Article

Disproportional Involvement in the Use of Crack and Powder Cocaine: Findings from the Arrestee Drug Abuse Monitoring (ADAM) Program

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Abstract

Inspired by the crack cocaine epidemic of the mid-1980s, the United States Congress passed the *Anti-Drug Abuse Act* of 1986, legislation that provided harsh new penalties for violations involving *crack* cocaine. Penalties for violations involving *powder* cocaine, however, were not altered proportionally. This is a curious distinction given the similarities between crack cocaine and cocaine hydrochloride, the powder form of the drug from which crack is derived. To date, only a limited body of scholarly research has examined the relationship between race and the preference for crack versus powder cocaine. In the present study, we explore this relationship with a sample of 1,438 adult New York arrest- ees surveyed through the Arrestee Drug Abuse Monitoring (ADAM) Program in 1997. While a moderate relationship between race and cocaine use is discerned, logistic regression analyses identify a stronger association between gender and the use of crack cocaine. Legal and social implications are assessed in light of the current findings.

Theoretical Framework

Media reports of the increasing popularity of crack cocaine in the United States surfaced in late 1984. Within two years, crack had been labeled as the most dangerous drug available in terms of addiction propensity and association with crime, precipitating the outbreak of a national "crack epidemic" (Angeli, 1997; Lowney, 1994; Finkleman, 1993; Powell and Hershenov, 1991; Wisotsky, 1987). Inspired by this hysteria, the United States Congress passed the Anti-Drug Abuse Act of 1986[1] to provide harsh penalties for violations involving crack cocaine. Two facets of this law created a potential constitutional violation. First, the Federal Code[2] and United States Sentencing Guidelines[3] adopted a 100:1 quantity ratio, treating one gram of crack as 100 grams of powder cocaine for sentencing purposes (Angeli, 1997; Lowney, 1994; Finkleman, 1993; Powell and Hershenov, 1991; Wisotsky, 1987). Second, harsh new mandatory minimum sentences were adopted for drug violations involving crack cocaine (Angeli, 1997; Lowney, 1994; Finkleman, 1993; Powell and Hershenov, 1991; Wisotsky, 1987). Under these new Federal laws, individuals convicted of crimes involving even small amounts of crack cocaine were required to serve mandatory minimum sentences without the possibility of parole. Those convicted of crimes involving substantially greater amounts of powder cocaine, however, were not subject to mandatory minimum sentences.

The constitutional guarantee of equal protection is potentially implicated because past research has demonstrated an association between race and the preference for crack over powder cocaine use by certain ethnic groups (Inciardi and Surratt, 1998; Lockwood et al., 1995; Lowney, 1994; Lillie-Blanton et al., 1993; McDonald and Carlson, 1993; National Institute on Drug Abuse (NIDA), 1990). Lillie-Blanton et al. (1993), for example, explored ethnic group differences in crack cocaine smoking through an analysis of data collected through the 1988 National Household Survey of Drug Abuse (NHSDA). After controlling for social and environmental factors, the authors determined that the likelihood of smoking crack cocaine did not differ by ethnicity. Lillie-Blanton et al. (1993: 996) concluded that their findings "strengthen the evidence that… crack cocaine smoking does not depend strongly on race per se as a personal characteristic of individuals."

In contrast, McDonald and Carlson (1993) examined the effect of the 100:1 quantity ratio on differences in average Federal sentences imposed on various racial groups between 1986 and 1990. Their research illustrated that both the rate and the average length of incarceration for Federal offenders increased for blacks in comparison to whites. They deduced that this increase was caused largely by the mandatory minimum penalties for drug offenses, and, more specifically, by the 100:1 quantity ratio of powder to crack cocaine (McDonald and Carlson, 1993). As McDonald and Carlson (1993:1) stated, "the main reason that blacks' sentences were longer than whites' during the period from January 1989 to June 1990 was that 83% of all Federal offenders convicted of trafficking in crack cocaine cases… were black, and the average sentence imposed for crack trafficking was twice as long as for trafficking in powdered cocaine."

Most recently, Inciardi and Surratt (1998) illustrated that the use of crack cocaine did *not* differ substantively among ethnic groups. In a study of 699 cocaine users in Miami, Florida between September 1987 and August 1991, the authors demonstrated that the only significant crack/ethnicity association was that Hispanic males were less likely to prefer crack cocaine (Inciardi and Surratt, 1998). Thus, "being black … was unrelated to having crack as a primary cocaine type" (Inciardi and Surratt, 1998: 175).

This ambiguity within the literature suggests that the relationship between race and the use of crack and powder cocaine should be reevaluated. In the present study, we build on previous work by exploring the relationship between race and the use of cocaine from a sample of 1,437 adult New York arrestees surveyed through the Arrestee Drug Abuse Monitoring (ADAM) Program in 1997. One primary research question is addressed: Is there a relationship between race and the self-reported recent use of crack and powder cocaine? With this preliminary framework, research methods are described below.

Methods

The National Institute of Justice (NIJ) in the United States established the ADAM Program – formerly the Drug Use Forecasting (DUF) Program – in 1987 (Yacoubian, 2000b). The six primary goals of ADAM

are: identifying the levels of drug use among arrestees; tracking changing drug-use patterns; determining what drugs are being used in specific jurisdictions; alerting local officials to trends in drug use and the availability of new drugs; providing data to help understand the drug-crime connection; and serving as a research platform upon which a wide variety of drug-related initiatives can be based (Yacoubian, 2000b).

During each day of data collection, field staff obtained a list of arrestees who had been in custody for no more than 48 hours. Following the collection of demographic information from official records, arrestees were approached by an interviewer and introduced to the study. The introduction included the purpose and sponsorship of the study and informed consent provisions. Arrestees were assured that their participation was voluntary, that their responses were confidential, and that they would receive a candy bar as an incentive for participation. Subjects were interviewed out of hearing range of police or other arrestees. Interviews lasted approximately 15 minutes, with the length contingent upon the amount and degree of drug use disclosure.

Arrestees were first asked several demographic questions, including race, education level, marital and employment status, and income level. Participants were then asked to report whether they had *ever* used a number of specific drugs (Yacoubian, 2000b). For those drugs the arrestees reported having *ever* tried, they were asked to indicate age of first use, whether they had used the drug within the past twelve months, the number of times used within the past thirty days, and whether they had used the drug within the past three days. Participants who admitted to drug use were also asked whether or not they considered themselves drug-dependent, and whether they were under the influence or in need of drugs at the time of arrest (Yacoubian, 2000b). Several questions also focused on treatment – whether the person had ever received treatment, was currently in a treatment program, or perceived a need for treatment (Yacoubian, 2000b).

In addition to the survey data, a urine sample was obtained to measure recent drug use and to validate self-report data (NIJ, 2000). The Enzyme Multiplied Immunoassay Test (EMIT) screened for ten drugs: amphetamines, barbiturates (e.g., Phenobarbital), benzodiazepines (e.g., Valium and Xanax), marijuana, metabolite (crack and powder) cocaine, methadone, methaqualone (Quaaludes), opiates, phencyclidine (PCP), and propoxyphene (Darvon). All positive results for amphetamines were

confirmed by gas chromatography (GC) to eliminate any over-the- counter medications.

Between 1990 and 1998, several methodological issues influenced the DUF/ADAM protocol. First, all sites operated according to a charge priority system, where non-drug felons, drug felons, non-drug misde- meanants, and drug misdemeanants were prioritized hierarchically (Yacoubian, 2000b). That is, the program emphasized serious non-drug offenders. Second, the number of drug offenders surveyed during a data collection period could not exceed 20% of the total sample (Yacoubian, 2000b). This prevented the oversampling of drug offenders, who, pre- sumably, would report more frequent drug use than their non-drug- offending counterparts. Third, all arrestees were eligible to be inter- viewed except for those whose primary charges involved vagrancy, loi- tering, or traffic offenses (Yacoubian, 2000b). These arrestees were excluded from the sample *a priori*.

In addition to these program-level limitations, it is important to rec- ognize that the data used in the current analysis were collected as 'New York' arrestees. It should be noted, however, that through 1998, arrestees in the New York DUF/ADAM site were interviewed at one central book- ing facility in Manhattan. No data were collected in any of the other four New York City boroughs – the Bronx, Brooklyn, Queens, or Staten Island. As such, it is more accurate to label the subjects in the current study as Manhattan arrestees.[4]

These caveats aside, a number of scholarly works have been gener- ated with the ADAM data (Yacoubian, 2000a; Yacoubian, 1999; Yacou- bian and Kane, 1998; Johnson et al., 1998; Kane and Yacoubian, 1998; Katz and Webb, 1996; Harrison, 1995; Rosenfeld and Decker, 1993; Wellisch et al., 1993; Wish, 1990). It is important to note that interview- ing arrestees is often an arduous assignment, and one not always amena- ble to the same standards of scientific rigor possible in other environments (Yacoubian, 2000b). With these methodological cautions, data analysis and findings are presented below.

Data Analysis and Findings

The sample is comprised of 1,438 adult male and female arrestees inter- viewed in Manhattan in 1997. Data analysis was accomplished in three phases. First, demographic statistics were computed for all of the arres-

tees in the sample. Second, drug-positive rates were calculated for all of the arrestees in the sample. Third, logistic regression was utilized to explore the relationship between race and the self-reported recent use of crack and powder cocaine.

Demographic Characteristics

As shown in Table 1, 70% of the arrestees in the sample were male and 56% were African-American. The mean age of the sample was 33.4 years old, though the range extended from 16 to 71 years old. Sixty-one percent of the offenders were either high school graduates or had their general equivalency diplomas (GED), while 55% were single and had never been married. Thirty-seven percent of the arrestees were charged with a property offense, while 25% were charged with a personal offense.

Drug-Positive Rates

The detection period for urinalysis is generally considered to be two to four days for most illegal drugs of abuse (Cone, 1997). It is reasonable to conclude, therefore, that positive assays are indicative of very recent illicit drug use. As shown in Table 2, 79% of the arrestees tested positive for at least one illicit drug, with the most prevalent drug of abuse being cocaine (59%), followed by opiates (20%), marijuana (12%), and metha-done (12%). Each of the remaining drugs were detected in 5% or less of the sample. No methaqualone-positives were detected.

Table 1: Demographic Characteristics for New York Arrestees, 1997 (N=1,438)

Variable	*Percent*
Gender	
Male	70%
Female	30%
Race	
African-American	56%
Hipanic	28%
White	14%
Other	2%
Age in years (Mean)	33.4
High school graduates/GEDs	61%
Marital status	
Single, never married	55%
Living with boy/girlfriend	17%
Married	14%
Separated/divorced/widowed	14%
Primary charge	
Property offenses	37%
Personal offenses	25%
Miscellaneous offenses	23%
Drug/alcohol offenses	15%

Note: Personal offenses include assault and robbery. Drug or alcohol offenses include drug possession and sale. Property offenses include theft and receiving stolen property. Miscellaneous offenses include loi- tering and unspecified parole/probation violations.

Table 2: Drug-Positive Rates for Arrestees, 1997 (N=1,438)

Drug	*Percentage*
Positive for at least one drug	79%
Cocaine	59%
Opiates	20%
Marijuana	12%
Methadone	12%
Benzodiazepines	5%
PCP	1%
Babituates	<1%
Propoxyphene	<1%
Amphetamines	<1%
Methamphetamine	<1%
Methaqualone	0%

Logistic Regression

To supplement our descriptive findings, we explored the relationship between race and the self-reported recent use of crack and powder cocaine. The interview required that arrestees identify whether they had *ever* tried crack and powder cocaine. If arrestees reported ever having used these drugs, questions were posed about 12-month, 30-day, and three-day patterns of use. As such, the dependent variables utilized in the two models were self-reported *crack* cocaine use within the past three days and self-reported *powder* cocaine use within the past three days. The four independent variables included in the models were gender, race, marital status, and age (measured continuously). The variable measuring race, originally coded as African-American, white, Hispanic, or

"other," was re-coded into two categories – "white" and "non-white." The variable measuring marital status – originally coded as "single, never married," "living with boy/girlfriend," "married," "separated/ divorced," and "widowed" – was re-coded into two categories – "married" and "non-married." The reference categories used in the current model were "male," "white," and "married."

The results of the logistic regression model for self-reported recent powder cocaine use are shown in Table 3. As shown, if an arrestee was unmarried, the odds ratio (OR) of recent powder cocaine use was 62% higher than for an arrestee who was married, holding all other variables constant. If an arrestee was nonwhite, the OR of recent powder cocaine use was 42% higher than for a white arrestee, holding all other variables constant. If an arrestee was female, the OR of recent powder cocaine use was 39% greater than for an arrestee who was male, holding all other variables constant.

Table 3. Logistic Regression on Self-Reported Three-Day Powder Cocaine Use (N=1,438)

	Bivariate Logistic Regression Model		*Multiple Logistic Regression Model*	
	OR	*CI*	*OR*	*CI*
Female	1.44	1.07-1.92	1.39	1.04-1.88
Nonwhite	1.41	1.00-1.98	1.42	1.00-2.00
Unmarried	1.68	1.20-2.35	1.62	1.15-2.28
Age	1.04	1.02-1.05	1.04	1.02-1.05

The results of the logistic regression model for self-reported recent crack cocaine use are shown in Table 4. As shown, if an arrestee was female, the OR of recent crack cocaine use was 139% higher than for an arrestee who was male, holding all other variables constant. If an arrestee was nonwhite, the OR of recent crack cocaine use was 28%

higher than for an arrestee who was nonwhite, holding all other variables constant.

Taken collectively, the findings for both crack and powder cocaine suggest disproportional involvement among New York arrestees, though not necessarily consistent with previous research. While results in the current study did support previous findings (McDonald and Carlson, 1993) that nonwhite offenders were more likely than their white counter- parts to use crack cocaine, the variable of particular interest is gender. Female arrestees were 139% more likely to use crack cocaine than their male counterparts. These findings not only suggest disproportional cocaine involvement across ethnicity, but also across gender.

Table 4. Logistic Regression on Self-Reported Three-Day Powder Cocaine Use (N=1,438)

	Bivariate Logistic Regression Model		*Multiple Logistic Regression Model*	
	OR	*CI*	*OR*	*CI*
Female	2.38	3.15-6.97	2.39	3.16-7.20
Non-White	1.23	1.16-1.81	1.28	1.17-1.82
Unmarried	1.04	1.04-1.07	1.04	1.04-1.06
Age	1.03	1.03-1.04	1.04	1.03-1.04

Discussion

In the current study, 1,438 arrestees were surveyed through New York's ADAM Program in 1997. We sought to explore the relationship between race and the self-reported recent use of crack and powder cocaine. While analyses demonstrated that the likelihood of using crack cocaine was only 28% greater for nonwhite arrestees than their white counterparts, female arrestees were 139% more likely to use crack cocaine than their

male counterparts. While a moderate race effect did exist, the stronger relationship was with gender.

Several methodological limitations should be noted. While all New York arrestees were booked at a single Manhattan facility in 1997, their eligibility to be interviewed was determined according to the established crime-charge priority system. Given this methodological restriction, the external validity of the present findings is clearly an issue. Without further research, an assumption that the current findings are generalizable to other arrestee populations would be a precarious one. It is recommended, therefore, that similar analyses be conducted with arrestees in other jurisdictions to confirm the relationships delineated in the current study.

Second, the ADAM reporting system collects data solely for arrestees. The findings presented here may not necessarily parallel those from other deviant populations (e.g., prisoners or probationers). It is recommended, therefore, that our analysis be replicated beyond arrestees to assess the broader implications of these drug-reporting trends.

A third limitation of the current study is utilizing city-level ADAM data as a basis for assessing Federal law. Clearly, the two may not be analogous. Nevertheless, a comparison is appropriate to demonstrate descriptively that the basis of the Federal statute unfairly targets certain groups for sentencing purposes. The current study has illustrated that females will receive harsher drug sentences given their preferences for crack over powder cocaine.

Fourth, while the ADAM protocol required the collection of a urine specimen, urinalysis could not distinguish between the two types of cocaine for which self-reported data were collected. That is, a cocaine-positive arrestee may have ingested crack or powder cocaine. Given the extensive research documenting low validity of self-reported recent drug-using behaviors (Yacoubian, 2000a; Wish et al., 1997; Mieczkowski, 1991), our results should be taken with caution. When the testing of biological specimens advances to the point of being able to distinguish between crack and powder cocaine, future research should replicate the current analysis with objective measures of drug use as the dependent variables.

Legal Implications

Harsher penalties for crack cocaine offenses, prescribed by the Federal Code and U.S. Sentencing Guidelines, have been judged unconstitutional by a number of scholars (Angeli, 1997; Lowney, 1994). That is, it has been argued that the federal guarantee of equal protection is violated because harsher penalties are imposed for crack cocaine, a drug more strongly favored by minorities. Unfortunately, however, illustration of a potentially discriminatory law is not enough to permit its repudiation. In order to strike down a statute for violating equal protection, the law must be shown to have been enacted *with the purpose of discrimination*. Absent this intent, courts must uphold the laws if they are 'rationally related' to a 'legitimate' government objective (Angeli, 1997; Lowney, 1994). Thus, a rational basis will always outweigh discriminatory impact. Given this standard, equal protection challenges to enhanced penalties for crack have, to date, been rejected universally.[5]

However, the findings in the current study suggest that racial disparity may not necessarily be the principal issue surrounding disproportional involvement in crack versus powder cocaine. Rather, the critical variable in assessing disproportionality appears to be gender. Females are significantly more likely to be overrepresented in the use of crack cocaine than their male counterparts. While a race effect exists, the likelihood of recent self-reported crack cocaine use is 139% higher for a female arrestee than for an arrestee who is male.

When assessing potential violations of equal protection, the United States Supreme Court has articulated three different standards of review: strict scrutiny, intermediate scrutiny, and rational basis scrutiny. Traditionally, the intermediate scrutiny standard has been applied to gender classifications. The Court first articulated this standard of review for gender classifications in *Craig v. Boren* (1976).[6] In order to prevail under the intermediate standard established in *Craig*, the government must prove that the use of gender as a classifying tool is substantially related to the advancement of an important government objective. The Court stated that "classifications by gender must serve *important* government objectives and must be *substantially related* to the achievement of those objectives."[7] Thus, the element added to *Craig* is that the statutory objective must be an 'important' one, as opposed to the 'legitimate' one established in *Reed v. Reed* (1971).[8] While government arguments in favor of

crack cocaine legislation point routinely to a variety of public health and safety concerns as their foundation, the standards for their arguments become stricter if challenged based on gender discrimination.

Social Implications

With the advent of crack cocaine, women became more involved with hard-drug use than had been the case with powder cocaine or heroin (McCoy et al., 1995; Fagan, 1994; Inciardi et al., 1993, 1991; Forney et al., 1992; Johnson, 1991). There are two potential explanations for the disproportional involvement in the use of crack cocaine. First, because crack is relatively affordable, it can be consumed in higher doses than more expensive drugs of abuse (Morningstar and Chitwood, 1987). The low cost is not only conducive to experimentation, but makes it easier to advance to drug addiction, particularly among users whose resources are relatively limited. Second, a body of research has explored a "sex for crack" exchange (Elwood et al., 1997; Boyd et al., 1994; Weatherby et al., 1992; James, 1976). The literature suggests that, in lieu of cash, female prostitutes are reimbursed for services rendered with crack cocaine. This type of exchange begins a cycle where women are entirely dependent on a serious drug of abuse (Elwood et al., 1997).

These gender-based findings have clear implications for social policy. First, treatment alternatives would necessarily have to take into consideration the large female population entering the criminal justice and health systems (Mahan, 1996). The needs of female clients are drastically different than those for males. Treatment plans would necessarily have to accommodate issues such as sexually transmitted diseases, pregnancy, and child rearing (Elwood et al, 1997; Mahan, 1996; McCoy et al., 1995). Second, for crack-addicted mothers, the future of the children is compromised. As primary caregivers, crack-addicted mothers tend to neglect their children, both emotionally and physically (Hawley et al., 1995). Without an environment in which legitimate goals and attitudes can be fostered, children are at increased risk for antisocial behavior (Akers, 1985). Third, if there is a sex/crack connection, public health issues become amplified. As prostitutes indulge in serious drugs of abuse, risks of HIV and other sexually transmitted disease within the general public increase (Logan et al., 1998; Wallace et al., 1997; Elwood et al., 1997; Inciardi et al., 1991).

Conclusion

Recent literature has demonstrated that the pharmacological effects and health hazards of crack parallel those of powder cocaine (Inciardi and McElrath, 1998; Hatsukami and Fischman, 1996). Given their indistinguishable characteristics, the argument that crack cocaine should be treated as a more dangerous drug than powder cocaine for criminal sentencing purposes seems groundless. The current findings have illustrated that females are more likely to be overrepresented in the use of crack cocaine than their male counterparts. If a rational sentencing policy presumes that like penalties be imposed for similar offenses, we would argue that the harsher criminal sentences for offenses involving crack cocaine should be reevaluated.

Notes

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1. Pub. L. No. 99-570, 100 Stat. 3207 (1986) (codified as amended in scattered sections of 21 U.S.C. Sections 801-970).

2. 21 U.S.C. Section 841(b)(1)(A), (B) (1988).

3. United States Sentencing Guidelines, 18 U.S.C.S. app. Section 2D1.1 (Law. Co-op. 1993).

4. The ADAM Program now has a county-based data collection protocol. Since 1999, arrestee data have been collected in all five boroughs of New York City.

5. See, for example, United States v. Galloway, 951 F.2d 64, 65 (5th Cir. 1992), United States v. Madison, 781 F. Supp. 281, 285 (S.D.N.Y. 1992), and United States v. Cyrus, 890 F.2d 1245, 1248 (D.C. Cir. 1989).

6. 429 U.S. 190.

7. Id. at 197.

8. 404 U.S. 71.

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