Demographic and socioeconomic correlates of powder cocaine and crack use among high school seniors in the United States

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Abstract

Objectives—Rates of powder cocaine and crack use have fluctuated among adolescents over recent decades. Little attention has been paid to recent trends, particularly regarding differences between users of powder cocaine and crack—two forms of the substance that are commonly reported together as "cocaine" use, despite having different effects and rates of adverse outcomes.

Methods—We examined data from nationally representative samples of high school seniors who participated in the Monitoring the Future study during years 2005–2011 (weighted *N*=65 717).

Results—Many demographic and socioeconomic variables were similarly correlated with lifetime use of powder cocaine and crack. Income of >$50/week from job increased the odds for use, and income of >$50/week from sources other than a job more than doubled the odds for use. High religiosity, high parent education, identifying as black, and residing with one or two parents reduced odds for use. Hispanic students were at higher odds for use of crack and females were at lower odds for using powder cocaine. Among cocaine users, residing with one or two parents lowered odds for using both forms, and more religious students and Hispanics were at higher odds for crack-only use.

Conclusions—Those interested in preventing initiation and adverse consequences of cocaine use should take into account the overlapping, yet different risk profiles of powder cocaine and crack users when developing programming. This is particularly important when considering differences in legal consequences for these pharmacologically similar forms of cocaine.

Keywords

Adolescents; crack-cocaine; powder cocaine; socioeconomic status

Introduction

Rates of cocaine use in the US have fluctuated dramatically over the past forty years (1). Powder cocaine use was most prevalent among high school seniors from the late 1970s through the mid-1980s, and there was a sharp decline in the late 1980s (1). Crack, a smokable rock form of cocaine, became prevalent in the 1980s, especially among those of lower socioeconomic status (SES) as it was sold in small, cheap quantities (e.g. $5 or $10 compared to the usual $50 or $100 for powder cocaine) (2,3). Powder cocaine was previously often associated with glamour, but the "crack epidemic" tarnished this status, in part, due to public perceptions of associated crime and violence (2,4). Disapproval of powder cocaine and crack use remains high today and use continues to be stigmatized (1,5). Over the past decade, population levels of powder and crack cocaine use appear to have declined; between 2005 and 2011, past year cocaine use among young adults aged 18–25 decreased from 2.6% to 1.4%. Furthermore, between 2002 and 2011, the annual number of past year cocaine initiates decreased from 1 million to 670 000, and the number of past year crack initiates decreased from 337 000 to 67 000 (6). Despite these recent declines, cocaine use remains a significant public health concern. According to the National Survey on Drug Use and Health (NSDUH), there were still 1.4 million current powder and crack cocaine users in 2011 aged 12 or older in the US (6).

Both powder cocaine and crack are often collapsed into a single cocaine variable. This can be problematic because while powder cocaine and crack are pharmacologically similar (7), they have distinct epidemiologic profiles (8,9), costs (2,3), natural histories, social meanings, and legal consequences (10–12). With regard to legal consequences, although sentencing disparities between powder and crack cocaine were recently reduced (from 100:1 to 18:1) through the Fair Sentencing Act of 2010, legally, crack is still a much riskier drug to possess or sell than powder cocaine. Speed of drug effects also differ by mode of administration, as smoking cocaine (e.g. in the form of crack) increases speed of delivery and reinforcing effects relative to sniffing (7,13). Moreover, the risk of transition from use to dependence appears to be higher for crack as compared to powder cocaine (14–17), although this may also be related to dependence liability among users of each drug rather than the drug *per se* (14). In addition, powder and crack cocaine users tend to differ socially, as powder cocaine is often associated with "party" and social settings (18,19), alcohol use (20), or even "glamour" (21), while crack use tends to be associated more with social exclusion (18). Although both drugs are highly disapproved, crack use is also more highly stigmatized even by illicit drug users (22,23). Yet, much of the extant research does not differentiate between powder cocaine and crack, leading to ambiguous findings.

Cocaine and crack use are more likely to be initiated in young adulthood; the mean ages of onset for powder cocaine and crack use in 2011 were 20.1 and 20.8, respectively (6). There is a robust literature addressing the progression from first cocaine use to dependence (14,16,24), as well as determinants of cocaine use among at-risk populations such as homeless and street youth (25,26). Adolescent powder and crack-cocaine use, however, is not well understood despite the fact that adolescence is a key period of development. Animal and human studies have shown that adolescent onset cocaine use may be particularly problematic as risk for the development of dependence is higher among adolescent initiates

(17,27). Here, we use data from the Monitoring the Future (MTF) high school senior surveys to determine the demographic and economic correlates of adolescent cocaine use. We compare and contrast the correlates of powder versus crack cocaine.

Methods

MTF is an annual cross-sectional survey of high school seniors in approximately 130 public and private schools throughout 48 states in the US. Schools are selected through a multi-stage random sampling procedure: geographic areas are selected, then schools within areas are selected, and then students within schools are selected (1). Roughly 15 000 high school seniors have been assessed annually since 1975. MTF protocols were reviewed and approved by the University of Michigan Institutional Review Board. Since MTF assesses a variety of constructs, content is divided into six questionnaire forms, which are distributed randomly. All forms assess demographics, socioeconomic status (SES), and crack use; however, only Forms 1, 3, 4 and 6 assess powder cocaine use (without combining powder and crack-cocaine into a single "cocaine" variable). This analysis focuses on aggregated (and weighted) data from 65 717 high school seniors from years 2005–2011. Previous cohorts could not be included because prior to 2005, MTF assessed race as black versus white. Therefore, this analysis focused on data that also included a Hispanic category.

Measures

Students were asked their sex, age (<18, 18 years) and race (i.e. black, white, Hispanic). Level of religiosity was determined by two ordinal items addressing religious attendance and importance. These items were computed into a mean religiosity composite (range: 1–4) and divided into tertiles indicating low (1.0–2.0), moderate (2.5–3.0) and high (3.5–4.0) religiosity. MTF classified population density of students' residences as metropolitan statistical area (MSA) versus non-MSA. MSAs are defined as counties or groups of contiguous counties that contain at least one city of 50 000 inhabitants (28). Parent's level of educational attainment (i.e. grade school, some high school, high school graduate, some college, college graduate, or graduate school) was used as a proxy to measure SES. A mean score for both parents (or raw score if only one parent) was coded into three groups: low (1.0–3.0), medium (3.5–4.0), and high (4.5–6.0) education. To assess family composition, students were asked to indicate with which parent(s) they resided. Answer options were no parents, one parent and two parents. Student weekly income was assessed by asking how much money the student earned during the average week from a job or other work (i.e. none, $1–5, $6–10, $11–20, $21–35, $36–50, $51–75, $76–125, $126–175, or $176+). Students were also asked how much money they earned from other sources and were provided with the same answer options. We recoded responses for each item into $10 or less, $11–50, or $51 or more. Coding of SES variables was guided by the work of Wallace and colleagues (29). Lifetime use of alcohol, cigarettes, marijuana, powder cocaine and crack was also assessed.

Analysis

First, binary logistic regression was used to calculate unadjusted odds ratios (ORs) and 99% confidence intervals (CIs) for each covariate potentially related to lifetime use of powder

cocaine and crack separately. Each variable was then fit into multivariable logistic regression models with lifetime use of powder cocaine and crack as the outcome variables, producing adjusted ORs (AORs) and 99% CIs.

We then examined how demographic and economic variables relate to lifetime use of 1) both crack and cocaine and 2) only crack, in comparison to lifetime use of only powder cocaine, using multinomial logistic regression. We calculated AORs with 95% CIs to guide interpretation.

All models (bivariable and multivariable) were adjusted for cohort (year of survey administration) to control for changes in rates and associations over time. An indicator for each year (with 2005 as the comparison) was entered into each model. In addition, all models utilized the full datasets as all models were computed including missing data indicators for each variable. Missing data indicators were included to maximize power and to help prevent response bias from affecting results (e.g.>13% of the sample was missing race). To account for large sample size and non-independent outcomes (overlap and strong relations between cocaine outcome variables), α was set to a more conservative 0.01 to help prevent Type I error for the binary logistic regression models. However, α was set to 0.05 for the multinomial logistic regression model as there was no overlap between powder cocaine and crack in this analysis. Data were weighted to adjust for clustering and differential probability of selection of schools and students. All analyses were design-based for survey data (30) and conducted using SAS 9.3 software (SAS Institute Inc, Cary, NC).

It should be noted that 98.2% of powder cocaine users and 96.8% crack cocaine users reported use of alcohol, 93.1% of powder cocaine users and 90.8% of crack users reported use of cigarettes, and 97.2% of powder cocaine users and 95.5% of crack cocaine users reported use of marijuana. Since these drugs were used by nearly all users, these variables were not included in analyses.

Results

Data from all cohorts were aggregated and Table 1 presents sample characteristics. A total of 4064 students (6.2%) reported lifetime use of powder cocaine and 1630 (2.5%) reported lifetime use of crack; 4511 (6.9%) used either drug, 1183 (1.8%; 29.1% of powder cocaine users and 72.6% of crack users) used both drugs, and 2881 (70.9% of users) used only powder cocaine and 447 (27.4% of users) used only crack.

We first examined the associations between sociodemographic variables and lifetime powder cocaine and crack use separately (Table 2). Both multivariable models had high correct classification rates (powder cocaine: 94%; crack: 98%). Females were consistently at lower odds of reporting powder cocaine use, but while females had lower odds for crack use in the unadjusted model, the associations were lost in the multivariable model (although this association approached significance in light of the statistical correction, *p*=0.018). Compared to white students, black students were robustly and consistently at lower odds of reporting use of powder and crack cocaine. Hispanics were at increased odds for powder cocaine use

in the unadjusted model, but not after adjustment for other demographic variables. Hispanics, however, were consistently at increased odds for crack use.

Residing in an MSA was not associated with powder cocaine use; however, there was a trend with lower odds for crack use in the adjusted model, which approached significance (p=0.017). Higher religiosity and residing with two parents (compared to residing with no parents) robustly and consistently lowered the odds of use of both forms of the drug. Residing with one parent also lowered the odds of use of each drug in the multivariable models, but the association of residing with both parents was stronger.

High parent education also consistently reduced the odds for use of powder and crack cocaine. With respect to student income, earning $11–50/week from a job (compared to $10 or less) decreased the odds of powder cocaine use in the bivariable but not the multivariable model. However, earning $51 or more per week consistently and robustly increased the odds of use of both forms of the drug. Earning more than $10 per week from other sources robustly increased the odds of use of both powder and crack cocaine as well.

Finally, we examined covariates in a multinomial logistic regression model comparing use of both powder and crack cocaine and use of only-crack, to powder cocaine-only use (Table 3). Hispanic students had increased odds for use of both powder and crack cocaine, and for use of only crack (versus powder cocaine use only). Residing in an MSA also reduced the odds of both outcomes, and high religiosity increased the odds for both outcomes, although high religiosity had a larger association with use of only-crack, and moderate religiosity approached significance increasing the odds for only-crack (p=0.054), but not use of both. Finally, residing with one or both parents was inversely associated with use of both powder and crack cocaine, but not use of crack-only.

Discussion

This analysis from 2005–2011 MTF survey data revealed that 6.2% of high school seniors had used powder cocaine in their lifetime and 2.5% had used crack. Since the mean age of cocaine initiation is 20.1 (6), current trends suggest that prevalence will increase as these adolescents age. In the MTF adult sample, by age 25–26, 18% report having used powder cocaine in their lifetime and 5% report using crack (31). Crack users have commonly used powder cocaine first (32–34), but those who use crack first do not always then progress to powder cocaine (35). Of the cocaine users in this sample, the majority (70.9%) used powder cocaine, but not crack.

We examined correlates of use of both powder and crack cocaine separately, as well as use of either and both. Results suggest significant and sometimes varying demographic correlates of powder cocaine and crack use. Females were at significantly lower odds of using powder cocaine as has been observed previously (36), but there were no significant sex differences with respect to crack use. Studies have shown that while women may be less likely to use cocaine, they experience the same (37) or higher levels of cocaine use severity (38). Thus, the lack of sex differences with respect to crack use may be because crack use can be considered a measure of cocaine use severity.

Black students had lower odds for both powder and crack cocaine use as compared to white students, which is consistent with findings from the College Life Study (39). In the Coronary Artery Risk Development in Young Adults (CARDIA) study, which was conducted more than a decade after the College Life Study, blacks had a higher likelihood of cocaine use from 1987 to 1992 (36). Hispanic students had higher odds for lifetime crack use relative to white students, but not for powder cocaine use. This finding is of particular importance because most crack users in this sample had also used powder cocaine; Hispanics appear to be at particular risk for crack use. Higher odds of powder cocaine use among Hispanics disappeared once we controlled for demographic and SES covariates.

Findings suggest a trend (approaching significance) of lower crack use in MSAs, compared to non-MSAs. MSAs had the highest rates of crack use in the late 1980s, but recent trends suggest that MSAs now have lower rates of adolescent crack use (28). While numerous studies have focused on "inner-city" and "urban" crack use, one should not deduce that crack is necessarily more prevalent in such neighborhoods at this time. Powder cocaine use rates have fluctuated over the years by type of MSA (28), but findings suggest that users of only powder cocaine (without use of crack) were more likely to reside in an MSA compared to crack users (with or without powder cocaine use). Thus, while crack use may be perceived to be more visible in urban areas, possibly due to more problematic use, in reality, powder cocaine appears to be more prevalent in MSAs. Petronis and Anthony investigated geographical clustering of cocaine incidence using data from the 1979, 1988, and 1990–1993 National Household Surveys on Drug Abuse and found that incident cocaine use clustered in cities and is related to increased levels of neighborhood disadvantage (40).

Religiosity lowered odds for use of both powder and crack cocaine, consistent with previous research demonstrating that higher religiosity tends to be protective against use of most illicit drugs (41–43). However, when examining differences between types of cocaine users, cocaine-only users tended to be less religious, and crack users (with or without use of powder cocaine) tended to be more religious. This association was most consistent in crack-only users. While the explanation for this association is unclear, we must be cautious not to rule out temporality. It is possible that religious individuals were more likely to use crack, but it is also possible that that crack users were more likely to become religious after use.

With respect to socioeconomics, higher levels of parent education were associated with lower odds of both powder and crack cocaine use. Miech et al. (44) examined the relationship between education and cocaine use in the 1979–1998 National Household Surveys on Drug Abuse and found during the period of 1990–1998, low educational attainment was associated with both powder cocaine and crack use. Residing with both parents was associated with lower odds of both powder and crack cocaine use in this study, and this association was also strong, but weaker, for those residing with one parent. Residing with one or two parents was also negatively associated with use of both powder and crack cocaine, but there was no association between number of parents and use of only-crack. Living in a single parent household has been shown to be associated with an increased likelihood of drug use (45), and these findings add to research about the importance of parents in households.

We found a strong association between students' incomes and use. Students earning more than $50 per week from a job or receiving more than $11 from "other" sources were at high odds for use of both powder and crack cocaine. Although it is unclear if this income represents disposal income for the student's use or income that contributes to the family income, this finding is consistent with previous studies that have found access to spending money or pocket money is associated with cigarette smoking (46,47) and getting drunk among adolescents and college students (48). One study conducted in the late 1970s found that availability of spending money was associated with cocaine use in 8th, 10th, and 12th grade Maryland students (49). Cocaine use also tends to increase after an individual receives his or her paycheck (i.e. the "check effect") and cocaine users are more likely to purchase it and increase consumption when money is easily available (50,51). Importantly though, one does not have to be able to purchase cocaine in order to use it. In addition, among older individuals, being homeless and/or unemployed has been found to be associated with trading sex for crack (22,52). While higher income from a job increased the odds for both powder cocaine and crack use, the odds of powder cocaine use were slightly higher for income from other sources. Powder cocaine is more expensive as it tends to be sold in grams, but prices of powder cocaine and crack do not actually differ in price per unit (53,54). It is unclear what other sources of income respondents considered in their response. Compared to powder cocaine users, frequent crack users tend to be more marginalized from employment, are less likely to have formal or informal work, have a higher likelihood of panhandling, criminal activity or rely on programs or family and friends for support (22).

Limitations

The outcomes (powder cocaine and crack use) were not completely independent; however, we addressed this by using a stricter $\alpha=0.01$ in the two binary logistic regression models. We also used a multinomial logistic regression model to determine correlates of lifetime use of powder cocaine-only, crack-only, and use of both powder cocaine and crack. As with any cross-sectional study, we cannot establish temporality or causality. High school dropouts were not surveyed by MTF and this may affect generalizability of findings. Specifically, Hispanics have the highest dropout rates and those who dropout appear to be more likely to be crack users, so rates of use (particularly of crack use) may be underestimated (1). Approximately 10–15% of each cohort dropout each year; however, it should be noted that MTF rates are comparable to rates published by NSDUH, which includes dropouts (1). Missing data, particularly for race, was problematic. However, analyses with both the case-complete (data not shown) and full samples with missing data indicators resulted in similar findings. In addition, sensitivity analyses (data not shown) conducted by stratifying the samples by cohort and re-computing the multivariable logistic regression models resulted in comparable findings with regard to direction, giving us confidence in combining cohorts.

MTF has a circumscribed set of variables, not all of which were available for each participant. Thus, we could not compare large versus small MSAs as these data were not available for the 2005 and 2006 surveys. Likewise, prior to 2005, race was coded as white versus black, so as race was a main variable of interest in this study, we could not utilize earlier data because it did not include a Hispanic group. MTF also does not provide geographical data although analyses were weighted, in part, to account for clustering. Since

race (and likely SES) tends to cluster within schools (28), race and student income findings should be interpreted with some caution. For example, Lillie-Blanton et al. found that when examining subjects by neighborhood cluster, differences in crack use between races diminished (55) and Williams and Latkin found that neighborhood poverty was associated with current cocaine use (56).

Finally, family income data were not available. This is important to consider with respect to our findings related to students' income. Previous studies have suggested that children from low-income households may be at higher risk for cocaine use in adulthood. Fothergill et al. examined pathways to adult cocaine use among African Americans and found that low income in childhood was associated with cocaine use in mid-adulthood indirectly through school achievement, while low early adult income was directly associated with cocaine use in mid-adulthood (57).

Conclusions

Few studies have investigated adolescent cocaine use or compared and contrasted correlates between powder cocaine and crack users. Powder cocaine and crack are commonly collapsed into a single "cocaine use" category in research, despite different correlates of use, reasons for use and rates of dependence and adverse outcomes associated with use. This is particularly important when considering differences in legal consequences for these pharmacologically indistinct drugs. While powder and crack cocaine do have many similar determinants, this study helped delineate overlapping, but different risk profiles associated with use. Black race, religiosity, one- and two-parent families, and higher parental education were associated with significantly lower odds of both powder and crack cocaine use while higher weekly incomes were associated with higher odds of use. However, powder cocaine users were also less likely to be female while crack users were more likely to be Hispanic. Public health policy experts should consider these differences in prevention efforts. Researchers should consider disaggregating powder cocaine from crack cocaine use, as these findings demonstrate that the correlates of each do not precisely overlap.

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Table 1

Sample characteristics (Weighted *N*=65 717).

Variable	*N*	*%*
Sex		
Male	30 357	46.2
Female	32 914	50.1
Missing	2446	3.7
Age, years		
<18 Years	28 205	42.9
18 Years	36 861	56.1
Missing	651	1.0
Race		
White	40 113	61.0
Black	7569	11.5
Hispanic	9162	13.9
Missing	8874	13.5
Population density		
Non-MSA	14 409	21.9
MSA	51 308	78.1
Missing	0	0
Religiosity		
Low	19 899	30.2
Moderate	14 482	22.0
High	15 877	24.2
Missing	15 459	23.5
Parent education		
Low	19 625	29.9
Moderate	18 328	27.9
High	24 669	37.5
Missing	3095	4.7
Family composition		
0 Parents	3888	5.9
1 Parent	16 884	25.7
2 Parents	43 977	66.9
Missing	968	1.5
Income from job		
$10 or less	25 684	39.1
$11–50	7317	11.1
$51 or more	28 553	43.4
Missing	4163	6.2
Income from other source		
$10 or less	33 049	50.3

Variable	N	%
$11–50	21 315	32.4
$51 or more	6289	9.6
Missing	5064	7.7
Lifetime drug use		
Alcohol[+]	45 697	72.3
Cigarettes[+]	28 571	44.1
Marijuana[+]	27 458	46.2
Powder cocaine	4064	6.2
Crack	1630	2.5
Last 12-month use		
Powder cocaine	2456	3.7
Crack	874	1.3

[+]Percents are valid percents for alcohol, cigarettes and marijuana because some cases had missing data. These variables were not included in analyses and are presented for descriptive purposes. Last 12-month powder cocaine and crack use are also presented for descriptive purposes. MSA=metropolitan statistical area.

Table 2

Demographic and economic variables explaining lifetime powder cocaine and crack use.

	Lifetime powder cocaine use				Lifetime crack use			
	OR	(99% CI)	AOR	(99% CI)	OR	(99% CI)	AOR	(99% CI)
Survey year								
2005	Ref		Ref		Ref		Ref	
2006	1.14	(0.96–1.34)	1.11	(0.94–1.31)	1.12	(0.87–1.43)	1.09	(0.85–1.40)
2007	0.97	(0.82–1.14)	0.92	(0.78–1.10)	0.95	(0.74–1.23)	0.91	(0.70–1.18)
2008	0.91	(0.77–1.08)	0.87	(0.73–1.03)	0.80	(0.61–1.05)	0.72	(0.55–0.96) *
2009	0.73	(0.61–0.88) ***	0.70	(0.58–0.85) ***	0.66	(0.50–0.87) ***	0.62	(0.46–0.83) ***
2010	0.72	(0.59–0.87) ***	0.71	(0.58–0.86) ***	0.73	(0.54–0.97) **	0.71	(0.53–0.96) *
2011	0.67	(0.55–0.81) ***	0.67	(0.55–0.82) ***	0.54	(0.40–0.74) ***	0.53	(0.39–0.72) ***
Sex								
Male	Ref		Ref		Ref		Ref	
Female	0.77	(0.69–0.85) ***	0.82	(0.74–0.91) ***	0.83	(0.71–0.97) *	0.86	(0.74–1.01)
Age, years								
<18	Ref		Ref		Ref		Ref	
18	1.12	(1.02–1.24) *	1.04	(0.94–1.16)	1.10	(0.94–1.28)	1.02	(0.87–1.19)
Race								
White	Ref		Ref		Ref		Ref	
Black	0.20	(0.15–0.27) ***	0.19	(0.14–0.26) ***	0.25	(0.17–0.37) ***	0.25	(0.17–0.37) ***
Hispanic	1.17	(1.02–1.34) *	0.93	(0.80–1.08)	1.70	(1.39–2.07) ***	1.38	(1.11–1.73) **
Population density								
Non-MSA	Ref		Ref		Ref		Ref	
MSA	1.08	(0.95–1.21)	1.11	(0.98–1.26)	0.86	(0.72–1.02)	0.84	(0.70–1.01)
Religiosity								
Low	Ref		Ref		Ref		Ref	
Moderate	0.88	(0.77–0.99) *	0.61	(0.54–0.70) ***	0.91	(0.74–1.11)	0.68	(0.55–0.84) ***
High	0.29	(0.24–0.34) ***	0.29	(0.24–0.35) ***	0.43	(0.34–0.54) ***	0.45	(0.35–0.57) ***
Family structure								

	Lifetime powder cocaine use				Lifetime crack use			
	OR	(99% CI)	AOR	(99% CI)	OR	(99% CI)	AOR	(99% CI)
0 Parents	Ref		Ref		Ref		Ref	
1 Parent	1.20	(1.07–1.33)	0.65	(0.53–0.79) ***	1.13	(0.95–1.35)	0.52	(0.40–0.68) ***
2 Parents	0.70	(0.63–0.77) ***	0.48	(0.40–0.58) ***	0.64	(0.55–0.75) ***	0.40	(0.31–0.52) ***
Parent education								
Low	Ref		Ref		Ref		Ref	
Moderate	1.09	(0.98–1.22)	1.01	(0.88–1.15)	1.02	(0.86–2.09)	0.90	(0.74–1.10)
High	0.78	(0.71–0.87) ***	0.84	(0.73–0.95) **	0.66	(0.56–0.78) ***	0.72	(0.59–0.88) ***
Weekly income from job								
$10 or less	Ref		Ref		Ref		Ref	
$11–50	0.75	(0.63–0.89) ***	1.08	(0.89–1.30)	0.80	(0.62–1.04)	1.17	(0.88–1.56)
$51 or more	1.65	(1.48–1.82) ***	1.62	(1.44–1.82) ***	1.57	(1.34–1.85) ***	1.61	(1.34–1.93) ***
Weekly income from other source								
$10 or less	Ref		Ref		Ref		Ref	
$11–50	1.07	(0.97–1.19)	1.44	(1.29–1.62) ***	1.00	(0.85–1.18)	1.36	(1.13–1.63) ***
$51 or more	1.90	(1.66–2.18) ***	2.34	(2.01–2.73) ***	2.03	(1.65–1.72) ***	2.24	(1.78–2.82) ***

ORs are presented as bivariable findings although we adjusted for cohort (and missing data variable if applicable). AORs are adjusted ORs as all other variables were controlled in the multivariable models. Bivariable and multivariable models all included cohort and missing data indicators. Results were computed both with and without the missing data indicators and results were nearly identical. MSA=metropolitan statistical area.

*
 $p < 0.01$,

**
 $p < 0.001$,

***
 $p < 0.0001$

Table 3

Multinomial logistic regression comparing lifetime cocaine use combinations by demographic and economic variables (Weighted *N*=4511).

	Used crack and powder cocaine (*N* =1183)		Only used crack (*N* =447)	
	AOR	(95% CI)	AOR	(95% CI)
Survey year				
2005	Ref		Ref	
2006	0.99	(0.76–1.30)	1.02	(0.69–1.51)
2007	0.94	(0.71–1.24)	1.11	(0.74–1.66)
2008	0.68	(0.51–0.92)[*]	0.99	(0.65–1.50)
2009	0.77	(0.57–1.06)	0.94	(0.60–1.49)
2010	0.95	(0.70–1.30)	0.94	(0.57–1.54)
2011	0.65	(0.46–0.91)[*]	0.78	(0.49–1.25)
Sex				
Male	Ref		Ref	
Female	1.01	(0.85–1.20)	1.10	(0.86–1.40)
Age, years				
<18	Ref		Ref	
18	0.99	(0.83–1.17)	0.94	(0.74–1.20)
Race				
White	Ref		Ref	
Black	1.29	(0.82–2.01)	1.16	(0.57–2.38)
Hispanic	1.48	(1.17–1.89)[**]	1.84	(1.32–2.55)[***]
Population density				
Non-MSA	Ref		Ref	
MSA	0.69	(0.56–0.84)[***]	0.70	(0.52–0.93)[*]
Religiosity				
Low	Ref		Ref	
Moderate	0.94	(0.75–1.18)	1.39	(0.99–1.96)
High	1.50	(1.13–1.98)[**]	1.97	(1.33–2.91)[***]
Family structure				
0 Parents	Ref		Ref	
1 Parent	0.60	(0.45–0.80)[***]	0.90	(0.56–1.45)
2 Parents	0.57	(0.43–0.74)[***]	0.98	(0.63–1.53)
Parent education				
Low	Ref		Ref	
Moderate	0.87	(0.71–1.08)	0.82	(0.61–1.11)
High	0.87	(0.71–1.08)	0.75	(0.56–1.01)
Weekly income from job				
$10 or less	Ref		Ref	
$11–50	1.09	(0.80–1.48)	1.14	(0.73–1.77)

	Used crack and powder cocaine (N =1183)		Only used crack (N =447)	
	AOR	(95% CI)	AOR	(95% CI)
$51 or more	1.08	(0.89–1.31)	0.99	(0.75–1.30)
Weekly income from other source				
$10 or less	Ref		Ref	
$11–50	1.02	(0.84–1.24)	0.89	(0.67–1.17)
$51 or more	1.10	(0.87–1.40)	1.12	(0.79–1.59)

The comparison group was students who used only powder cocaine (*N*=2881). AORs are adjusted ORs as all other variables were controlled in the multivariable model. The model included cohort and missing data indicators. Results were computed both with and without the missing data indicators and results were nearly identical. MSA=metropolitan statistical area.

*
p<0.05,

**
p<0.01,

***
p<0.001