonia; or stomach problems. There were no cases reported of HIV infection, cancer, hepatitis or other liver disease, or tuberculosis. More women than men reported problems with anemia (36% versus 5%), arthritis (2% versus 0%), high blood sugar (6% versus 0%), and high blood pressure (15% versus 3%).

Participants scored within the average range on the SF-8. Mean scores on the Physical Composite Scale (PCS) for men (52.2; $SD = 7.8$) and women (52.2; $SD = 7.4$) were not statistically different. Men and women also scored similarly on the Mental Composite Scale (mean = 46.7; $SD = 12.2$ for women and mean = 47.8; $SD = 10.8$ for men), generally indicating slightly more impairment when compared to the general population.

Eighty-six (86%) had not received any medical care from a physician or nurse in the past six months; however, nearly three-quarters (71.3%) reported possessing no health insurance. The majority (87.8%) of participants reported anal or vaginal intercourse within the past 30 days; only 42 (48.8%) consistently used condoms. Ten women and 13 men (23% total) reported that during their lifetimes they had traded sex for money in the past; two women and seven men reported they had traded sex for drugs. During their lifetime, 76% of women and 66% of men had been tested for HIV. Ninety-eight percent of the sample considered themselves to be heterosexual.

On the ASI Mental Health Scale, participants reported serious symptoms of depression (11.2%) or anxiety (9.2%), hallucinations (8.2%), trouble concentrating (35.7%), or trouble controlling violent behaviors (17.5%). No one reported any suicidal thoughts or attempts. Mean scores on the BSI varied, depending on the subscale (see Table 3) and generally were higher (and therefore more severe) than a community sample, but they were lower (and therefore less severe) than a psychiatric outpatient sample or rural stimulant users in the larger parent study. There were no significant differences between males and females on the BSI or ASI.

Legal Involvement

At baseline, none of the participants were incarcerated; however, five were either on probation or parole. Almost three quarters (74.5%) had been arrested during their lifetimes. Average age of first arrest was 16.8 years ($SD = 2.4$; range = 12–21) for females and 15.2 years ($SD = 2.9$; range = 7–20) for males. Within this sample of stimulant users, 18 had been arrested once, 17 had been arrested twice, and 38 had been arrested three or more times. Overall, there were no differences between men and women on age of first arrest or number of arrests. Table 4 lists the mean number of times participants had been arrested and charged with specific crimes during their lifetime.

More than three quarters (28.4%) had been incarcerated during their life. Average age of first incarceration, including juvenile detention, was 16.6 years ($SD = 2.2$; range = 12–21) for females and 15.8 years ($SD = 2.8$; range = 9–20) for males. Mean number of lifetime charges resulting in convictions was 1.4 ($SD = 2.2$), with an average number of days of incarceration of 56.6 ($SD = 146.4$) for those convicted.

More than one third (35.5%) of participants reported they had been engaged in illegal activities for profit in the past 30 days, resulting in a mean of 6.8 days ($SD = 11.5$). Men reported a higher number of days engaged in illegal activities (mean 9.2; $SD = 12.6$) than women (mean 2.1; $SD = 7.4$), $t(df\ 89.7) = 3.4$, $p < .001$. Six participants reported they had been detained or incarcerated during the same period, resulting in 0.4 ($SD = 2.9$) mean days detained.

Discussion

Education and Employment

Quite likely the greatest obstacles facing this group are gaps in education and employment. High school drop-out and unemployment rates for participants far exceeded those for the resident counties (as discussed above). Furthermore, only 12% of the participants had a valid driver's license and access to an automobile. With little opportunity to improve their socioeconomic standing, these individuals face a life of poverty with little hope of advancement

unless they receive significant assistance. As noted by previous studies, poverty (Egede & Zheng, 2003; Eibner, Sturn, & Gresenz, 2004; Mirowsky & Ross, 2001; Riolo, Nguyen, Greden, & King, 2005) and unemployment are risk factors for depression (Catalano & Dooley, 1977; Dooley & Cotalano, 1988; Fergusson, Horwood, & Lynskey, 1997; Montgomery, Cook, Bartley, & Wadsworth, 1999), which in turn is associated with a greater likelihood of substance use (Deykin, Levy, & Wells, 1987; Substance Abuse and Mental Health Administration, 2006; Substance Abuse and Mental Health Administration, 2007).

In addition, because educational attainment and vocational involvement are two strong correlates of substance use, treatment completion and long-term outcomes (Cox, Zhang, Johnson, & Bender, 2007; Crum & Anthony, 2000; Fothergill & Ensminger, 2006; Jacobson, Robinson, & Bluthenthal, 2007; Kogan, Luo, Brody, & Murry, 2005), these individuals are at risk to continue their substance abuse and criminal activities, further derailing their capacity to plan and execute adult responsibilities. If longitudinal data confirm this trend, the personal as well as societal toll will be enormous. Van Der Poel and Van De Mheen (2006) characterize the evolution of the young crack cocaine user as a process of marginalization. They suggest that because these individuals grow up in problematic home situations with little opportunity for educational success, they are already in a marginal position before the onset of drug use. However, as use accelerates, so, too, does the individual's marginalization in society, which may be associated with an individual experiencing a shrinking of his or her social network to only other users, who in turn may initiate and promote additional criminal activities.

Substance Use

High rates of polysubstance use (alcohol, marijuana and crack cocaine) in the past month were reported in this sample. As shown in previous studies, the drug of choice for the majority of African American stimulant users is powder cocaine; few have transitioned to methamphetamine (Booth et al., 2006; Sexton et al., 2005). Importantly, this study demonstrated that substance use was initiated at early ages (as young as six or seven years old in a few cases), with marijuana and alcohol trials generally occurring first, followed by cocaine and other illicit drugs. Interestingly, mean ages for first use of alcohol, marijuana and cocaine were generally younger among this exclusively African American sample when compared to older Caucasian and African American rural stimulant users enrolled in the parent study (Booth et al., 2006) and substance users within the general population (Substance Abuse and Mental Health Services Administration, 2007). In a recent longitudinal study, Green and Ensminger (2006) found that early marijuana use among adolescents was associated with being unemployed and unmarried in young adulthood and having children outside of marriage for males and females. The initiation of substance use at such young ages suggests the need for early intervention in rural communities, perhaps targeting schools and neighborhoods where children are most vulnerable to exposure.

One important but unanticipated finding concerned differences in parental histories of substance use reported by men and women. Previous studies have found an association between parental and child substance use, but for the most part, the effects have been similar for males and females (Hill, Thomson, Mudd, & Blow, 1997; Kendler, Prescott, Myers, & Neale, 2003; Newlin, Miles, van den Bree, Gupman, & Pickens, 2000; Pears, Capaldi, & Owen, 2007). With one exception, Kosten and his colleagues (1991) found that rates of parental alcoholism were higher in alcoholic females when compared to alcoholic males in a sample of opioid addicts and their relatives. Whether this finding reflects a unique factor relative to stimulant use among African Americans warrants further study.

Nearly three-fourths of participants met criteria for abuse or dependence for at least one substance in the past six months with no differences between men and women, but lifetime abuse and dependence rates were very high, particularly among men. Despite the serious

consequences of their substance use, only two individuals reported they had seriously sought treatment in the past three years. For the 20% who reported they had received treatment for substance use at some point during their lifetime, continuing engagement in the drug community suggests that they were intermittently successful or not successful at all in their recovery.

Physical and Mental Health Status

A majority (60%) of participants reported their physician had diagnosed them with a potentially chronic medical condition either currently or in the past, suggesting that their substance use may already be compromising their health at a young age or contributing to their substance problems. For example, lung/respiratory and sinus problems may be associated with ingestion of marijuana and cocaine, while pain resulting from migraines or back problems may be exacerbating the use of various substances. Despite these problems, ratings of physical health by participants on the SF-8 were comparable to the general population, although normative data were based on adults ages 18 and over. More health problems were reported by women than men, which is consistent with the general population.

Although the participants reported the existence of multiple medical conditions, it is important to note that only 15% visited a healthcare professional in the past six months and only 19% have insurance, both of which mitigate the opportunity for early identification of health problems through screenings and assessment. Therefore, participants may not be aware of health problems that have few symptoms at early stages, such as those caused by positive HIV status. Although a large majority in this sample stated they had been tested for HIV, we did not ask whether the testing had been recent. Unprotected sexual intercourse and the trading of sex for money (most likely with multiple partners) in this sample increase the likelihood of risk for HIV (Rasch et al., 2000).

Participants reported mild to moderate psychological distress on the ASI and BSI. Although BSI scores were lower when compared to the larger sample of rural, African American and Caucasian stimulant users (i.e., they were experiencing less distress) (Booth et al., 2006), elevations were reported on paranoid ideation and psychoticism---both of which are symptoms associated with chronic stimulant use (Floyd, Boutros, Struve, Wolf, & Oliwa, 2006; Satal & Edell, 1991; Thirthalli & Benegal, 2006). A substantial number of participants reported on the ASI they also had difficulties with violent behaviors, which have been noted in conjunction with use of cocaine alone or cocaine combined with alcohol (Brody, 1990; Pennings, Leccese, & Wolff, 2002). Most crucially, participants also had serious symptoms of depression, which may increase their risk for suicidal ideation and attempts (Petronis, Samuels, Moscicki, & Anthony, 1990).

Legal Involvement

The study demonstrates that criminal behaviors and involvement in the legal system begin in early adolescence. Given that previous studies have documented that childhood conduct disorder is frequently associated with adult substance use, it is not surprising that such patterns would be evident in this group as well (Fergusson, Horwood, & Ridder, 2005; Gil, Vega, & Turner, 2002; Guo, Hawkins, Hill, & Abbott, 2001; Moss & Lynch, 2001; Schubiner et al., 2000). However, by the adult transition years, we are witnessing initial differences between men and women, consistent with differences in gender ratios in prisons among African Americans. As discussed, men were engaged in criminal activity more than women, and their crimes tended to vary across the spectrum, whereas women's crimes were more likely to be classified as "other," which may include solicitation.

It is estimated that direct and indirect costs related to substance use exceed \$98 billion annually for lost productivity, incarceration, medical care, extra law enforcement, consequences of crime and other factors (National Institutes of Health, 2006). Unfortunately, incarceration among these participants has additional consequences: Half of the participants reported they had children. Research has shown that parental incarceration may be associated with an increased risk for living in poverty, having a history of abuse or neglect, having experienced a family crisis, and witnessing violence, which in turn may lead to emotional and/or behavioral disturbances (Phillips, Burns, Wagner, Kramer, & Robbins, 2002). Consequently, not only does the individual suffer, but rural families and communities already burdened by health and economic disparities continue to be negatively affected. Moreover, many individuals reported they lived in households with children, raising serious concerns about youth exposure to substances and high-risk behaviors associated with such use.

Data Limitations

There are several limitations to the data. Most notably, the sample is not a random sample of the general population nor of the drug-using population, even though there is some confidence that the samples obtained through Respondent Driven Sampling are representative (Heckathorn, 2002; Wang et al., 2004). Other studies using this sampling strategy (Heckathorn, 2002; Wang et al., 2004) have shown that use of multiple referral waves results in increasingly few demographic changes in sample composition over successive waves and almost none after four to five waves (known as “convergence”). However, our sampling strategy through recruitment networks may not have reached certain potential sub-groups of stimulant users, for example those of higher socioeconomic class, if any existed in the areas studied, who might not have received referrals from other participants or who could have been reluctant to participate for fear of public identification. In addition, we are aware that our instruments may not be culturally sensitive and therefore may exaggerate or underestimate the true rates of problems in this population. Finally, we were unable to directly compare ratings of our sample with those of non-substance-abusing African Americans due to limitations in the normative data available for the selected instruments.

In summary, this study demonstrates that many rural African American young adult stimulant users initiate the use of substances at an early age, which may be preventable through a focus on academic, vocational and social protective factors referenced in multiple studies of adolescents. Particularly noteworthy was the relatively short timeframe of approximately seven months to recruit 100 African American stimulant users from these small, rural communities, suggesting that these individuals do not represent a “hidden” or “hard-to-find” group when considering outreach programs. In addition, more accessible and acceptable treatment services need to be provided in rural communities, rather than in criminal justice settings. Treatment services should be community-based, family oriented, and culturally relevant with different approaches designed for women (particularly those living with children) (Brown, Hill, & Giroux, 2004). The data also suggest that such programs will be most effective if they address not only substance abuse but also educational development, vocational skills, and health concerns of participants. Interventions targeting incarcerated parents and youth, including mentoring programs and effective parent training, would be particularly beneficial in addressing inter-generational cycles of substance use and related high-risk behaviors in these communities. The serious consequences of stimulant use in these participants signal the need for innovative treatment models as well as policy changes that will allow for the development and sustainability of such initiatives in rural areas lacking in social capital.

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Table 1

Demographic and Social Capital Variables by Gender

Variable	Males	Females	Total
Marital Status			
Married/Cohabiting	4 (6.2%)	2 (6.1%)	6 (6.1%)
Divorced/Separated	0	2 (6.15)	2 (2.0%)
Single	61 (93.9%)	29 (87.9%)	90 (91.8%)
Widowed	0	0	0
Living Arrangement			
Participant's house or apartment	10 (15.4%)	15 (45.5%)	25 (25.5%)
Other's house or apartment	52 (80%)	18 (54.6%)	70 (71.4%)
Other's trailer	2 (3.1%)	0	2 (2.0%)
Rooming, boarding or halfway house	1 (1.5%)	0	1 (1.0%)
Percent with Children^a			
	26 (40%)	23 (69.7%)	49 (50%)
Living with Any Children (<18 years)^b			
	26 (40%)	25 (75.8%)	51 (52.0%)
Income			
<\$10,000	60 (63.2%)	33 (34.7%)	93 (97.9%)
Education			
Less than 8 th Grade	2 (3.1%)	1 (3.0%)	3 (3.1%)
Less than High School	50 (76.9%)	22 (66.7%)	72 (73.5%)
High School Graduate	8 (12.3%)	5 (15.2%)	13 (13.3%)
Graduate Equivalence	3 (4.6%)	2 (6.1%)	5 (5.1%)
Some College	2 (3.1%)	3 (9.1%)	5 (5.1%)
Employment			
Employed Full-Time	3 (4.6%)	3 (9.1%)	6 (6.1%)
Employed Part-Time	4 (6.2%)	2 (6.1%)	6 (6.1%)
Attending School Full-Time	6 (9.2%)	6 (18.2%)	12 (12.2%)
Unemployed, Searching for Work	43 (66.2%)	19 (57.6%)	62 (63.3%)
Unemployed, Not Searching For Work	7 (10.8%)	1 (3.0%)	8 (8.2%)
Employed, Not Working (Due to Illness, Disability, Etc.)	2 (3.1%)	1 (3.0%)	3 (3.0%)
Other	0	1 (3.0%)	1 (1.0%)
Paid for Work (Past 30 Days)			
	25 (38.5%)	6 (18.2)	31 (31.6%)

Variable	Males	Females	Total
Worked at Least 12 Weeks in the Past Six Months	11 (17.5%)	8 (24.2%)	19 (17.8%)
Driver's License	18 (27.7%)	5 (5.1%)	23 (23.5%)
Access to an Automobile.	20 (30.8%)	10 (30.3%)	30 (30.6%)
Driver's License <i>and</i> Access to an Automobile	9 (13.9%)	3 (9.1%)	12 (12.2%)

^a $\chi^2 = 7.7$, 1df, $p < .05$

^b $\chi^2 = 11.2$, 1df, $p < .001$

Table 2

Past-Month Use; Mean Age (SD) and Range of First Use; and Lifetime Use by Substance

SUBSTANCE	FEMALE Past-Month Use	MALE Past-Month Use	FEMALE First Use Mean Age (SD); Range	MALE First Use Mean Age (SD); Range	TOTAL Past-Month Use; Total Days Using	TOTAL First Use Mean Age (SD); Range	TOTAL Lifetime Use
Alcohol	28 (84.9%)	57 (87.7%)	14.5 (3.3), 6–20 years	14.6 (2.6), 7–19 years	85 (86.7%); 11.6 days	14.6 (2.8); 6–20 years	94.9%
Marijuana	33 (100%)	62 (96.9%)	14.1 (2.1), 8–19 years	13.3 (2.8), 7–18 years	95 (97.9%); 23.6 days	13.6 (2.6); 7–19 years	99.0%
Crack Cocaine	7 (21.2%)	6 (9.4%)	17.0 (4.2), 8–21 years	18.6 (1.8), 16–21 years	13 (13.4%); 1.9 days	17.8 (3.2); 8–21 years	16.3%
Powder Cocaine	32 (97.0%)	63 (96.9%)	17.0 (2.4), 8–21 years	17.4 (1.8), 13–21 years	95 (96.9%); 11.0 days	17.2 (2.0); 8–21 years	98.0%
Methamphetamine	2 (6.1%)	2 (3.1%)	17.8 (2.4), 16–21 years	18.6 (2.1), 16–21 years	4 (4.1%); 0.4 days	18.2 (2.1); 16–21 years	9.2%
Ecstasy	6 (18.2%)	5 (7.7%)	18.1 (2.4), 12–21 years	18.7 (1.6), 16–21 years	11 (11%); 0.5 days	18.4 (1.9); 12–21 years	27.6%
Heroin	0	1 (1.5%)	14.0 ^a	18.0 (1.4), 17–19 years	1 (1.0%); 0 days	16.6 (2.5); 14–19 years	3.1%
OxyContin®	1 (3.0%)	2 (3.1%)	16.5 (0.7), 16–17 years	17.0 (1.0), 16–18 years	3 (3.1%); 0.1 days	16.8 (0.8); 16–18 years	5.1%
Non-Prescription Pain Killers	5 (15.2%)	11 (16.9%)	15.8 (3.3), 13–21 years	17.9 (1.7), 16–18 years	16 (16%); 1.0 days	17.5 (2.2); 13–21 years	25.5%

^aN=1; no SD or range

Table 3

Brief Symptom Inventory (BSI) Subscales and Global Scale Means (Standard Deviations) Using General Population and Outpatient Psychiatric Normative Scoring (Mean = 50; Standard Deviation = 10)

BSI SCALE	NORMED ON GENERAL POPULATION MEAN (SD)	NORMED ON OUTPATIENT SAMPLE MEAN (SD)
Somatization	51.9 (13.8)	44.1 (7.0)
Anxiety	51.1 (13.7)	37.0 (6.2)
Obsessive Compulsive	54.4 (15.5)	40.7 (7.4)
Interpersonal Sensitivity	52.2 (14.0)	39.0 (6.4)
Depression	52.6 (11.7)	37.0 (5.0)
Hostility	58.6 (18.9)	45.2 (8.5)
Phobic Anxiety	55.1 (18.0)	44.2 (7.3)
Paranoid Ideation	62.7 (18.8)	47.6 (8.9)
Psychoticism	61.4 (23.1)	42.0 (8.0)
Global Severity Index	57.0 (17.5)	38.8 (7.5)

Table 4

Number of Lifetime Arrests for Specific Crimes

TYPE OF CRIME	NO ARREST (%)	ONE ARREST (%)	TWO OR MORE ARRESTS (%)
Drug Violations ^a	66 (67.4%)	15 (15.3%)	17 (17.4%)
Theft/Larceny	83 (84.7%)	10 (10.2%)	5 (5.1%)
Burglary	84 (85.7%)	11 (11.2%)	3 (3.1%)
Robbery	91 (92.9%)	7 (7.1%)	---
Other Crimes Against Property	93 (94.9%)	4 (4.1%)	1 (1.0%)
Other Crimes Against Persons	71 (72.4%)	14 (14.3%)	13 (13.3%)
Disorderly Conduct/Vagrancy	80 (81.6%)	12 (12.2%)	6 (6.1%)
Driving While Intoxicated	92 (93.9%)	5 (5.1%)	1 (1.0%)
Major Driving Violations ^b	79 (81.4%)	14 (14.4%)	4 (4.1%)
Other Violations	84 (86.6%)	9 (9.3%)	4 (4.1%)
TOTAL ^c	25 (26.0%)	18 (18.8%)	53 (61.6%)

^a Men (mean =.7; SD=1.0) versus women (mean =.2; SD=.8), $t(df\ 85.1) = 2.7$, $p < .01$;

^b Men (mean =.3; SD=.9) versus women (mean =.1; SD=.2), $t(df\ 73.7) = 2.7$, $p < .01$;

^c Men (mean = 3.5; SD=4.1) versus women (mean = 1.8; SD=2.2), $t(df\ 95.5) = 2.6$, $p < .05$.