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Risk factors for suicidal ideation in a population of community-recruited female cocaine users

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Abstract

Introduction—Suicide, as the 11th leading cause of death in America, is a significant public health concern. Previous studies have shown that drug users are a population at especially high risk for suicidal ideation. Although most people who think about killing themselves do not ultimately commit suicide, identifying those at risk for such thoughts is important.

Methods—In this analysis, data from a sample of 462 cocaine-using women (87% African-American) recruited using street-outreach methods for a National Institute on Drug Abuse funded study were examined to identify risk factors for lifetime suicidal ideation. Sociodemographic factors, adverse childhood experiences, sexual behaviors, psychiatric comorbidities, and drug abuse and dependence were examined as potential risk factors, using both bivariate and logistic regression analysis.

Results—50% of the sample met at least one criterion for lifetime suicidal ideation and 32% of the sample reported a lifetime suicide attempt. In the final logistic regression model, childhood physical abuse, childhood sexual abuse, rape after the age of 15, post-traumatic stress disorder, and number of DSM-IV depression criteria met emerged as significant independent predictors of lifetime suicidal ideation.

Conclusion—These findings identify important risk factors for suicidal ideation among female substance abusers in community settings.

INTRODUCTION

Suicide and suicide attempts are a major cause of morbidity and mortality in the United States and around the world. In 2006, suicide was the 11th leading cause of death in the United States. In women, it was the 16th leading cause of death across all ages, making up 0.6% of total deaths. In younger age groups, suicide accounts for a much larger percentage of deaths, with suicide being the 3rd leading cause of death among females in the 15–24 age range, and the 4th leading cause among females in the ranges of 25–34 and 35–44 years of age (1). Although most people who think about killing themselves do not ultimately commit suicide, identifying those at risk for such thoughts is important. SAMHSA, based on data from their National Survey on Drug Use and Health (NSDUH), estimated that in 2008, 8.3 million adults aged 18 or older had serious thoughts of suicide and 1.1 million adults

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attempted suicide, representing 3.7% and 0.5%, respectively, of the American adult population (2).

Drug users and those with drug use disorders are at especially high risk for suicidal thoughts and behaviors. Recent studies have linked a wide range of substances with increased incidence of suicidal ideation (SI), suicide attempt (SA), and completed suicide (3–6). The 2008 NSDUH found that 11.0% of respondents with a substance use disorder in the past year reported serious suicidal thoughts in the past year compared to 3.0% of those without a substance use disorder, and 2.0% of respondents with a past year substance use disorder made a suicide attempt in the past year, compared to 0.3% of respondents without a substance use disorder (2). Importantly, Borges et al. (7) found that current drug users, even when they do not meet criteria for abuse or dependence, are at significantly increased risk for suicide attempt. Cocaine use in particular has been implicated as a major risk factor (8, 9). In a retrospective analysis of patients seen in the chemical dependency unit of a major urban Psychiatric Emergency Service, it was found that a cocaine use disorder was more predictive of suicidal ideation than any other substance use disorder (10). Evidence is also being accumulated on the role that substance abuse plays in the suicidal act itself. In a toxicologic study of non-overdose suicides, Darke (11) found that substances were detected in the bloodstream of two-thirds of suicide victims, and multiple substances were detected in 25% of the cases. A follow-up study of drug abusers admitted for drug detoxification in Sweden found that 45% of participants had attempted suicide over the five-year follow-up period (12).

Recently, research has confirmed the association between adverse childhood events and lifetime suicidal ideation and behavior (13, 14). In a study of 1280 recently abstinent alcohol, cocaine, or opiate dependent individuals, higher scores on the Childhood Trauma Questionnaire were significantly associated with a larger number of suicide attempts, as well as an earlier age of first suicide attempt (15). In a study of African American crack cocaine users from both treatment and community settings, adverse childhood experiences of maternal death and sexual abuse were found to be significant predictors of overall suicidality (16). Further, in a study of cocaine-addicted patients, those who reported parental neglect and a poor perception of their parenting demonstrated significantly higher levels of depression and aggressiveness, which may put individuals at risk for self-harm, compared to those who reported good parenting (17).

Adult sexual experiences, drug use, and suicidality have also been found to be interrelated. A recent study of over 1600 women entering drug treatment found that over half of them reported prostitution in their lifetime, with 41% of these reporting a lifetime SA (18). A comparison study of drug-users both with and without sex trading histories in Glasgow, Scotland found that sex traders were more likely to have attempted suicide (OR = 1.7) (19). Other studies of women in New York found significantly higher levels of psychological distress among sex traders compared to non-sex traders (20, 21). Another important risk factor that has been linked to SI and SA in women is a history of coerced sex, rape, and sexual assault (22, 23).

Despite a research focus on the correlates of suicidal behavior in drug-using populations, some of the studies have significant gaps. For example, many studies of suicidal behavior in drug-using populations are conducted in treatment settings or recruit patients who are in treatment. Additionally, studies have not allowed for a comprehensive simultaneous evaluation of multiple risk factors. A previous analysis of out-of-treatment drug users in St. Louis found that women who had never been married were less likely to report lifetime suicidal ideation, while older age, alcohol abuse or dependence, and number of depression criteria met positively predicted suicidal ideation (24).

The current analyses draw on data from community-recruited women who were enrolled in an intervention aimed at reducing HIV risk behaviors. Because of the breadth of the information gathered for the purposes of assessing the baseline characteristics of these at-risk women and the outcome of the intervention, we were able to examine multiple risk factors for suicidal ideation in this sample. Specifically, we evaluated the effect of sociodemographic factors, adverse childhood and adult experiences, drug use, abuse, and dependence, and psychiatric disorders on suicidal ideation among cocaine-using women. We hypothesized that severity of crack cocaine use, presence of adverse childhood experiences, and high risk sexual behaviors would predict suicidal ideation, net of other high risk behaviors. The richness of the data collected and the use of a community-recruited sample, we felt, would fill an important gap in the literature.

METHODS

Study Description

Data for these analyses came from the Women Teaching Women (WTW) study, a NIDA-funded intervention aimed at reducing high risk drug and sexual behaviors in out-of-treatment drug using women in St. Louis. WTW was approved by the Washington University Human Research Protection Office (WU-HRPO). Women were recruited by community health outreach workers using street-outreach methods, including street intercepts, referrals from the St. Louis City Female Drug Court, local service agencies, peers, flyers placed in local businesses, and advertisements in local newspapers. Initial screening identified women over the age of 18, who reported sexual activity in the past 4 months, who reported cocaine, opiate, or amphetamine use, and who lived in the St. Louis Metropolitan area. Women eligible at this stage were referred to a second screening at one of two NIAAA/NIDA funded storefront satellite health screening sites, called HealthStreet. At this point, a WU-HRPO-approved informed consent form was administered to and signed by participants, and a urine sample was tested for amphetamine, cocaine, opiates, and THC. Out of 944 women initially screened for this study, 168 were unable to be located, 192 women did not show up for their appointment, and 83 were not interested, leaving 501 who screened positive for amphetamine, cocaine, or opiates and completed their baseline interviews. These data were available because the team tracked the efforts and outcomes of all contacted women.

After enrollment in the study, baseline assessments (described below) were administered over the course of two sessions. Following the first interview session, participants met with a peer facilitator for the NIDA Standard HIV Intervention and a blood draw for an HIV test. Test results were delivered after the second interview session, along with the NIDA HIV post-test standard intervention. Participants were then randomized into one of 3 intervention groups: either 1) the NIDA Standard Intervention alone, 2) the standard intervention and a well woman exam (WWE), or 3) the standard intervention, WWE, and four peer-delivered educational sessions. Participants were reassessed at 4- and 12-month follow-up intervals, in order to assess changes in targeted behaviors. Only data from the baseline interviews were used in these analyses. Since cocaine use disorders, a variable used in these analyses, are conditional upon exposure to cocaine, only women who reported lifetime cocaine use were used in this analysis, which reduced the sample size from 501 to 462.

Assessments

Lifetime drug use and dependence was assessed using the Substance Abuse Module (SAM) (25). Drug use was defined as having used a drug 5 or more times in the respondent's lifetime. Drug abuse or dependence was defined in accordance with DSM-IV criteria. The reliability of the SAM has been previously established (26).

History of sex trading was elicited using the Washington University Risk Behavior Assessment for Women (WU-RBA-W), modeled after the NIDA Cooperative Agreement RBA (27). Sex trading was defined as having ever traded sex of any kind or “tricked” to get drugs, alcohol, money, food, a place to stay, or clothes. History of physical and sexual childhood abuse and rape after age 15 were obtained from the Violence Exposure Questionnaire (VEQ), a self-developed questionnaire based on the work of McFarlane et al. (28). Questions of childhood sexual victimization (i.e., being kissed or touched in a sexual way when unwanted, being forced to kiss or touch in a sexual way, and being forced to have sexual intercourse, each before the age of 15) were combined into one dichotomous variable of childhood sexual victimization, for analysis. Sociodemographic characteristics were also obtained using items from the SAM and the WU-RBA-W.

Psychiatric comorbidities and suicidal ideation were assessed by the Computerized Diagnostic Interview Schedule Version IV (C DIS-IV) (29). The validity and reliability of earlier versions of the DIS have been previously established (30). Lifetime suicidal ideation was assessed by four questions from the depression section of the DIS: “Has there ever been a period of time when you thought about committing suicide?”, “Did you ever try to end your own life, whether or not you had thought about it ahead?”, “Did you often believe it would be better if you were dead?”, and “Did you think about committing suicide during a period of depressed mood?” The latter two questions were only asked of people who said they had had two weeks or more when they felt sad, empty, or depressed or had lost interest in most things. A positive response to any of these 4 questions was interpreted as positive lifetime suicidal ideation (SI).

RESULTS

As shown in Table 1, while 50% of the sample met at least 1 criterion for lifetime SI, 32% reported a SA at some point in their lifetime. Although not shown, 63% of the women who met criteria for lifetime SI reported having made a SA.

In terms of sociodemographic factors, the ideators did not differ greatly from non-ideators. As shown in table 2, women who reported a lifetime SI, compared to women who didn't, were significantly less likely to report never having been married (58% vs. 67%), but significantly more likely to be homeless (35% vs. 25%) at the time of interview. The great majority of women were African American (85% of ideators, 89% of non-ideators).

As shown in table 3, ideators significantly differed from non-ideators in several areas of drug use and drug use disorders. While all participants had reported a lifetime history of cocaine use, suicidal ideators were significantly more likely than non-ideators to meet DSM-IV criteria for cocaine abuse or dependence (89% vs. 74%) and alcohol abuse or dependence (75% vs. 58%). While female ideators were significantly more likely than non-ideators, to report lifetime use of opiates (29% vs. 17%), they were not more likely to meet criteria for opiate abuse or dependence. In contrast, though no significant difference in lifetime marijuana use between groups existed, ideators were significantly more likely than non-ideators to meet DSM-IV criteria for marijuana abuse or dependence (43% vs. 28%). Ideators were also significantly more likely to report lifetime use of stimulants (18% vs. 10%), PCP (18% vs. 11%), and having injected drugs (21% vs. 12%). Ideators had a small but statistically significant difference in the mean number of drugs used in their lifetime, net of cocaine (1.7 vs. 1.3).

As shown in table 4, suicidal ideators were about 4 times as likely as non-ideators to meet DSM-IV criteria for major depressive disorder (MDD) (60% vs. 13%). The ideators met 4 times as many depression criteria as the non-ideators (4.7 vs. 1.2). They were also

significantly more likely to meet each of the individual DSM-IV criteria. Suicidal ideators were also found to be significantly more likely to meet full DSM-IV criteria for antisocial personality disorder (ASPD) (18% vs. 9%) and post-traumatic stress disorder (PTSD) (51% vs. 15%).

There were also significant differences between groups in reported sex behaviors, adverse childhood experiences, and sexual assault. As shown in Table 5, ideators were significantly more likely to report having ever traded sex for drugs, alcohol, money, food, shelter, or clothes (67% vs. 51%). Ideators were more likely to report absence of their biological mother (36% vs. 21%) or biological father (70% vs. 50%) for a period of greater than 6 months, before they were 15 years old. Ideators were also significantly more likely than non-ideators to report, before the age of 15, having been physically beaten by a parent or legal guardian so that medical attention was required (15% vs. 4%), forced to have sexual intercourse (36% vs. 11%), forced to touch or kiss someone in a sexual way against their will (42% vs. 14%), and kissed or touched by someone in a sexual way against their will (52% vs. 18%). These last three variables were highly correlated and were thus combined into one variable called Childhood Sexual Victimization. Ideators were also significantly more likely to report having been raped after the age of 15 (69% vs. 28%).

In order to measure which elements made an independent contribution to the lifetime risk of SI, a multiple logistic regression model (shown in Table 6) was constructed in a stepwise manner. Age was controlled for at each stage. The initial model included only demographic factors. In this model, never having been married and homelessness were significant predictive factors for SI. These significant variables, as well as age, were then combined with variables of adverse childhood events and rape after the age of 15. From this model, childhood physical abuse by a parent, childhood sexual victimization, and rape after the age of 15 emerged as significantly associated with SI, while marital status and homelessness dropped out. In the third stage of the model, childhood physical abuse, childhood sexual victimization, and adult rape remained significant while cocaine abuse or dependence became significant.

The final model added psychiatric predictors of history of ASPD, PTSD, and number of DSM-IV depression criteria. This showed (see Table 6) that women who reported childhood physical abuse at the hands of their parents were 2.52 times more likely to report SI, and those who reported some form of childhood sexual victimization were 2.51 times more likely to report SI, than those who had not. Women who had been raped after the age of 15 were 3.76 times more likely than their counterparts to report lifetime history of SI. Additionally, PTSD independently predicted SI with an odds ratio (OR) of 1.88. Number of depression criteria met also strongly predicted SI; for each criterion met, the participant's risk for lifetime SI increased by 1.32 times. Cocaine abuse or dependence just missed statistical significance (OR = 1.87) in this final model. Because of the multicollinearity of variables related to childhood trauma, adult rape and PTSD, we ran the final model without the victimization variables, but with PTSD. In this model, cocaine abuse/dependence was significant, and the OR for PTSD slightly increased.

Additionally, we constructed an alternate model where in the final step, we included a categorical variable for depressed mood, instead of number of depression criteria. In that model, all significant criteria, except for childhood physical abuse, remained significant, with cocaine abuse or dependence becoming significant with an OR of 1.95 (95% CI 1.05 – 3.60, $p = 0.0333$); presence of depressed mood increased the risk of SI by 3.81 times (95% CI 2.36 – 6.14, $p < 0.0001$).

DISCUSSION

This paper has presented an analysis of correlates of and risk factors for lifetime suicidal ideation in a population of cocaine-using women recruited through Community Health Workers in St. Louis. We examined a range of possible risk factors that have been previously identified as risk factors for SI, including sociodemographic characteristics, sexual risk and psychiatric and substance use symptoms and disorders.

Some of the strongest predictors of SI that emerged from our analyses were traumatic experiences, including physical and sexual abuse in childhood and sexual assault after the age of 15, even when controlling for sociodemographic factors, comorbid psychiatric disorders, and drug use disorders. These results are consistent with previous studies correlating suicidal behavior and childhood trauma. Kendler et al. (31) found that self-reported childhood sexual abuse put women at an increased risk for several psychiatric disorders. Rossow and Lauritzen (32) demonstrated a graded relationship between increasing number of areas of childhood adversity and both suicidal ideation and suicide attempts in a population of drug-addicted persons admitted for inpatient and outpatient treatment in Norway. Among a large cohort of 17,000 primary care clinic patients, Dube et al. (33) found that adverse childhood experiences increased the risk for one or more lifetime suicide attempts. In this cohort, the adverse childhood events that our analysis examined, physical abuse and sexual abuse, each had an OR of 3.4 in predicting a suicide attempt. Additionally, Molnar et al. (34), in analyzing data from the National Comorbidity Study, found that comorbid psychiatric disorders mediated but did not fully explain the relationship between childhood sexual abuse and suicide attempts, with 12% of serious attempts being attributable to rape and 7% to molestation. Our findings also confirm the multitude of findings linking rape to suicidality, a comprehensive review of which was recently conducted by Ullman (35). It is notable that sexual abuse both before and after the age of 15 acted as independent predictors of suicidal ideation in our analysis. There is conflicting data in the literature regarding this issue. One study of female undergraduates found that adult sexual victimization predicted suicidal ideation, while childhood victimization did not (36). In contrast, another study of female undergraduates found that childhood and not adult sexual victimization was associated with suicidal ideation (37). When considering these varying results, one must take into account that despite the line of distinction between childhood and adulthood that is necessarily imposed by research questionnaires, developmentally no such distinct line exists. Also, a large proportion of sexual assault victims report their first victimization as occurring during childhood or adolescence (38). Despite this, our results suggest that both adult and childhood sexual victimization should be assessed when evaluating potential for SI or SA.

Despite the literature linking substance abuse and dependence to SI, we did not find alcohol or cocaine use disorders to be significant independent risk factors for suicidal ideation, although bivariate analyses showed significantly more prevalent lifetime cocaine and alcohol use disorders among participants with SI, and in fact became a significant independent predictor when the number of depression criteria risk factor was replaced by depressed mood alone. A number of previous studies have shown a significant link between childhood sexual and physical abuse and later substance use (39–42). Although limited by a small sample size, Hyman et al. (43) found that among female cocaine users, there existed a positive association between severity of emotional abuse, emotional neglect, and overall maltreatment as children and severity of substance abuse over participants' lifetimes. A previous analysis of the data presented in the current analysis found by path analysis that women with a history of childhood victimization were specifically more likely to meet criteria for cocaine dependence as an adult (44). This direct association may account for the absence of cocaine abuse or dependence from the final logistic regression model.

Our finding that PTSD was a significant predictor of SI and SA in this population confirms recent findings of high rates of SI (45) and SA (4, 46, 47) in patients with primary substance use disorders with comorbid PTSD. Interestingly, both post-traumatic stress disorder and the traumatic events which were measured here, including childhood physical and sexual abuse and having been raped as adult, remained independent significant predictors of suicidal ideation. This finding appears to contradict a recent study by Wilcox et al. (48) which found that traumatic events that did not lead to the development of PTSD were not associated with an increased risk for suicide attempt. However, in a study of 335 African American women recruited from an inner city hospital, Thompson et al. (49) found that PTSD and five types of childhood maltreatment were independent predictors of suicide attempts. Further studies are needed to clarify the associations between trauma, PTSD, and suicidal ideation/attempts.

Joiner's (50) interpersonal-psychological theory of suicidal behavior would seem to at least partially explain why childhood physical abuse, childhood sexual victimization, and history of rape act as predictors of suicidal ideation and/or attempt, even when controlling for PTSD and other psychiatric comorbidities. Joiner's theory posits that individuals who die by suicide not only desire to kill themselves, as measured by perceived burdensomeness and social disconnectedness, but also have acquired the capacity to enact lethal self-injury. That is, through exposure to experiences that induce substantial pain and/or fear, habituation to such experiences occurs over time, resulting in a fearlessness of painful or fearful events, thus conferring the necessary capacity for lethal self-injury. This theory is consistent with Roy's (15) previously cited observation that higher childhood trauma scores were correlated with a higher number of suicide attempts and younger age of first attempt. Violence and abuse, if perpetrated by family members, may also contribute to feelings of social isolation, which according to the interpersonal-psychological theory is a crucial element of the desire to kill oneself. It is notable that in the current analysis, physical and sexual abuse were risk factors for lifetime suicidal ideation as a whole, which included suicide attempt in its definition.

There are several limitations to this analysis. Since the data collected here relied on retrospective self-report, confounding elements of recall bias may have been introduced. Also, because the baseline assessment of the WTW study was not designed to specifically look at suicidal behavior, questions of severity, age of onset, and number of incidents of suicidal thoughts and attempts were not able to be addressed.

Some of the perceived limitations of this study are also its greatest strengths. The fact that the study was not specifically focused on issues of SI is also a strength, as women may have felt more comfortable endorsing sensitive experiences without fear of stigmatization as part of a more general assessment. Also, because the questions came up after other high risk questions, the women may have felt more comfortable with the raters conducting the interviews and were willing to participate in this section as evidenced by no breakoffs during this section. As potential risk factors were not framed as related to SI, we feel that the potential for study participants to make connections between risk factors and questions of suicidality were reduced as well.

The sampling methodology may be viewed by some as a limitation; however the methods used to recruit the participants for this study allowed us to reach a population that is typically hidden from clinic- or hospital- based studies, thus increasing generalisability of the findings. As in any human subjects study, there is the potential for bias introduced by members of the population who choose not to enroll or loss of participants to follow-up. Because of the years of significant experience our team has in working in the St. Louis drug-using community, our community-engaged methods are thought to mitigate this effect by increasing the cultural acceptability of the research. The team's effort to track every

respondent from initial point of contact to completion status further strengthens this approach.

The need to identify persons with positive suicidal ideation and previous attempts is clear. Although the vast majority of people who expresses a wish to kill themselves or thoughts of suicide do not go on to fatally injure themselves, these thoughts and feelings are often the only warning that is given before a fatal attempt is made. From an analysis of 4 different studies, Joiner et al. (51) found that past suicide attempts had a resilient association with future suicidality and suicidal behavior, even when other strong predictors of suicide were controlled for; this resiliency was not seen in any other predictor of suicide studied. The fact that a large proportion of suicides, up to 75%, occur within 30 days of contact with a primary healthcare provider (52) emphasizes the need for these providers to ask about and assess suicidal ideation in patients meeting risk factors. Unfortunately, issues of suicidality are often not brought up by primary care physicians, even when their patients present with depressed mood (53). However, as these analyses demonstrate, women who are not in treatment—that is, who are recruited by Community Health Workers in the community and not from treatment programs, are among the highest risk for suicidal ideation.

A large proportion of our sample was homeless or marginally housed, unemployed, and/or undereducated, and thus may have fewer personal resources and abilities to deal with day-to-day stressors. Efforts to improve early detection of SI cannot be limited to doctor visits alone. Given the high risk of SI in this group, homeless shelters, local outreach workers, and others who have regular contact with out-of-treatment drug-using women should screen users comprehensively for symptoms of psychiatric disorders and history of childhood and adult sexual abuse which are associated with higher risk of suicidal ideation.

Finally, while it may be tempting to draw conclusions directly relating SI/SA and to future completed suicide, it must be emphasized that ours is an analysis looking at risk of lifetime suicidal ideation (including past attempts), not completed suicide. In the population studied here, it is not well known how a risk for lifetime suicidal ideation and/or attempts is related to risk of future completed suicide. Future research is needed to clarify this connection among the out-of-treatment drug-using population.

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TABLE 1Lifetime Suicidal Ideation ($N = 462$)

Variable	N%
Thought about committing suicide	203, 44%
Attempted suicide	145, 32%
Believed it would be better if I were dead *	115, 64%
Thought about committing suicide during episode of low mood/anhedonia *	95, 53%
Suicidal Ideation (1 or more items)	232, 50%
Number of suicidal problems	
0	230, 50%
1	66, 14%
2	67, 15%
3	38, 8%
4	61, 13%

* of 180 people who screened into depression-specific section

TABLE 2Sociodemographic Characteristics of WTW Sample ($N = 462$)

Variables	Lifetime Suicidal Ideation		<i>p</i> Value
	Negative ($N = 230$) N%	Positive ($N = 232$) N%	
African American	205, 89%	198, 85%	NS
Less than high school education	92, 40%	107, 46%	NS
Never married	155, 67%	135, 58%	0.04
Currently unemployed	186, 81%	197, 85%	NS
Has children	196, 85%	197, 85%	NS
Arrest history	155, 67%	173, 75%	NS
Homeless	58, 25%	82, 35%	0.02
Mean age in yrs. (<i>SD</i>)	38.9 (6.9)	38.3 (6.6)	NS

TABLE 3Lifetime Patterns of Drug Use ($N = 462$)

Lifetime history of drug use/abuse	Lifetime Suicidal Ideation		<i>p</i> Value
	Negative ($N = 423$) <i>N</i> %	Positive ($N = 420$) <i>N</i> %	
DSM-IV cocaine abuse or dependence	169, 74%	207, 89%	<0.0001
Opiate use	38, 17%	67, 29%	0.002
DSM-IV opiate abuse or dependence (users only)	24, 63%	43, 64%	NS
DSM-IV alcohol abuse or dependence	121, 58%	161, 75%	<0.0002
Marijuana use	156, 68%	176, 76%	NS
DSM-IV marijuana abuse or dependence (users only)	43, 28%	76, 43%	<0.003
Any other drug use	50, 22%	86, 37%	0.003
Stimulants	22, 10%	41, 18%	0.01
Sedatives	24, 10%	36, 16%	NS
Club drugs	3, 1%	4, 2%	NS
PCP	25, 11%	41, 18%	0.04
Hallucinogens	15, 7%	26, 11%	NS
Inhalants	5, 2%	3, 1%	NS
Other Drugs	3, 1%	5, 2%	NS
Injection Drug use	27, 12%	48, 21%	0.009
Mean total number drugs used (other than cocaine) (<i>SD</i>)	1.3 (1.5)	1.7 (1.5)	0.001

TABLE 4Lifetime History of Comorbid Psychiatric Disorders ($N = 462$)

Variable	Lifetime Suicidal Ideation		<i>p</i> Value
	Negative ($N = 230$) <i>N</i> %	Positive ($N = 232$) <i>N</i> %	
DSM-IV Major Depressive Disorder (MDD)	29, 13%	140, 60%	<0.0001
# MDD criteria met			
0	152, 66%	66, 28%	<0.0001
1	44, 19%	19, 8%	
2	1, 0.4%	0, 0%	
3	0, 0%	2, 0.5%	
4	0, 0%	4, 0.9%	
5	9, 4%	8, 3%	
6	4, 2%	8, 3%	
7	6, 3%	37, 16%	
8	14, 6%	90, 39%	
Mean MDD criteria met (excepting suicidal ideation) (<i>SD</i>)	1.2 (2.4)	4.7 (3.9)	<0.0001
Individual MDD criteria			
Depressed mood	51, 22%	146, 63%	<0.0001
Anhedonia	42, 18%	131, 56%	<0.0001
Appetite problems	34, 15%	141, 61%	<0.0001
Sleep problems	32, 14%	143, 62%	<0.0001
Psychomotor retardation/agitation	26, 11%	134, 58%	<0.0001
Fatigue	27, 12%	127, 55%	<0.0001
Guilt, feelings of worthlessness	27, 12%	136, 59%	<0.0001
Cognitive deficits	30, 13%	139, 60%	<0.0001
DSM-IV Full criteria ASPD	20, 9%	41, 18%	<0.005
DSM-IV PTSD	35, 15%	119, 51%	<0.0001

TABLE 5

Sexual Behavior and Adverse Childhood Experiences ($N = 462$)

Variable	Lifetime Suicidal Ideation		<i>p</i> Value
	Negative ($N = 229$) <i>N</i> %	Positive ($N = 231$) <i>N</i> %	
Have you ever traded sex to get drugs, alcohol, money, food, shelter, or clothes?	118, 51%	156, 67%	0.0005
Before age 15:			
Biological mother absent >6 months	49, 21%	152, 36%	0.0003
Biological father absent >6 months	114, 50%	163, 70%	<0.0001
Did a parent or legal guardian ever beat you so that you needed medical attention?	9, 4%	35, 15%	<0.0001
Did anyone force you to have sexual intercourse?	26, 11%	84, 36%	<0.0001
Did anyone ever force you to kiss or touch them in a sexual way when you didn't want to?	32, 14%	96, 42%	<0.0001
Did anyone ever kiss or touch you in a sexual way when you didn't want them to?	40, 18%	119, 52%	<0.0001
Any of above 3 (Childhood Sexual Abuse)	45, 20%	125, 54%	<0.0001
After age 15, have you ever been raped?	56, 28%	160, 69%	<0.0001
Biological mother absent >6 months before age 15	49, 21%	152, 36%	0.0003
Biological father absent >6 months before age 15	114, 50%	163, 70%	<0.0001

Table 6

Logistic regression for lifetime suicidal ideation

Variable	Step 1 (N = 462)			Step 2 (N = 461)			Step 3 (N = 461)			Step 4 (N = 460)		
	B	OR (95% CI)	B	OR (95% CI)	B	OR (95% CI)	B	OR (95% CI)	B	OR (95% CI)	B	OR (95% CI)
Age (y)	−0.0207	0.98 (0.95 – 1.01)	0.0005	1.00 (0.97 – 1.04)	−0.0005	1.00 (0.97 – 1.03)	−0.0003	1.00 (0.96 – 1.03)				
African American	−0.2674	0.77 (0.43 – 1.38)	-	-	-	-	-	-				
Less than high school education	0.2144	1.24 (0.84 – 1.83)	-	-	-	-	-	-				
Never married	−0.5873	0.56 (0.37 – 0.84) *	−0.1699	0.84 (0.52 – 1.34)	-	-	-	-				
Currently unemployed	0.2883	1.33 (0.80 – 2.23)	-	-	-	-	-	-				
Has children	−0.0591	0.94 (0.55 – 1.63)	-	-	-	-	-	-				
Arrest history	0.3044	1.34 (0.90 – 2.05)	-	-	-	-	-	-				
Homeless	0.5030	1.65 (1.10 – 2.50) *	0.3548	1.43 (0.89 – 2.29)	-	-	-	-				
Sex trading	-	-	0.3232	1.38 (0.88 – 2.16)	-	-	-	-				
Biological mother absent >6 months	-	-	0.3747	1.46 (0.88 – 2.40)	-	-	-	-				
Biological father absent >6 months	-	-	0.3962	1.49 (0.94 – 2.36)	-	-	-	-				
Childhood physical abuse	-	-	1.0410	2.83 (1.22 – 6.57) *	1.0606	2.89 (1.23 – 6.78) *	0.924	2.52 (1.01 – 6.30) *				
Childhood sexual victimization	-	-	1.0537	2.87 (1.79 – 4.59) **	1.1281	3.09 (1.95 – 4.91) **	0.922	2.51 (1.50 – 4.20) **				
Rape (>15 years old)	-	-	1.4267	4.17 (2.69 – 6.46) **	1.4445	4.24 (2.76 – 6.52) **	1.324	3.76 (2.32 – 6.08) **				
Cocaine abuse or dependence	-	-	-	-	0.6970	2.01 (1.13 – 3.58) *	0.624	1.87 (0.99 – 3.53)				
Alcohol abuse or dependence	-	-	-	-	0.3483	1.42 (0.90 – 2.23)	-	-				
Number of drugs used (other than cocaine)	-	-	-	-	0.1079	1.11 (0.96 – 1.23)	-	-				
ASPD	-	-	-	-	-	-	0.015	1.02 (0.49 – 2.11)				
PTSD	-	-	-	-	-	-	0.631	1.88 (1.08 – 3.28) *				

Variable	Step 1 (N = 462)			Step 2 (N = 461)			Step 3 (N = 461)			Step 4 (N = 460)		
	B	OR (95% CI)		B	OR (95% CI)		B	OR (95% CI)		B	OR (95% CI)	
Number of MDD criteria met (without suicidal ideation)	-	-		-	-		-	-		0.275	1.32 (1.22 – 1.42)**	
c value	0.617			0.800			0.802			0.863		
* p 0.05												
** p 0.001												