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Health and Social Problems Associated with Prescription Opioid Misuse Among a Diverse Sample of High Risk Substance-Using MSM

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Abstract

This study examines associations between prescription opioid misuse and demographics, substance use, sexual behavior, and related health and social problems. Baseline data were collected between 2008 and 2010 from 515 high risk men who have sex with men (MSM), ages 18–55, in the Miami-Ft. Lauderdale metropolitan area who reported heavy substance use and HIV risk in the past 90 days. Prescription opioid misuse was associated with other substance use, drug injection, substance dependence, and history of arrest. Implications, limitations, and directions for future study are discussed.

Keywords

Prescription drugs; opioid; MSM; substance use

INTRODUCTION

Evidence suggests that men who have sex with men (MSM) are more likely to misuse prescription drugs (Kelly & Parsons, 2013) and are more likely to experience problems suggestive of substance dependence (Mackesy-Amiti, Fendrich, & Johnson, 2009) than adults in the general population. However, most research on prescription drug misuse among MSM is focused on either the misuse of erectile dysfunction medications (Kim, Kent, & Klausner, 2002; Mansergh et al., 2006; Sherr, Bolding, Maguire, & Elford, 2000) or the misuse of prescription drugs in general (Benotsch, Martin, Koester, Cejka, & Luckman, 2011; Kelly & Parsons, 2010, 2013; Mackesy-Amiti et al., 2009; Mackesy-Amiti, Fendrich, & Johnson, 2010). Among the latter is evidence of increased sexual risk behavior among MSM who misuse prescription drugs, compared to MSM who do not (Benotsch et al., 2011; Kelly & Parsons, 2013).

While not specific to MSM, research finds that the misuse of prescription drugs is associated with the use of a variety of additional substances (Lankenau, Schrager, et al., 2012; Wu, Woody, Yang, & Blazer, 2012). Multidrug use, including prescription drugs, has also been evidenced among MSM, where prescription drug misusers were significantly more likely to report recent use of other drugs including cocaine, ecstasy, methamphetamine, and heroin, in

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addition to increased sexual risk behavior (Benotsch et al., 2011). Perhaps the most alarming finding from that study was that opioid analgesics were the most commonly misused prescription drug (Benotsch et al., 2011). Prescription opioids are Schedule II controlled substances with high abuse potential (Wu et al., 2012), are highly addictive (SAMHSA, 2006), and are the class of drug most often associated with drug mortality (Benotsch et al., 2011). Kelly and Parsons (2013) found that about 11% of prescription drug misusing MSM reported recent use of pain killers. Further, a study of methamphetamine-using MSM, found that 4.2% of participants also reported misusing the prescription opioid, OxyContin®(Halkitis, Moeller, Siconolfi, Jerome, & Rogers, 2008). To date, these are the only apparent articles in the literature that describe prescription opioid misuse among MSM, even though the misuse of prescription opioids in the United States has been escalating since the early 1990s (SAMHSA, 2012; SAMHSA, 2011).

Much of the literature examining health and social disparities among MSM suggests that greater rates of substance use (Cochran & Mays, 2008), arrest history (Kurtz, 2008), victimization (Herek & Sims, 2008; Purcell, Patterson, & Spikes, 2008), and mental distress (Cochran & Mays, 2008; Mills et al., 2004) are present among this population compared to other men. Moreover, many of these health and social problems have been found to be associated with the misuse of prescription opioids as well. Samples of chronic pain patients, street-based substance users, MSM, and opioid-dependent treatment clients report problems related to mental distress (Cicero, Surratt, Kurtz, Ellis, & Inciardi, 2012; Pergolizzi Jr. et al., 2012), other substance abuse (Cicero et al., 2011; Cicero et al., 2012; Pergolizzi Jr. et al., 2012), legal issues and the law (Kurtz, 2008; Pergolizzi Jr. et al., 2012), victimization (Pergolizzi Jr. et al., 2012; Surratt, Inciardi, & Kurtz, 2006), and hepatitis A, B, or C infection (Strassels, 2009).

The growing epidemic of prescription opioid misuse and related problems can be in part attributed to increased prescribing, availability, accessibility, and accepted medical use (Hasan & Hasan, 2011; Lankenau, Teti, et al., 2012; McCabe, Teter, & Boyd, 2006). The National Survey of Drug Use and Health found that the numbers of new, non-medical users of prescription opioids increased from 600,000 in 1990 to 2 million in 2010. Among individuals ages 12 and over, 17.3% reported first-time substance use with an prescription opioid in 2010 and prescription opioids had the second largest number of past year initiates following marijuana (SAMSHA, 2011). Drug Abuse Warning Network data also reflect these increases, with abuse-related emergency department visits involving prescription opioids increasing by 156% between 2004 and 2011 (Center for Behavioral Health Statistics and Quality, 2012). Similar increases are reflected in drug abuse treatment admissions data, with past year admissions for prescription opioids increasing from 360,000 in 2002 to 754,000 in 2010 (SAMSHA, 2011).

Further exacerbating the problem of prescription opioid misuse is that non-oral routes of administration have been documented in several populations (Davis & Johnson, 2008; Havens, Walker, & Leukefeld, 2007; McCabe, Boyd, Cranford, & Teter, 2009; McCabe, Cranford, Boyd, & Teter, 2007; Young, Havens, & Leukefeld, 2010). Such alternative routes of administration, such as injection, allow for faster drug delivery and onset, creating more intensified effects and increased abuse liability (Budman, Grimes Serrano, & Butler, 2009). Injection of prescription opioids also facilitates transmission of HIV (Surratt, Kurtz, & Cicero, 2011). While no studies of non-oral routes of prescription drug abuse among MSM are apparent in the literature, research shows injection drug use (IDU) is not uncommon among MSM and that the most commonly injected substances are methamphetamine and cocaine (Ghanem et al., 2011; Gorman & Carroll, 2000; Ibañez, Purcell, Stall, Parsons, & Gómez, 2005; O'Connell et al., 2004; Semple, Strathdee, Zians, & Patterson, 2012; Stall & Purcell, 2000).

These findings demonstrate the need to further investigate the problem of prescription opioid misuse and related health and social problems among high risk MSM. Because literature suggests that MSM are more likely to misuse prescription drugs than other men (Kelly & Parsons, 2013), it is not implausible that this population would also have higher rates of prescription opioid misuse than men in the general population. With this in mind, and because of the severity of health and social problems that are generally associated with prescription opioid misuse, we sought to examine predictors of prescription opioid misuse among a sample of high risk substance-using MSM in South Florida.

METHODS

Data are drawn from baseline assessments of 515 MSM participating in a risk reduction intervention trial conducted in the Miami-Ft. Lauderdale Metropolitan Area. The study is a randomized clinical trial testing the efficacy of a four-session small group discussion intervention compared to a single-session individual counseling condition, both of which are based on theories of resilience and psychological empowerment (Fergus & Zimmerman, 2005; Zimmerman, 1995). Participants were recruited into the study between November 2008 and October 2010. Multiple recruitment methods were employed, including direct outreach, participant referral, and internet and print media. Eligible men were between the ages of 18 and 55; reported recent (past 90 days) unprotected anal intercourse (UAI) with a non-monogamous partner(s); and met one or more of three substance use inclusion criteria: binge drinking (5 or more drinks) or drug use, excluding marijuana, at least three times in the past month; or using marijuana on 20 or more days in the past month. Research protocols were approved by the University of Delaware's (predecessor institution) and Nova Southeastern University's Institutional Review Boards.

Site

The Miami-Ft. Lauderdale metropolitan area is a well-known migration destination for MSM, with the second highest ratio of same-sex households among large metropolitan areas in the nation (Smith & Gates, 2001, August 22). Further, Florida has been at the center of the nation's prescription opioid epidemic for the past decade, leading the nation in numbers of illegitimate pain clinics (Gillette, 2012; Hall, 2012). Prior to new legislation in 2011 designed to better control the distribution and prescribing of prescription opioids, 90 of the nation's top 100 oxycodone-purchasing doctors resided in Florida (Gillette, 2012). In addition, Miami reports the highest AIDS rates and HIV incidence in the U.S. (Centers for Disease Control and Prevention, 2009) and almost half (45%) of HIV-positive MSM in a recent Miami study were unaware of their infection (CDC, 2010).

The project was housed in two field offices, one in Wilton Manors, a suburb of Ft. Lauderdale and one in Miami Beach. Each participant was screened for eligibility, followed by informed consent and enrollment and locator data collection. Men reporting HIV-negative status were also offered confidential testing. The baseline interview session was scheduled about two weeks from enrollment, so that HIV test results could be given to men who elected testing during the same visit. All interviews were conducted in private offices using computer-assisted face-to-face interviews. Participants received HIV and drug education literature, condoms, and a $50 stipend upon completion of the baseline activities. Baseline interviews lasted about two hours.

Measures

The primary instrumentation for the interviews was the Global Appraisal of Individual Needs (GAIN) which has eight core sections (demographics, substance use, physical health, risk behaviors, mental health, environment, legal involvement and vocational attainment),

with each containing questions on the recency of problems, breadth of symptoms, and recent health behavior frequencies in days or times (Dennis, 2006).

Substance use measures included past 90 day frequency of use of each substance, including the non-medical use of prescription opioids, specifically asking, “In the past 90 days, how many days did you use a prescription painkiller, opioid, or analgesic not as prescribed?”. Substance dependence was assessed by the endorsement of three or more of seven Diagnostic and Statistical Manual of Mental Disorders, 4th edition, revised (DSM-IVR) symptoms during the past year (e.g., needing more drug to get the same effect, experiencing withdrawal symptoms, being unable to quit or cut down).

An extensive battery of sexual behavior questions specific to MSM included past 90 day frequencies of receptive and insertive UAI. Because study eligibility criteria included UAI during the past 90 days, sexual risk behavior measures were dichotomized at the 66th percentile to divide the sample into higher and lower risk subgroups in these analyses. Participant HIV status was assessed by self report, and seropositivity was verified with a notice of diagnosis or antiretroviral prescription.

Mental distress was assessed using the General Mental Distress Scale (GMDS), which is comprised of past year DSM-IVR symptom counts for depression (9 items), anxiety (12 items), and somatic disorders (4 items). This scale is reducible to classifications indicating clinical significance (subclinical, moderate and severe) (Dennis, 2006) and was further dichotomized in the analyses presented here into “severe” and “not severe.” Alpha reliability coefficients for the depression, anxiety, and somaticism subscales in this study were 0.822, 0.829, and 0.706, respectively.

Victimization was assessed by affirmative responses to the following events: being attacked with a weapon or being beaten so as to cause bruises, cuts or broken bones (physical abuse); being forced to participate in sexual acts against one’s will (sexual abuse); or being made to feel very bad about oneself or one’s life (emotional abuse). For analysis, we used a summary measure: any lifetime abuse vs. no abuse.

Lifetime counts of substance abuse treatment were assessed with the question, “How many times in your life have you been admitted to detox, treatment, or counseling for your use of alcohol or any drugs?”. Arrest history was assessed with the question, “In your lifetime, how many times have you been arrested, charged with a crime and booked?”. Health care coverage was assessed with the question, “Are your medical expenses covered by any type of insurance, court, or health program?”. Drug injection history was assessed with the following question, “When was the last time (if ever) that you used a needle to inject drugs (including steroids)?”.

Data Analyses

All analyses were conducted using IBM SPSS Statistics version 20. Descriptive statistics for the entire study sample were calculated for the variables of interest including demographics, substance use, sexual risk behavior, and health and social characteristics. Bivariate logistic regression models were constructed to predict recent prescription opioid misuse. Potential predictors included in the bivariate models included demographics, other drug use, sexual risk behavior, and health and social characteristics. Those measures that exhibited significant associations in the bivariate models were included in a multivariate logistic regression model.

RESULTS

Demographics and substance use characteristics of the sample are shown in Table 1. The racially/ethnically diverse sample was 25.8% Hispanic (*N*=133), 21.0% African American/ Black (*N*=108), 48.5% Caucasian (*N*=250) and 4.7% "other" race/ethnicity (*N*=24). The mean age was 38.93 (SD=9.64) years. Sixteen or more years of education were reported by 32.0% (*N*=165), 26.0% (*N*=134) reported being employed full-time, and 62.7% (*N*=323) had health care coverage.

Participants reported using a host of substances during the past 90 days. A majority of participants reported binge drinking (81.7%; *N*=421) and marijuana use (65.2%; *N*=336). The use of stimulant and club drugs was also prevalent in the sample, with participants reporting the use of powder cocaine (44.9%; *N*=231), crack cocaine (20.2%; *N*=104), methamphetamine (25.6%; *N*=132), and ecstasy (18.1%; *N*=93) in the past 90 days. Smaller numbers of participants reported the use of heroin (2.9%; *N*=15), and GHB (14.0%; *N*=72). The class of prescription drugs most commonly misused was sedatives (34.4%; *N*=177), followed by opioids (25.0%; *N*=129), and stimulants (5.2%; *N*=27). IDU during the past year (15.9%; *N*=82) and during the past 90 days (12.8%; *N*=66) was also reported.

During the past 90 days, participants reported a mean of 13.25 (SD 18.58) sex partners and 22.58 (SD 35.41) UAI frequency. Almost half the sample (48.5%; *N*=250) reported HIV-positive serostatus. A number of men met criteria for substance dependence (62.1%; *N*=320), reported substance abuse treatment history (38.4%; *N*=198), met criteria for severe mental distress (57.9%; N=298), or reported victimization (80.2%; *N*=413), or arrest histories (64.5%; *N*=332).

Bivariate logistic regression models predicting recent prescription opioid misuse are shown in Table 2. No significant associations with prescription opioid misuse were found with regard to race/ethnicity or age. Past 90 day binge drinking (OR=2.938; 95% CI=1.513, 5.707; p=0.001) and the use of powder cocaine (OR=2.329; 95% CI=1.546, 3.501; p<0.000), crack cocaine (OR=1.810; 95% CI=1.137, 2.883; p=0.012), or heroin (OR=6.403; 95% CI=2.146, 19.104; p=0.001) predicted higher odds of prescription opioid misuse, as was IDU (OR=2.023; 95% CI=1.175, 3.483; p=0.011). No measure of sexual risk behavior proved significant, nor did HIV status. However, several health and social characteristics were associated with higher odds of prescription opioid misuse, including substance dependence (OR=2.911; 95% CI= 1.820, 4.656; p<0.000), prior substance abuse treatment (OR=1.932; 95% CI=1.290, 2.894; p=0.001), severe mental distress (OR=1.718; 95% CI=1.130, 2.613; p=0.011), victimization (OR=1.860; 95% CI=1.058, 3.270; p=0.031), and history of arrest (OR=2.289; 95% CI=1.444, 3.629; p<0.000).

Significant predictors from the bivariate logistic regression models, in addition to demographics and HIV status, were combined into a multivariate model predicting recent prescription opioid misuse, shown in Table 3. No significant associations with prescription opioid misuse were found with regard to demographics. Substance use measures of recent binge drinking (OR=2.473; 95% CI=1.777, 5.198; p=0.017), cocaine use (OR=1.944; 95% CI=1.220, 3.095; p=0.005), and drug injection (OR=2.197; 95% CI=1.119, 4.312; p=0.022) predicted higher odds of prescription opioid misuse during the past 90 days. HIV-positive serostatus was associated with lower odds of prescription opioid misuse during the past 90 days. Substance dependence (OR=2.150; 95% CI=1.253, 3.689; p=0.005) and lifetime history of arrest (OR=1.860; 95% CI=1.100, 3.144; p=0.020) also predicted higher odds of prescription opioid misuse during the past 90 days.

DISCUSSION

Our analyses from a diverse sample of high risk substance-using MSM showed that race/ethnicity and age were not associated with recent prescription opioid misuse. This contrasts with previous research that documents higher rates of prescription drug misuse among older MSM (Kelly & Parsons, 2010; Mackesy-Amiti et al. 2010) and Caucasian/White individuals in populations of MSM, college students, substance abuse treatment clients, illicit drug users, and the general population (Benotsch et al., 2011; Cicero, Inciardi, & Muñoz, 2005; Kelly & Parsons, 2010; McCabe et al., 2006; Miller & Greenfeld, 2004; Simoni-Wastila, Ritter, & Strickler, 2004; Vivian, Saleheen, SInger, Navarro, & Mirhej, 2005). This divergence may be due to a broader distribution of prescription opioid misuse among heavy drug users, like those in our sample.

Prescription opioid misuse was associated with other substance use including binge drinking, cocaine (both powder and crack), heroin, and drug injection. Though our data do not allow us to examine whether prescription opioids were used in combination with other substances, doing so is not an unexceptional practice, and in such instances it is likely that prescription opioids are used to moderate the effects of stimulant drugs (Kurtz, 2004). Polydrug use, and especially the combination of illicit and prescription drugs is a dangerous practice (Kurtz, Inciardi, Surratt, & Cottler, 2005) and can be even more so when drugs are injected (Havens, Oser, & Leukefeld, 2011; Lankenau, Teti, et al., 2012; Roy, Arruda, & Bourgois, 2011; Young et al., 2010). Prescription opioid misuse was associated with recent IDU. Increased risk for HIV and hepatitis C (HCV) infection due to unsafe injection practices among prescription opioid misusers is a documented concern (Surratt et al. 2011). Such a scenario increases the risk exposure for an already vulnerable population.

In the multivariate model, recent prescription opioid misusers in our sample had lower odds of being HIV-positive. Although at odds with other research, this finding coheres with results of the bivariate logistic regression models which indicated that prescription opioid misusing MSM were not more likely to report greater numbers of sex partners or UAI frequency. Evidence demonstrates an association between the misuse of prescription drugs in general and increased sexual risk behavior among MSM (Benotsch et al., 2011; Kelly & Parsons 2013; Mackesy-Amiti et al., 2010). However, these studies were conducted with community samples and a household survey, which most likely did not include high risk heavy substance-using MSM, as did our sample. Further, in addition to analgesic properties, individually varying adverse effects of prescription opioids include sedation, respiratory depression, and somnolence (Angst et al., 2012). As a result, reports of increased sexual risk behavior among prescription opioid misusers are not apparent in the literature.

Though the high risk prescription opioid misusing MSM in our sample did not have higher odds of being HIV-positive, the association between recent prescription opioid misuse and IDU is worrisome. Our data highlight the need to further examine HIV and HCV risk among high risk heavy substance-using MSM, in order to better elucidate specific risk factors for HIV transmission related to both sexual risk behavior and IDU. In the meantime, HIV and HCV prevention and intervention initiatives should be directed toward all high risk MSM, especially those who report alternate routes of administration of prescription opioids, such as injection.

MSM in our sample reporting recent prescription opioid misuse did have higher odds of reporting substance dependence, substance abuse treatment history, severe mental distress and social risks such as histories of victimization and arrest than men who did not misuse prescription opioids. These findings reveal that even among heavy substance-using MSM, those who misuse prescription opioids are more likely to experience a host of additional

health and social problems than MSM who do not misuse prescription opioids. This finding is important because, while substance use in general is associated with many risk factors, the odds of experiencing some of these health and social problems is greatly increased with the misuse of prescription opioids. Conversely, high risk MSM with health and social problems may misuse prescription opioids as a means of self-medication or as a coping behavior. Regardless of the interpretation, the association between prescription opioid misuse and elevated health and social problems among high risk substance-using MSM is a valuable addition to the public health literature. These findings directly respond to observations that targeted and appropriate responses to prescription opioid misuse require an understanding of both the reasons for this public health problem and the unique patterns of prescription opioid misuse among specific populations (Gilson, Ryan, Joranson, & Dahl, 2004; Surratt et al., 2006).

These results should be viewed within the context of several limitations. Although the recruitment procedures resulted in a sample of a wide age range and broadly inclusive of the racial/ethnic makeup of South Florida, our ability to generalize the findings to other MSM is limited by the study eligibility requirements, including regular substance use and recent UAI. We also note that all data are based on self-report, potentially leading to underreporting of socially undesirable behaviors. Given the high levels of substance use and sexual risk behaviors we found, however, underreporting of these and other stigmatized behaviors would appear to be uncommon. Finally, the cross-sectional nature of the data limits our ability to make causal inferences among the key variables.

CONCLUSION

This is the first research report to specifically investigate prescription opioid misuse among high risk MSM. While several studies have investigated prescription drug misuse among MSM, they have largely found associations with sexual risk behavior (Benotsch et al., 2011; Kelly & Parsons, 2013). Our findings advance this research and demonstrate that a host of other risk factors related specifically to prescription opioid misuse. While we found no evidence of increased sexual risk behavior among recent prescription opioid misusers in our sample, data from this study suggest that men who binge drink and/or use cocaine are more likely to misuse prescription opioids. Risks related to substance dependence and drug injection could lead to additional health problems for these men, with some of the most dangerous and immediate risks being the development of prescription opioid addiction, experiencing dangerous interactions between several substances, drug overdose or death, and HIV and HCV infection (Benotsch et al., 2011; Cai, Crane, Poneleit, & Paulozzi, 2010; CDC, 2012; Hagan, Thiede, & Des Jarlais, 2004; Miller et al., 2002; Paulozzi, Budnitz, & Xi, 2006).

Because literature suggests that MSM are more likely to misuse prescription drugs than other men, it would appear likely that prescription opioid misuse among this population is a growing problem. Given the dangers of prescription opioid misuse and the alarming number of past year initiates (CBHSQ, 2012), especially among young people (SAMHSA, 2011), more attention should be paid to this public health crisis. Health care providers, especially those who serve MSM, are encouraged to inquire about patient misuse of prescription opioids and related health and social problems. Moreover, physicians prescribing opioids should engage in careful patient monitoring and frequent reassessment of risk factors (Pergolizzi Jr. et al., 2012), especially for heavy substance-using MSM. Risk reduction, mental health, and case management interventions are needed to address the misuse of prescription opioids, the use of other drugs and IDU, as wells as social risks, such as victimization and arrest history. Future research should investigate the initiation of

prescription opioid misuse among MSM in order to bolster education and prevention efforts in this population.

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Table 1

Description of Study Sample (*N*=515)

	N	*%*
Race/Ethnicity		
Hispanic	133	25.8%
African American/Caribbean	108	21.0%
Caucasian/White	250	48.5%
Other	24	4.7%
Age (mean; SD)	38.93	(9.64)
Education (16 or more years)	165	32.0%
Employed full-time	134	26.0%
Health care coverage	323	62.7%
Substance use (past 90 days)		
Binge drinking	421	81.7%
Marijuana	336	65.2%
Powder cocaine	231	44.9%
Rx Sedatives	177	34.4%
Methamphetamine	132	25.6%
Rx Opioids	129	25.0%
Crack cocaine	104	20.2%
Ecstasy	93	18.1%
Gamma hydroxybutyrate	72	14.0%
Rx Stimulants	27	5.2%
Ketamine	15	2.9%
Heroin	15	2.9%
Drug injector (past year)	82	15.9%
Drug injector (past 90 days)	66	12.8%
Sexual risk behavior (past 90 days)		
Partners	13.25	(18.58)
UAI Times	22.58	(35.41)
Health and Social Characteristics		
HIV-positive	250	48.5%
Substance dependence	320	62.1%
Substance abuse treatment history	198	38.4%
Severe mental distress	298	57.9%
Victimization history	413	80.2%
Arrest history	332	64.5%

Table 2

Bivariate logistic regression models predicting past 90 day Rx opioid misuse (N=515)

	p	OR	95% CI
Demographics			
Hispanic	0.591	0.881	0.554, 1.399
African American/Black	0.793	0.936	0.571, 1.534
Caucasian/White	0.274	1.250	0.838, 1.863
Other race/ethnicity	0.335	0.774	0.460, 1.302
Age(<30 years)	0.335	0.774	0.460, 1.302
Drug Use (past 90 days)			
Binge drinking	0.001	2.938	1.513, 5.707
Cocaine	0.000	2.329	1.546, 3.501
Crack cocaine	0.012	1.810	1.137, 2.883
Methamphetamine	0.168	1.365	0.877, 2.125
Ecstasy	0.475	1.202	0.726, 1.990
Heroin	0.001	6.403	2.146, 19.104
Drug injection	0.011	2.023	1.175, 3.483
Sexual risk behavior (past 90 days)			
Partners[a]	0.761	1.067	0.702, 1.623
UAI times[a]	0.774	0.940	0.615, 1.436
Insertive UAI times[a]	0.736	0.931	0.613, 1.413
Receptive UAI times[a]	0.141	1.403	0.894, 2.202
Health and Social Characteristics			
HIV-positive	0.347	0.825	0.553, 1.232
Substance dependence[b]	0.000	2.911	1.820, 4.656
Substance abuse treatment history	0.001	1.932	1.290, 2.894
Severe mental distress[b]	0.011	1.718	1.130, 2.613
Victimization history	0.031	1.860	1.058, 3.270
Arrest history	0.000	2.289	1.444, 3.629

[a] 66th percentile

[b] Past 12 months

Table 3

Multivariate logistic regression models predicting past 90 day Rx opioid misuse (N=515)

	p	OR	95% CI
Hispanic	0.429	0.795	0.450, 1.404
African American/Black	0.129	0.624	0.339, 1.148
Other race/ethnicity	0.201	0.448	0.131, 1.535
Age (<30 years)	0.218	0.682	0.371, 1.254
Binge drinking[a]	0.017	2.473	1.177, 5.198
Powder cocaine[a]	0.005	1.944	1.220, 3.095
Crack cocaine[a]	0.814	1.075	0.590, 1.957
Heroin[a]	0.126	2.641	0.767, 9.099
Drug injection[a]	0.022	2.197	1.119, 4.312
HIV-positive	0.040	0.604	0.374, 0.978
Substance dependence[b]	0.005	2.150	1.253, 3.689
Substance abuse treatment history	0.512	1.180	0.719, 1.935
Severe mental distress[b]	0.460	1.202	0.738, 1.960
Victimization history	0.420	1.293	0.692, 2.418
Arrest history	0.020	1.860	1.100, 3.144

[a] Past 90 days

[b] Past 12 months