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Two-Year Trajectory of Stimulant Use in 18–21 Year Old Rural African Americans

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Abstract

Little is known about stimulant use trajectories of rural African American youth. The purpose of the present study is to explore substance use over 24 months in 98 African Americans, ages 18–21, who used cocaine or methamphetamine 30 days prior to baseline. The majority was male, unemployed, and had not graduated from high school. At baseline, almost half of the participants met criteria for abuse/dependence of cocaine – the primary stimulant used – which decreased to 25% by the final follow-up. Similar decreases were noted in rates of alcohol and marijuana abuse/dependence, although monthly use remained high. Participants reported minimal utilization of mental health or substance abuse services, but demonstrated significant improvements on physical and mental health measures. In summary, cocaine use declined, but other substances were used at high rates, suggesting a significant need for intervention services that address multi-substance use in rural areas.

Keywords

cocaine; methamphetamine; substance abuse; African American

Little is known about the initiation and trajectory of stimulant use among young rural African Americans. Previously, alcohol and marijuana were the substances of major concern in rural areas (1), but currently both methamphetamine and cocaine are available in many rural areas, with geographic variation in availability of these two drugs (2–4) and variability in use among demographic sub-groups. For example, methamphetamine users are mostly white, ages 18–34, and male (5–7). Powder cocaine users tend to be predominantly younger, but with varying economic backgrounds, and race of users depends on geographic location (5,6), whereas crack cocaine users tend to be older and African American (8).

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, substance use, if initiated in adolescence, may interrupt the adult trajectory, resulting in less education, unemployment and potential involvement with the criminal justice system. Rural African Americans are particularly vulnerable, given that they more likely to drop out of school and are half as likely to hold a college degree as urban African Americans (9); they are more likely to be

subjected to poverty and unemployment (9,10); they are more likely to experience poorer health in response to substance use (11–17); and they are more likely to be incarcerated generally and for drug-related offenses (18–20).

Although epidemiologically, African Americans are generally less likely to meet criteria for substance abuse or dependence (21–23), recent trends suggest that 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 (24). In a recent three-state study of 710 rural stimulant users, Booth and her colleagues (8) found that 49% of the cocaine only users were African American, while almost all (96% for methamphetamine only and 87% for methamphetamine plus cocaine) of the methamphetamine users were Caucasian. Age of onset for cocaine use was 20.8 years (SD = 6.9, range = 10–51 years). In an additional enriched sample of 98 18–21 year old African American rural stimulant users, 91% of men and 76% of women had a lifetime diagnosis of substance abuse/dependence, while 75% of men and 67% of women had a past six-month diagnosis of substance abuse/dependence (25). Marijuana, on average, was the first substance used with an average age of initiation of 13.6 (SD = 2.6; range = 7–19) years, followed by alcohol (mean 14.6; SD = 2.8; range = 6–20); powder cocaine (mean 17.2; SD = 2.0; range = 8–21 years); non-prescription pain killers (mean 17.5; SD = 2.2; range = 13–21 years); crack cocaine (mean 17.8; SD = 3.2; range = 8–21 years); and methamphetamine (mean 18.2; SD = 2.1; range = 16–21 years). Only 18 (18.4%) participants reported they had ever received any treatment for alcohol or drug abuse; three quarters (74.5%) had been arrested during their lifetime. 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 (26).

Although these studies provide important descriptive data on stimulant users in rural communities, information on the substance use trajectories for African American users is available primarily from studying outcomes of treatment interventions. From these data, it appears that African Americans have poorer treatment outcomes when compared to Caucasians. In a 12-year follow-up of 321 cocaine-dependent veterans admitted to drug treatment, being African American predicted worse long-term outcomes (27). In a separate study of two-year post-treatment outcomes for 349 methamphetamine users, being African American was associated with a lower percentage of post-treatment months with employment. African Americans also have poorer physical outcomes when exposed to substances (16,17,28–32), have poorer access to treatment (33), and are less likely to complete treatment (34–36). On the other hand, in one of the few community-based prospective studies of rural stimulant users, Borders and colleagues (37) found that within their sample of the same 710 rural stimulant users referred to earlier, both Caucasians and African Americans reduced their consumption of methamphetamine and both forms of cocaine over 2 years, although this study included only 13 18–21 year old African Americans.

Despite the disparities in treatment accessibility and outcomes associated with substance use treatment, we are unaware of any studies focusing on stimulant use among young, rural African Americans, particularly during the transition from adolescence to adulthood (ages 18 to 21 years). The purpose of the present study is to elucidate substance use trajectories over a 24-month period for young adult African Americans identified as having used powder cocaine, crack cocaine or methamphetamine 30 days prior to the baseline interview. It was hypothesized that stimulant and other illicit drug use would remain at high levels throughout the four follow-up periods, although there might be a decline in stimulant use as portrayed by Borders et al. (37). It was also hypothesized that individuals who continued to use or escalated in their use would differ from those who decreased their use in basic demographic characteristics and mental health or substance abuse treatment involvement. It was also

hypothesized that individuals who continued to use stimulants would exhibit an increase in physical and mental health problems from baseline to final follow-up.

Methods

The study was part of a larger multi-state research project to examine not-in-treatment stimulant users (methamphetamine and cocaine) in Arkansas, Kentucky and Ohio (8). 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. (See Booth et al. (8) for detailed information on methodology.) Because we were interested in providing a range of sociodemographic characteristics across the three sites, 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 over-sampling young African-Americans from the Arkansas sample who were recruited after the original baseline sample was enrolled. Follow-up interviews were conducted every six months up to 24 months for a total of four follow-ups.

The 2000 census shows that the three counties sampled in Arkansas are very similar in terms of socioeconomic status (38). 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 530/1,000 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 (39–42), 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. (8) 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. With the exception of age, key demographic variables were collapsed into binary values (e.g., married/living with partner versus single, divorced or widowed; employed part- or full-time versus unemployed, disabled or enrolled as a student; income less than \$10K versus income equal to or greater than \$10K; and high school graduation versus no high school graduation. Questions regarding treatment received in the previous six months for substance and mental health problems were also included in the baseline and follow-up interviews.

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, and non-prescription use of prescription tranquilizers and pain killers including Oxycontin® (43). Substance abuse and dependence were determined using 17 questions derived from the Substance Abuse Outcomes Module (SAOM) (44) based on criteria from the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) (45). The SAOM has high internal consistency ($\alpha = .89$) and high agreement on a diagnosis of substance abuse or dependence (93%) (44) with the Composite International Diagnostic Interview (CIDI-SAM) (46).

Physical Health—The Short Form 8 (SF-8) Health Survey is an eight-item self-report questionnaire assessing health-related quality of life (47). 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.

Psychological Health—The Brief Symptom Inventory (BSI) (48) 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 (48).

Analysis

Descriptive statistics were presented on 1) sociodemographic variables; 2) past six-month diagnosis of stimulant abuse/dependence and past six-month diagnosis of any other substance abuse/dependence; 3) mean days of substance use in the past 30 days for powder cocaine, crack cocaine, methamphetamine, alcohol, marijuana and other illicit substances; 4) treatment-seeking activities over the 24 months of follow-up; and 5) SF Physical Composite (PCS8) and BSI GSI scores. McNemar’s tests were conducted comparing individuals on key categorical demographic variables at baseline versus final follow-up. A paired t-test for repeated measures was conducted to examine baseline versus final follow-up mean days participants reported using alcohol, marijuana, powder cocaine, crack cocaine and pain killers. (Because methamphetamine use was less than one day in the past month prior to baseline, we did not include this substance in the analysis.) Differences in cocaine abuse/dependence (the primary stimulant used) and other substance abuse/dependence from baseline to final follow-up were also compared using McNemar’s tests. Paired t-tests were also conducted comparing baseline and fourth follow-up mean scores on the BSI GSI and PCS8 for all participants.

Individuals were grouped into four categories designating their substance use outcomes throughout the interviews: 1) individuals with no cocaine abuse/dependence in the past 12 months at baseline and in the six months prior to follow-up interviews (Never Diagnosis); 2) individuals with no cocaine abuse/dependence in the past 12 months at baseline who developed at least one diagnosis of stimulant/abuse in the six months prior to any of the

follow-ups (New Diagnosis); 3) individuals with a diagnosis of cocaine abuse/dependence in the 12 months prior to the baseline interview who did not have a diagnosis six months prior to any follow-up or who continued with a diagnosis but changed to no diagnosis in the past six months by the 24-month follow-up (Remitted Diagnosis); and 4) individuals with a diagnosis of cocaine abuse/dependence 12 months prior to baseline who had a diagnosis six months prior to all follow-up interviews or changed to no diagnosis at one follow-up, but had a diagnosis again later on (Non-remitted diagnosis). Similar groupings were established for other substance abuse/dependence diagnoses that excluded cocaine. Tests for independence were conducted to compare differences in males versus females; employed versus unemployed; high school graduation versus no high graduation; married, cohabitating, or separated versus unmarried; income (less than \$10,000 annually versus more than \$10,000 annually); and parental status (at least one child versus no children) among the four groups. In addition, because the assumption of normality was violated, a non-parametric test (Kruskal-Wallis) compared BSI GSI and PCS8 scores among the four groups at the final (fourth) follow-up.

Results

Ninety-eight 18–21 year old African Americans were recruited into the study. The majority of the sample was male ($n = 65$; 66%). 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 at baseline. Only eight (8%) were married or cohabitating, although 50% reported they had children. The majority of individuals had not graduated from high school, were unemployed, and had not worked within the past 30 days.

Final follow-up rates were 94%, with only six participants lost to follow-up at 24 months (three were incarcerated, 2 were not locatable, and 1 refused the interview). There were no significant differences for participants with baseline only versus baseline plus final follow-up on key demographic variables. Additional demographic data collected at the final follow-up (e.g., employment status, income and marital status) are included in Table 1. Although there were no significant differences on income from baseline to follow-up, a greater proportion of individuals was employed at the 24-month follow-up when compared to baseline by McNemar's Test, $S(df = 1) = 13.4$, $p = .0003$. The proportion of unmarried declined from baseline to the final followup, $S(df = 1) = 4.6$, $p = .0325$.

Although all participants had used some type of stimulant in the 30 days prior to baseline as a condition of eligibility for the study, use of cocaine in the 30 days prior to the 24-month interview decreased significantly. Crack cocaine use decreased from 13% at baseline to 3%, McNemar's Test, $S(df = 1) = 11.0$, $p = .0009$, and use of powder cocaine decreased from 97% at baseline to 54% at the final 24-month follow-up, McNemar's Test $S(df = 1) = 39.0$, $p < .0001$. There was a slight decline in the proportion using marijuana in the 30 days preceding baseline (98%) versus the final follow-up (88%), McNemar's Test, $S(df = 1) = 9.0$, $p = .0027$, but only a minimal decline in the proportion using alcohol in the 30 days preceding baseline (87%) versus follow-up (85%). Methamphetamine use also decreased from 4% at baseline to 0% at follow-up, although this was not significant. Figure 1 shows the mean number of days in which various substances were used in the past month from baseline to each follow-up. There was a statistically significant decline from baseline to final follow-up on mean number of days using marijuana, $t(df = 88) = 2.16$, $p = .0332$; powder cocaine, $t(df = 91) = 6.27$, $p < .0001$; and crack cocaine, $t(df = 90) = 2.8$, $p = .0058$. No differences were observed for mean days of use for alcohol or pain killers. Use of other substances was minimal (less than one day in the past month at baseline).

Figure 2 shows the percent of individuals meeting criteria for abuse/dependence by specific substances, based on the 92 for whom all data are available at the final follow-up. Of the 92 participants, 45 (49.0%) met criteria for past-year cocaine abuse/dependence at baseline, which decreased to 23 (25.0%), $S(df = 1) = 13.4$, $p = .0003$. Similar decreases were noted for alcohol abuse/dependence (44.9% at baseline to 29.4% at final follow-up), $S(df = 1) = 6.4$, $p = .0112$, and marijuana abuse/dependence (57.1% at baseline versus 31.5% at final follow-up), $S(df = 1) = 14.3$, $p = .0002$. Only 2.0% met past-year criteria for methamphetamine abuse/dependence at baseline, which decreased to 0% by the final follow-up. When powder cocaine and crack were combined over the five assessment periods, 31.5% never received a diagnosis, 20.7% received a new diagnosis, 26.1% remitted, and 21.7% had an un-remitted diagnosis (among the 90 subjects with both stimulant and other substance diagnosis patterns available among five interviews). With regard to all other substance/abuse dependence, 18.5% never received a diagnosis, 17.4% received a new diagnosis, 23.9% had a remitted diagnosis, and 40.2% had an un-remitted diagnosis (see Figure 3).

There was no association between demographic variables (gender, employment, education, marital status or income) at baseline and the four groups with either a diagnosis of cocaine abuse/dependence or any other abuse/dependence with the exception of employment for diagnosis of cocaine abuse/dependence, $\chi^2(df = 3) = 11.19$, $p = .0107$. More specifically, no individuals without a cocaine abuse/dependence diagnosis were employed at baseline; 5 (26.3%) of those with a new diagnosis were employed at baseline; 6 (24%) of those with a remitted diagnosis were employed at baseline; and 1 (5%) of those with an un-remitted diagnosis were employed at baseline.

Treatment Utilization

At baseline, 11% and 5% of participants reported they had received mental health and/or substance abuse treatment in the past three years, respectively. By the fourth follow-up, only six individuals had received mental health treatment and two participants had received substance abuse treatment. There were 13 out of 98 (13%) people who received medical care from a doctor or a nurse in the past six months at baseline. By the final follow-up, nine out of 92 (about 10%) reported seeing a doctor or nurse in the past six months.

Physical and Mental Health Status

Twenty-five percent of the participants reported they had experienced one or more days of medical problems in the past 30 days at baseline, which declined to 12% by the final follow-up. In addition, there was a significant improvement on the physical health composite score (PCS8) of the SF-8 for all participants from baseline (mean = 52.2; SD = 7.7) to follow-up (mean = 54.8; SD = 5.5), paired $t(df = 87) = -2.77$, $p = .0068$. GSI scores on the BSI also declined statistically from baseline (mean = .52; SD = 0.54) to final follow-up (mean = .25; SD = 0.39) for the entire sample, $t(df = 91) = 6.13$, $p < .0001$. Table 2 also shows there were several significant differences on final follow-up for PCS-8 scores across the four groups (Never Diagnosis, New Diagnosis, Remitted Diagnosis and Un-remitted Diagnosis) for cocaine abuse/dependence.

Discussion

Although all participants reported use of crack cocaine, powder cocaine and/or methamphetamine within 30 days prior to baseline – a requirement for study inclusion – a substantial number of individuals had decreased use of these substances by the fourth follow-up (or within 24-months). Particularly significant in this study was a decline in past 30-day use of powder cocaine – the stimulant of choice for African Americans in this

sample – from 97% at baseline to 54% at follow-up. Mean days of use also decreased significantly. These findings are consistent with results from the larger longitudinal study published by Borders and his colleagues (37) of Caucasian and African American rural stimulant users primarily older than 21 years in Ohio, Arkansas, and Kentucky over a 36-month period. They found declines in six-month use of methamphetamine, crack cocaine and powder cocaine from baseline to 24-month follow-up and postulated that the decline may be attributed to reduced availability of these substances in rural areas in the past three years. In this sample of much younger African-Americans, coinciding with this decreased use were declines in rates of cocaine abuse and dependence diagnoses from 49% of participants at baseline to 25% of participants at follow-up. Mean number of days using cocaine also decreased over time; however, some differences were found in this group of 18–21 year old African Americans, compared to the larger sample (37). For example, the 18 to 21 year old African Americans reported an average of 1.9 and 11.0 days of using crack cocaine and powder cocaine at baseline, respectively, compared to the parent sample average of 7.0 and 4.0 days for each, respectively. Follow-up usage was also different, with the 18–21 year old African Americans reporting they used crack and powder cocaine a mean of .9 and 4.7 mean days, respectively, compared to the parent sample reporting they used crack and powder cocaine a mean of 4.2 and 1.3 days, respectively. Age is undoubtedly a factor in these differences, given that crack cocaine is frequently a substance of choice for older African Americans, while powder cocaine is generally considered more popular among younger adults (37). Age differences in powder versus crack preferences may be because crack was introduced into communities in the 1980's, resulting in a cohort of aging users, particularly among African Americans (49–51).

Unfortunately, the decline in stimulant use was not observed for other substances. Although there was a statistically significant decline in marijuana use from baseline to follow-up, the change was only three days out of the past month. Furthermore, rates continued to be high with participants reporting they had used this substance the majority of days of the previous month. As noted in the DASIS report (52), marijuana is one of the most popular substances among young African Americans, which would be consistent with the current findings. In addition, alcohol use in the past 30 days remained at high rates.

Thirty-one percent and 18.5% of participants did not meet criteria for cocaine abuse/dependence or other abuse/dependence, respectively, at any of the assessment times, suggesting that their use did not escalate over time, despite considerable financial, educational and employment limitations, which have been highly associated with increased substance use and relapse. Moreover, 26.1% and 23.9% of participants showed *improvements* in that they no longer met criteria for cocaine abuse/dependence or other substance abuse/dependence by the final follow-up. With the majority of participants showing some control of their substance use, i.e., no escalation or deterioration, improvements in functioning and physical and mental health symptoms were observed. For example, more participants reported they were employed full- or part-time when compared with baseline rates. In addition, global symptoms on the BSI decreased, while overall physical functioning improved. Based on available data, we are unable to ascertain what precipitated these improvements. Was cocaine less available, contributing to participants' subsequent improvements in overall functioning and employability? Or were participants who acquired employment more motivated to decrease cocaine use, subsequently improving their overall health status? Because of the small number of individuals in this sample, we are unable to conduct multivariate analyses examining such predictor variables; however, it is clear that treatment was not a contributory factor. Only six individuals received mental health treatment and two individuals received substance abuse treatment from baseline through the fourth follow-up, suggesting a need for increased accessibility of such programs in rural areas.

There may be several potential explanations for the decrease in cocaine use. Because stimulant-using individuals were targeted for inclusion in this study, reported decreases in use may be a result of a regression to the mean. In other words, they were initially eligible for the study because they had used in the past 30 days, but this use may have been incidental and not predictive of any course of subsequent substance use. Furthermore, several studies suggest that individuals can remit from substance use (53–57) without formal treatment. As Borders and colleagues state (37), there may also be a motivating factor inherent in study participation that individuals decrease stimulant usage over time as a result of being enrolled in a study inquiring about such practices, although participants were not informed of eligibility criteria at baseline. Hence, if this were true, we would also expect to see decreases in all substances, which was not the case in these data. Alcohol usage remained relatively steady, and marijuana use remained high. It is also noteworthy that mental and physical health functioning fluctuated with changes in abuse/dependence diagnoses. As shown in Table 2, there was a tendency for the un-remitted group to report more psychological symptoms and more physical impairment at the final follow-up when compared to the other groups, suggesting this group may be at highest risk for ongoing mental and physical health problems.

Admittedly, there are several limitations to the data that may bias the results of the study. Most notably, participants were not randomly sampled from the general population nor the drug-using population, even though there is some confidence that the samples obtained through Respondent Driven Sampling are representative (41,42). Other studies using this sampling strategy (41,42) 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, participants of higher socioeconomic class, if any existed in the areas studied, may not have received referrals from other participants or may 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. The time frames for substance abuse and dependence diagnoses differed from baseline (past 12 months) to follow-up (past six months). Therefore, diagnostic rates for baseline and final follow-ups are not equivalent, which might contribute to a moderate exaggeration of improvement rates. However, we have measured days of use in the past month across all assessments, which confirms decreases across time. Finally, we did not include a comparison group of non-substance-abusing African Americans, and our results may be biased because of the small sample size, brief follow-up period, and over-representation of male users.

In this study we found that stimulant use (primarily powder cocaine) decreased over a two-year period in young, rural African Americans. Parallel with this pattern, the number of individuals meeting criteria for stimulant abuse/dependence and other substance abuse/dependence also declined. These changes were not anticipated, given that participants reported initiation of such substances at very early ages, thereby increasing their risk for escalating use (58). In addition, these participants were particularly vulnerable, given high rates of unemployment, poverty, housing concerns and other issues related to social capital. Although the decline in stimulant use may be attributable to fewer of these substances being available in outlying regions, it is also possible that many of these participants have started to transition into more adult responsibilities, prompted by adverse conditions, poor health and/or legal consequences. These data provide some evidence that at least for a subset of stimulant users, there is hope for recovery amidst adversities. Although fluctuations in substance use across time have been noted in the literature, this is the first study to demonstrate this pattern among young adult stimulant users. Unfortunately, alcohol and

marijuana continued to be used at high rates. Because of this trend, additional studies should focus on multi-substance use and barriers to service access for minority groups in rural areas.

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Figure 1.

Mean Days of Substance Use in the Past Month from Baseline to Follow-ups (N=98)

*Marijuana, $t(df = 88) = 2.16, p = .0332$, baseline compared to final follow-up mean.

** Powder cocaine, $t(df = 91) = 6.27, p = .0001$, baseline compared to final follow-up mean.

*** Crack Cocaine, $t(df = 90) = 2.83, p = .0058$, baseline compared to final follow-up mean.

Note: Alcohol and Pain Killers were not significant.

Figure 2.

Percent with Cocaine, Alcohol, Methamphetamine or Marijuana Abuse/Dependence from Baseline to Final Follow-up

* Alcohol abuse/dependence, $S(df = 1) = 6.4$, $p = .0112$, baseline compared to final follow-up mean.

** Cocaine abuse/dependence, $S(df = 1) = 13.4$, $p = .0003$, baseline compared to final follow-up mean.

*** Marijuana abuse/dependence, $S(df = 1) = 14.3$, $p = .0002$, baseline compared to final follow-up mean.

Note: Only 2% of individuals met criteria for methamphetamine abuse/dependence at baseline; 0% met criteria at any follow-up.

Figure 3.
Percent of Participants with and/or without Cocaine and Other Substance Abuse/
Dependence (A/D) Diagnosis across Assessment Periods (N=92)^a

^a Missing information for 6 participants

Table 1

Demographic Characteristics of Participants at Baseline and 24-Month Follow-up

	Baseline (N=98)	Final Follow-up ^a (N=92)
Gender		
Female	33 (34%)	--
Male	65 (66%)	--
Education		
No High School Graduation	80 (82%)	--
High School Graduation or More	18 (18%)	--
Employed ^b		
Yes	12 (12%)	32 (35%)
No	86 (88%)	60 (65%)
Income (Past Year)		
< \$10,000	93 (98%)	67 (91%)
≥ \$10,000	2 (2%)	7 (9%)
Marital Status ^b		
Unmarried	90 (92%)	76 (83%)
Married/Cohabiting/Separated	8 (8%)	16 (17%)
Parental Status ^b		
At Least One Child	49 (50%)	60 (65.0%)
No Children	49 (50%)	32 (35.0%)

^aEmpty cells represent measures only assessed at baseline.

^bMcNemar's S ($df = 1$) = 13.4, $p = .0003$ for employment; McNemar's S ($df = 1$) = 4.6, $p = .0325$ for marital status; and McNemar's S ($df = 1$) = 13.2, $p = .0003$ for parental status.

Table 2

Means (Standard Deviations) for Mental (BSI GSI) and Physical Health (PCS8) at Final Follow-up by Other Substance Abuse/Dependence (A/D) Diagnostic Group

Scores/Group	Never Diagnosis	New Diagnosis	Remitted Diagnosis	Un-Remitted Diagnosis	Kruskal-Wallis χ^2 (df = 3)
Cocaine A/D					
• BSI GSI	.15 (.26)	.35 (.42)	.20 (.48)	.35 (.40)	6.80, p = .0787
• PCS8	55.97 (3.63)	56.06 (4.45)	55.16 (6.40)	51.64 (6.50)	10.38, p = .0156
Other					
Substance A/D					
• BSI GS	.04 (.05)	.30 (.41)	.14 (.21)	.39 (.49)	14.03, p = .0029
• PCS8	56.24 (2.16)	55.18 (4.85)	56.03 (4.03)	53.26 (7.16)	NS