Published in final edited form as:
J Nerv Ment Dis. 2005 July ; 193(7): 431–437.

Predictors of High Rates of Suicidal Ideation Among Drug Users

Linda B. Cottler, PhD[*], **Wilbur Campbell, EdD**[†], **V. A. S. Krishna, PhD**[*], **Renee M. Cunningham-Williams, PhD**[*], and **Arbi Ben Abdallah, DES**[*]

* *Department of Psychiatry, School of Medicine, Washington University, St. Louis, Missouri,*

† *currently self-employed, although a postdoctoral fellow at Washington University School of Medicine at the time the work was first done on the manuscript.*

Abstract

Several studies have attempted to understand the link among substance abuse, depression, and suicidal ideation (SI). Assessment of this link is important to develop specific interventions for persons in substance abuse treatment. This association was tested among 990 drug users in and out of treatment with significant criminal justice histories from two National Institute on Drug Abuse studies. The Diagnostic Interview Schedule and Substance Abuse Module assessed DSM-III-R depression, number of depression criteria met, antisocial personality disorder (ASPD), and substance use disorders. Compared with men, women were twice as likely to report depression (24% vs. 12%), whereas men were nearly twice as likely to report ASPD (42% vs. 24%). High rates of SI were found, with women more likely than men to report thoughts of death (50% vs. 31%), wanting to die (39% vs. 21%), thoughts of committing suicide (47% vs. 33%), or attempting suicide (33% vs. 11%); 63% of women and 47% of men reported at least one of these suicidal thoughts or behaviors. Male and female ideators were more likely than nonideators to report depressed mood and to meet criteria for depression, ASPD, and alcohol use disorders. Male ideators were more likely than male nonideators to meet criteria for cocaine use disorders. Using logistic regression, SI among men was predicted by alcohol use disorder (OR = 1.60), ASPD (OR = 1.59), and number of depression criteria (OR = 9.38 for five criteria). Among women, SI was predicted by older age, marital status, alcohol use disorder (OR = 2.77), and number of depression criteria (OR = 9.12 for five criteria). These original findings point out the need to discuss suicidal thoughts among depressed drug users for early treatment and prevention.

Keywords

Drug abuse; suicide; suicidal ideation; Diagnostic Interview Schedule; alcohol use disorders

The 13th leading cause of death worldwide and the 11th in the United States is suicide (Krug et al., 2002). Among males 25 to 29 years of age, in 2001, suicide accounted for 20.89 deaths per 100,000; among women of the same ages, it accounted for 3.99 deaths per 100,000. In 2000, suicide accounted for 1.2% of all deaths in the United States (Minino et al., 2002). Obtaining information about whomever is at risk for planning attempts or thinking about suicide (sometimes referred to as suicidal ideation [SI]) should be a primary focus for prevention, especially among young adults. The National Comorbidity Survey, a household survey of general population respondents age 15 to 55, confirmed previous findings that females, persons previously married, those less than 25 years of age, those poorly educated,

Send reprint requests to Linda B. Cottler, PhD, Professor of Epidemiology in Psychiatry, Washington University School of Medicine, 40 N. Kings-highway, Suite 4, St. Louis, MO 63108. E-mail:cottler@epi.wustl.edu..

Supported by DA11622 (Cottler, PI), T32 DA07313 (Cottler, PI), DA14954 (Cottler, PI), DA 00430 (Cunningham-Williams, PI), DA08324 (Cottler, PI), DA05619, AA12111 (Cottler, PI), MH17104 (Cottler, PI), TI12541 (Cottler, PI), and TW0581102 (Cottler, PI).

and those with a history of one or more DSM-III-R psychiatric disorders were more likely to report SI than their counterparts (Kessler et al., 1999).

Several studies have found that the prevalence of SI and attempts are linked with severity and frequency of substance use (Fowler et al., 1986; Garlow, 2002; Garlow et al., 2003; Marzuk et al., 1992; Rich et al., 1998). For example, the 1990 Youth Risk Behavior Survey found that young adults who engaged in drug use or sexual activity were more likely to report suicidal behavior than young adults not engaged in such behavior. In particular, the strongest association between suicidal behavior and drug use was found among cocaine users (Burge et al., 1995; Garlow et al., 2003). Furthermore, Cornelius et al. (1998) found that SI was more prevalent in depressed alcoholics who also used cocaine compared with depressed alcoholics not using cocaine. The study was limited by the small sample size of less than 50 patients. Based on data from the 1992 National Longitudinal Alcohol Epidemiologic Survey, Grant and Hasin (1999) found that 9% of the sample reported at least one symptom of SI, with more women than men reporting this behavior. In their study, ideators were more likely than nonideators to have a family history of alcoholism; to be treated for alcoholism, depression, and drug use; and to have a physical condition. Among men, older age and employment were protective against SI. In a reanalysis of data from the National Comorbidity Survey, Borges et al. (2000) found that substance use, abuse, and dependence—especially on alcohol, inhalants, and heroin—predicted both the incidence of SI and attempts. These studies suggested that the disinhibition from the effects of alcohol and drug use might contribute to these behaviors.

Although these studies have investigated risk factors likely to predict SI, few have attempted to identify their unique predictors among out-of-treatment drug users. Few studies addressed both gender and race/ethnicity; none addressed separate models for females and males. The present analysis closes a gap in the literature by addressing the need for including information on early warning signs for SI in HIV and substance prevention programs and by addressing the risk factors by gender.

As part of two longitudinal studies on the risk for HIV among drug users both in and out of drug treatment, we had an opportunity to assess multiple domains of risk, including depression and antisocial personality disorders (ASPDs), in studies that recruited large numbers of women. Based on reports from our interviewers that suggested a high prevalence of SI, we conceptualized a model to predict SI with variables previously considered in the literature. The demographic variables used in our model—race/ethnicity, age, marital status, parental and employment status, educational attainment, and arrest history—were thought to predict SI significantly. We added behavioral and drug use characteristics such as alcohol and drug use, depressed mood, and ASPD. We hypothesized that models would differ by gender and that women would report higher rates of ideation than men. We also hypothesized that drug users with more severe opiate or cocaine use (i.e., those who were dependent) would have higher rates of ideation than drug users with less severe drug use. Because our study was not a study of depression or ideation, we believe we were able to collect these data serendipitously with minimal retrospective recall bias or stigma in the course of our HIV prevention study. Data from this study could be used for planning future prevention efforts that treat the whole person, rather than just drug abuse or high-risk sexual activity alone.

METHODS

Study Description

Data for these analyses come from two studies funded by the National Institute on Drug Abuse of the National Institutes of Health: the Substance Abuse and Risk for AIDS (SARA) study and the Efforts to Reduce the Spread of AIDS (ERSA) study. The SARA study, which began data collection in 1989, was St. Louis's first HIV seroprevalence study. Respondents (n = 512)

were recruited from treatment admission logs at a range of public treatment facilities in St. Louis: two methadone maintenance clinics, two residential drug-free programs, two outpatient drug-free programs, an outpatient program for reforming sex traders, and a residential recovery shelter for women. The methodology for the SARA study has been reported elsewhere (Cottler et al., 1995).

The ERSA study began data collection around the same time as the SARA study in the same target areas of St. Louis. These areas were at high risk for sex trading, drugs, and HIV, according to reports by the St. Louis City Health Department (STLCHD) and the St. Louis City Police Department. The methodology of the ERSA study has been reported elsewhere (Cottler et al., 1996, 1997). The focus of this longitudinal demonstration project among out-of-treatment cocaine and intravenous drug users was to recruit users into drug treatment and to reduce the spread of HIV. As a comparison group, drug users who did not want drug treatment were enrolled in the study. Recruitment was conducted through street outreach performed in predefined target areas of St. Louis by Community Health Outreach Workers hired and trained by the STLCHD (Cunningham et al., 1996; Cunningham-Williams et al., 1999). Once recruited, drug users (n = 478) were interviewed at HealthStreet, a satellite office of the STLCHD. Before interviewing, respondents completed the WU-IRB–approved informed consent, assuring confidential-ity through an NIH/National Institute on Drug Abuse Certificate of Confidentiality. The combined sample for analysis was 990 drug users.

Sample Description

As shown in Table 1, the respondents were predominately male. Males were more likely than females to be African American and to have an arrest history. Females were more likely than males to be jobless and to report having children. Although not shown, the SARA study had more Caucasian drug users (34% vs. 9%) and slightly more females (35% vs. 28%) than the ERSA study. The mean age of respondents was comparable at approximately 32 years. In all other sociodemographic variables, the SARA and ERSA samples were nearly identical, leading to our decision to pool the samples, as was done in previous publications on this sample (Cunningham-Williams et al., 2000).

Assessments

Two structured, standardized psychiatric diagnostic assessments were administered by trained nonclinician interviewers in face-to-face interviews. The Diagnostic Interview Schedule (DIS) version III-R (Robins et al., 1989) depression section was used to ascertain the data for SI. Responding positively to one of four items in one's lifetime constituted SI: thinking a lot about death, feeling like you wanted to die, thinking about committing suicide, and attempting suicide.

In addition to the full diagnosis for DSM-III-R major depressive episode, depressed mood (ascertained by the DIS question, "In your lifetime, have you ever had two weeks or more when nearly everyday you felt sad, blue, or depressed?") and the number of depression criteria met was assessed. However, when number of depression criteria was used in the logistic regression model, criterion number 9 (SI) was eliminated from these analyses.

Data to elicit DSM-III-R criteria for cocaine and opiate abuse and dependence were obtained through the second standardized interview, the Substance Abuse Module, which has been shown to have acceptable psychometric properties (Cottler and Compton, 1993; Cottler et al., 1989; Horton et al., 2000; Robins et al., 1990).

RESULTS

As shown in Table 2, among both men and women, the most common drug use pattern was the use of both cocaine and opiates (49% in men vs. 47% in women), followed by the use of cocaine only (37% for both men and women). With the exception of the use of opiates without cocaine among women, no differences were found by gender in lifetime patterns of cocaine and opiate use. Women were slightly more likely than men to report a lifetime history of injection drug use (48% among women vs. 42% among men). Although not shown, female cocaine and opiate users were more likely than their male counterparts to meet criteria for either lifetime DSM-III-R opiate or cocaine dependence (91% vs. 84%; $p = 0.042$); thus, we determined that this more severe behavior would be used in the model instead of the cocaine or opiate use variables.

As shown in Table 3, women were statistically significantly more likely than men to meet criteria for DSM-III-R depressed mood (58% vs. 42%) and DSM-III-R depression (24% vs. 12%). Although women were twice as likely as men to be diagnosed with a depressive disorder, men were nearly twice as likely as women to meet DSM-III-R criteria for ASPD (42% vs. 24%). Additionally, three times as many women as men reported eight or nine depression criteria.

Suicidal ideation reported by men and women is shown in Table 4. Although a surprisingly high proportion of both men and women reported having at least one suicidal thought or behavior, this rate was statistically significantly higher among women than men (63% vs. 47%). Additionally, women were more likely than men to report thinking a lot about death (50% vs. 31%), feeling like they wanted to die (39% vs. 21%), thinking about committing suicide (47% vs. 33%), and actually attempting suicide (33% vs. 11%). More than three times as many women as men reported all four items. Although not shown, race/ethnicity and marital status were also associated with SI, without controlling for gender. Specifically, reporting at least one suicidal behavior was higher among African Americans than others (68% vs. 32%; $\chi^2 = 28.32$; $p = 0.001$), and those who had been married compared with never married (51% vs. 49%; $\chi^2 = 6.58$; $p = 0.010$).

As shown in Table 5, male suicide ideators, compared with male nonideators, had statistically significantly higher rates of depressed mood (58% vs. 28%), DSM-III-R depression (23% vs. 1%), DSM-III-R ASPD (50% vs. 35%), and DSM-III-R alcohol abuse or dependence (77% vs. 59%). Female ideators, compared with female nonideators, also had statistically higher rates of depressed mood (72% vs. 34%), DSM-III-R depression (34% vs. 6%), and DSM-III-R alcohol abuse or dependence (68% vs. 38%), but not DSM-III-R ASPD. As shown in Table 6, male suicide ideators were significantly more likely than male nonideators to report both cocaine and opiate use (56% vs. 43%), to report an injection drug history (46% vs. 38%), and to meet criteria for cocaine abuse or dependence (69% vs. 60%). Surprisingly, female ideators versus nonideators did not differ significantly in their history of drug use, abuse, or dependence. Of note, female ideators, compared with male ideators, were fairly comparable in their drug use patterns.

A multiple logistic regression model was tested separately for men and women, controlling for race/ethnicity and age; educational, marital, parental, and employment status; arrest record; and abuse or dependence on alcohol, cocaine, or opiates (Table 7). In addition, history of ASPD and the number of DSM-III-R depression criteria were assessed. Men with alcohol abuse or dependence and ASPD were each 1.6 times more likely than their counterparts to report SI. The number of depression criteria was found to predict SI strongly. Specifically, men meeting only one criterion for depression were 1.57 times more likely than men meeting no criteria to report SI; if they reported three criteria, they were nearly four times more likely (OR = 3.83)

to report SI; if they reported five criteria (the threshold for depression), they were 9.38 times more likely than men meeting no criteria to report SI; and if there were seven criteria reported, the OR was 23.51. There was a trend for men with an arrest history to be protected from reporting SI (OR = .66; 95% CI, .43–1.01).

The picture for women was slightly different. Younger women and never-married women were less likely to report SI than older women and women who had been married. Additionally, women meeting criteria for alcohol abuse or dependence were nearly three times more likely than their counterparts to report SI (OR = 2.77). However, as for men, the number of DSM-III-R depression criteria met was found to predict SI strongly. For example, women meeting only one criterion were 1.56 times more likely than women meeting no criteria to report SI; women with three criteria were 3.77 times more likely than women without any to report SI; women crossing the diagnostic threshold (those with five criteria) were 9.12 times more likely to report SI than women without any criteria met; and women with seven criteria reported were 22.48 times more likely. Although female ideators and nonideators did not differ significantly on ASPD, the finding just missed statistical significance, with an association similar to that found for men (OR = 1.90).

Although not shown, we also tested a model in which the categorical variable depressed mood was substituted for the continuous variable number of depression criteria. For men, alcohol use disorders and ASPD predictors remained strong predictors of SI; further, depressed mood generated an odds ratio of 3.16 (95% CI, 2.25–4.43). For women, all but age remained in the model; however, there was also a trend for ASPD to be significant, whereas depressed mood reached an odds ratio of 4.73 (95% CI, 2.73–8.19).

DISCUSSION

This sample of primarily African American and unemployed drug users with substantial criminal justice involvement had significant histories of SI (52% overall). Women compared with men were more likely to be ideators. In fact, all SI symptoms were more likely to be reported by women than by men, with as many as 63% of women reporting one or more symptoms.

High rates of SI have been found recently, although the samples were mostly in medical or psychiatric clinics—in other words, in treatment. For example, a study conducted on acute psychiatric admissions found rates of SI, or self-harm, of 53% (McCloud et al., 2004); another study of persons diagnosed with DSM-IV major depressive disorder reported that during the current depressive episode, 58% had experienced SI (Sokero et al., 2003). Nearly half of all patients referred to a chemical dependency program (44%) reported SI (Garlow et al., 2003). Among the highest rates published are those from a study of homeless men and women, in which 63% reported serious thoughts of suicide (Desai et al., 2003), rates identical to ours. Finally, a study of females suffering from eating disorders found the rate of suicide attempts to be 26%, similar to the 33% found in the women in our sample (Milos et al., 2004).

Our results confirm findings from other recently published studies that show a strong association among SI, depression, and heavy drinking or substance abuse/dependence (Conner et al., 2003; Desai et al., 2003; McCloud et al., 2004; Milos et al., 2004; Pirkola et al., 2004; Sokero et al., 2003). Our study adds to the literature by presenting data separately by gender and by assessing the severity of depression using criteria reported after controlling for substance abuse and dependence and ASPD among a population that includes drug users both in and out of treatment. In fact, there was a rapidly increasing progression toward SI with every additionally endorsed criterion of depression for both genders. Even the more easily obtained variable, depressed mood, was strongly predictive of SI, in the presence of alcohol use disorders

and other demographic and substance use disorders. Reasons for an association between alcohol use disorders and SI may be linked to the depressive effects of this substance or to the social, legal, and situational consequences that problem alcohol users face. The trend suggesting the protective nature of an arrest history is a challenge to explain; we speculate that men with criminal justice involvement have already substituted aggressive behavior toward other people for harmful actions toward themselves. However, among men, ASPD was surprisingly found to be predictive of SI because hallmark symptoms of ASPD such as irresponsible, recalcitrant behaviors are often not associated with sensitive feelings such as depressed mood. Alternatively, men with ASPD, regardless of their arrest history, may have had more contact with service systems where they learned to disclose their suicidal thoughts, or they may be in situations that lead them to want to take their own life, think about death, or plan a suicide. When we tested for the interaction between ASPD and an arrest history among men, no statistically significant association was found, leading us to speculate that each variable exerts its own independent effect on SI.

The current study was not a study of SI and, as such, may not have considered certain potential explanatory variables such as family, childhood, and psychiatric history that may interact with SI. Alternatively, the fact that the study was not focused on SI may have been a benefit, because recall bias (of positive and negative histories) was minimized. Additionally, our rates in primarily out-of-treatment drug users may be higher than rates found in other studies, because the respondents may have been willing to report their history to interviewers who were strangers, and not connected to a respondent's outcome; in other words, they were not collecting data within the confines of a treatment program or for a treatment provider, where stigma and discrimination surrounding this history may have been high. However, a person who was exhibiting SI at the time of the interview would have been referred immediately to a health professional.

If substance use increases the likelihood of SI, especially among women and substance abusers, more studies need to be focused on early detection, as Borges et al. (2000) have pointed out. More importantly, interventions must be developed to prevent a completed suicide, which can be done by assessing the risk. Routine screening for depressed mood, which leads to effective management of depression, is endorsed by the US Preventive Services Task Force (2002). A simple two-question screen is recommended: "Over the past two weeks, have you felt down, depressed, or hopeless?" and, "Over the past two weeks, have you felt little interest or pleasure in doing things?" Our data reporting a more than threefold and nearly fivefold increase in lifetime suicidal thoughts and ideation for men and women, respectively, who endorsed the first of the two questions (depressed mood), indicate that such a screening is warranted (especially given the rate of depressed mood in 58% and 42% of women and men). One study evaluated the psychometric properties of using a screener for SI to identify who made a plan to commit suicide (Olfson et al., 1996). Thoughts of death were associated with 100% sensitivity and 81% specificity for identifying which patients in a primary care setting had a plan to commit suicide. Persons with major depression and drug use disorders were 33 and 17 times, respectively, more likely than their counterparts to report SI.

Thus, although there is an urgent need to reduce the rate of suicide internationally, evidence to help guide clinicians' management of suicide risk is limited. Gaynes et al. (2004) argue that a more practical method for decreasing suicide might be to focus on high-risk groups. Substance abusers are one such group in whom interventions could focus on these behaviors, which is what we have done in these analyses.

In addition to a depression history, a comprehensive psychiatric evaluation and a substance use history should be elicited, not only for clients in substance abuse treatment but also for those in community-based prevention interventions. Such data would be useful to help focus

prevention efforts on the intersecting epidemics of depressed mood, substance use, and ideation, which could lead to earlier referral and ultimately earlier treatment of depressed mood and SI. In fact, our study recognizes the importance of analyzing data separately for men and women, because they have separate and distinct risk factors for SI. Gender-specific interventions could be directed toward helping women identify their feelings of depressed mood and their high-risk drinking patterns, whereas interventions could assist men in recognizing the symptoms of depression while reducing their antisocial and aggressive behaviors, including heavy drinking. Ideally, it may be important for drug abuse counselors to assess SI and depressed mood at intake, and again at follow-up, to determine whether targeted interventions are successful. Finally, SI, once it is verbalized, should be taken seriously in all health care and research settings. Referrals to appropriate psychiatric help should be initiated and facilitated for up-to-date pharmacologic and other therapies.

Acknowledgements

The authors thank Dr. Wilson Compton for substantial input on earlier drafts.

References

Borges G, Walters E, Kessler R. Associations of substance use, abuse and dependence with subsequent suicidal behavior. Am J Epidemiol 2000;15:781–789. [PubMed: 10965975]

Burge V, Felts M, Chenier T, Parillo AV. Drug use, sexual activity and suicidal behavior in US high school students. J Sch Health 1995;65:222–227. [PubMed: 7564284]

Conner KR, Li Y, Meldrum S, Duberstein PR, Conwell Y. The role of drinking in suicidal ideation: Analyses of Project MATCH data. J Stud Alcohol 2003;64:402–408. [PubMed: 12817830]

Cornelius J, Thase M, Salloum I, Cornelius M, Black A, Mann J. Cocaine use associated with increased suicidal behavior in depressed alcoholics. Addict Behav 1998;23:119–121. [PubMed: 9468750]

Cottler LB, Compton WM. Advantages of the CIDI family of instruments in epidemiological research of substance use disorders. Int J Methods Psychiatr Res 1993;3:109–119.

Cottler LB, Compton WM, Ben Abdallah A, Horne M, Claverie D. Achieving a 96.6 percent follow-up rate in a longitudinal study of drug abusers. Drug Alcohol Depend 1996;41:209–217. [PubMed: 8842633]

Cottler LB, Cunningham RM, Compton WM (1997) The effect of treatment on high risk sexual behaviors and substance use: St. Louis' effort to reduce the spread of AIDS among injection drug users. In FM Tims, JA Inciardi, BW Fletcher, AM Horton (Eds), *The Effectiveness of Innovative Approaches in the Treatment of Drug Abuse* (pp 232–248). Greenwood Press.

Cottler LB, Price RK, Compton WM, Mager D. Subtypes of adult antisocial behavior among drug abusers. J Nerv Ment Dis 1995;3:54–161.

Cottler LB, Robins LN, Helzer JE. The reliability of the Composite International Diagnostic Interview Substance Abuse Module-(CIDI-SAM): A comprehensive substance abuse interview. Br J Addict 1989;84:801–814. [PubMed: 2758153]

Cunningham RM, Cottler LB, Compton WM. Are we reaching and enrolling at risk drug users for prevention studies? J Drug Issues 1996;26:541–560.

Cunningham-Williams RM, Cottler LB, Compton WM, Desmond D, Wechsberg W, Zule W, Deichler P. Reaching and enrolling drug users for HIV prevention: A multi-site analysis. Drug Alcohol Depend 1999;54:1–10. [PubMed: 10101612]

Cunningham-Williams RM, Cottler LB, Compton WM, Spitznagel E, Ben-Abdallah A. Problem gambling and psychiatric disorders among substance users recruited from drug treatment and from the community. J Gambl Stud 2000;16:347–376. [PubMed: 14634303]

Desai R, Liu-Mares W, Dausey D, Rosneheck R. Suicidal ideation and suicide attempts in a sample of homeless people with mental illness. J Nerv Ment Dis 2003;191:365–371. [PubMed: 12826917]

Fowler RC, Rich CL, Young D. San Diego Suicide Study, II: Substance abuse in young cases. Arch Gen Psychiatry 1986;43:962–965. [PubMed: 3753161]

Garlow SJ. Age, gender and ethnicity differences in patterns of cocaine and ethanol use preceding suicide. Am J Psychiatry 2002;159:615–619. [PubMed: 11925300]

Garlow SJ, Purselle D, D'Orio B. Cocaine use disorders and suicidal ideation. Drug Alcohol Depend 2003;70:101–104. [PubMed: 12681530]

Gaynes BN, West SL, Ford CA, Frame P, Klein J, Lohr K. Screening for suicide risk in adults: A summary of the evidence for the US Preventive Services Task Force. Ann Intern Med 2004;140:822–835. [PubMed: 15148072]

Grant BF, Hasin DS. Suicidal ideation among the US drinking population: Results from the National Longitudinal Alcohol Epidemiologic Survey 1999;60:422–469.

Horton J, Compton W, Cottler LB. Reliability of substance use disorders among African Americans and Caucasians. Drug Alcohol Depend 2000;57:203–209. [PubMed: 10661671]

Kessler R, Borges G, Walters E. Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. Arch Gen Psychiatry 1999;56:617–626. [PubMed: 10401507]

Krug EG, Mercy JA, Dahlberg LL, Zwi AB. World report on violence and health. Biomedica 2002;22:327–336. [PubMed: 12596453]

Marzuk PM, Tardiff K, Leon AC, Stajic M, Morgan EB, Mann JJ. Prevalence of cocaine use among residents of New York city who committed suicide during a one year period. Am J Psychiatry 1992;149:371–375. [PubMed: 1536277]

McCloud A, Barnaby B, Omu N, Drummond C, Aboud A. Relationship between alcohol use disorders and suicidality in a psychiatric population. Br J Psychiatry 2004;184:439–445. [PubMed: 15123509]

Milos G, Spindler A, Hepp U, Schnyder U. Suicide attempts and suicidal ideation: Links with psychiatric comorbidity in eating disorder subjects. Gen Hosp Psychiatry 2004;26:129–135. [PubMed: 15038930]

Minino AM, Arias E, Kochanek ED, Murphy SL, Smith BL (2002) Deaths: Final data for 2000. *National Vital Statistics Report 50* Hyatsville (MD): NCHS.

Olfson M, Weissman MM, Leon AC, Sheehan DV, Farbre L. Suicidal ideation in primary care. J Gen Intern Med 1996;11:447–453. [PubMed: 8872781]

Pirkola SP, Suominen K, Isometsa ET. Suicide in alcohol-dependent individuals: Epidemiology and management. CNS Drugs 2004;18:423–436. [PubMed: 15139798]

Rich CL, Dhossche DM, Ghani S, Isacsson G. Suicide methods and presence of intoxicating abusable substances: Some clinical and public health implications. Ann Clin Psychiatry 1998;10:169–175. [PubMed: 9988058]

Robins LN, Cottler LB, Babor T (1990) *WHO/ADAMHA Composite International Diagnostic Interview —Substance Abuse Module (SAM).* St. Louis (MO).

Robins LN, Helzer JE, Cottler LB, Goldring E (1989) *The Diagnostic Interview Schedule, Version III-R.* St. Louis (MO).

Sokero TP, Melartin TK, Rytsala HJ, Leskela US, Lestela-Mielonen PS, Isometsa ET. Suicidal ideation and attempts among psychiatric patients with major depressive disorder. J Clin Psychiatry 2003;64:1094 –1100. [PubMed: 14628986]

US Preventive Services Task Force. Screening for depression: Recommendations and rationale. Ann Intern Med 2002;136:760–764. [PubMed: 12020145]

TABLE 1

Sociodemographic Characteristics of SARA/ERSA Sample (*N* = 990)

Variables	Male (*N*= 674)*N*, %	Female (*N*= 316)*N*, %	*p*Value
African American	533, 79%	209, 66%	0.001
Less than high school education	371, 55%	167, 53%	NS
Never married	364, 54%	159, 50%	NS
Currently unemployed	408, 61%	239, 76%	0.001
Has children	466, 69%	238, 75%	0.046
Arrest history	536, 80%	194, 61%	0.001
Mean age (*SD*), y	32.2 (6.8)	32.2 (6.2)	NS

TABLE 2

Lifetime Prevalence of Cocaine and Opiate Drug Use Among SARA/ERSA Sample (*N* = 990)

Lifetime history of drug use	**Male (*N*= 674)*N*, %**	**Female (*N*= 316)*N*, %**	***p*Value**
No cocaine or opiates	62, 9%	27, 9%	NS
Cocaine only	251, 37%	118, 37%	NS
Opiates only	29, 4%	24, 8%	0.032
Both cocaine and opiates	332, 49%	147, 47%	NS

TABLE 3

Lifetime History of Psychiatric Disorders of SARA/ERSA Sample (*N* = 987)

Variables	Male (*N*= 673)*N*, %	Female (*N*= 314)*N*, %	*p*Value
Depressed mood	283, 42%	183, 58%	0.001
DSM-III-R depression	78, 12%	75, 24%	0.001
Depression criteria met			
0	157, 23%	45, 14%	
1	132, 20%	48, 15%	
2	114, 17%	48, 15%	
3	92, 14%	37, 12%	
4	64, 10%	29, 9%	
5	28, 4%	34, 11%	
6	27, 4%	9, 3%	
7	23, 3%	19, 6%	
8	22, 3%	21, 7%	
9	14, 2%	24, 8%	0.001
DSM-III-R antisocial personality	283, 42%	76, 24%	0.001

TABLE 4

Lifetime Suicidal Ideation Among SARA/ERSA Subjects (*N* = 990)

DIS items	Male (*N*= 674)*N*, %	Female (*N*= 316)*N*, %	*p*Value
Thought a lot about death	210, 31%	157, 50%	0.001
Felt like you wanted to die	141, 21%	123, 39%	0.001
Thought about committing suicide	219, 33%	147, 47%	0.001
Attempted suicide	72, 11%	103, 33%	0.001
Suicidal ideation (1 or more items)	319, 47%	198, 63%	0.001
Number of suicidal problems			
0	355, 53%	118, 37%	
1	144, 21%	49, 16%	
2	71, 11%	36, 11%	
3	60, 9%	43, 14%	
4	44, 7%	70, 22%	0.001

TABLE 5

Suicidal Ideation and Lifetime History of Psychiatric Disorders of SARA/ERSA Sample (*N* = 987)

	Male (*N*= 673) suicidal ideation			Female (*N*= 314) suicidal ideation		
	Negative	**Positive**	***p*Value**	**Negative**	**Positive**	***p*Value**
Depressed mood	28%	58%	0.001	34%	72%	0.001
DSM-III-R depression	1%	23%	0.001	6%	34%	0.001
DSM-III-R ASPD	35%	50%	0.001	18%	28%	0.053
DSM-III-R alcohol abuse or dependence	59%	77%	0.001	38%	68%	0.001

TABLE 6

Suicidal Ideation and Lifetime Drug History of SARA/ERSA Sample (*N* = 989)

Lifetime history of illicit drug use	Male (*N* =673) suicidal ideation			Female (*N*= 316) suicidal ideation		
	Negative	Positive	*p*Value	Negative	Positive	*p*Value
No cocaine or opiates	12%	6%	NS	8%	9%	NS
Cocaine only	39%	35%	NS	43%	34%	0.095
Opiates only	6%	3%	0.072	6%	9%	NS
Both cocaine and opiates	43%	56%	0.001	43%	48%	NS
DSM-III-R cocaine abuse or dependence	66%	74%	0.032	72%	66%	NS
DSM-III-R opiates abuse or dependence	24%	28%	NS	25%	32%	NS

J Nerv Ment Dis. Author manuscript; available in PMC 2006 January 25.

TABLE 7

Multiple Logistic Regression of Suicidal Ideation Among SARA/ERSA Sample (N = 990)

	Male				Female			
Variable	**B**	***p*Value**	**OR**	**95% CI**	**B**	***p*Value**	**OR**	**95% CI**
African American	−.2080	0.384	.81	.51–1.30	.0510	0.897	1.05	.49–2.27
Age (y)	−.0192	0.211	.98	.95–1.01	.0481	0.075	1.05	1.00–1.11
Less than high school education	.0818	0.093	1.09	.99–1.19	.0280	0.704	1.03	.89–1.19
Never married	−.01227	0.912	.98	.65–1.47	−.8067	0.013	.45	.24–.84
Has children	.2647	0.197	1.30	.87–1.95	.0381	0.913	1.04	.53–2.06
Currently employed	−.0046	0.980	1.00	.70–1.42	−.4684	0.170	.63	.32–1.22
Lifetime history of arrest	−.4148	0.057	.66	.43–1.01	−.7300	0.236	.69	.38–1.27
DSM-III-R								
Alcohol abuse or dependence	.4669	0.017	1.60	1.09–2.34	1.0199	0.001	2.77	1.56–4.92
Cocaine abuse or dependence	.2558	0.204	1.29	.87–1.92	.3123	0.340	1.37	.72–2.59
Opiate abuse or dependence	.0542	0.803	1.06	.69–1.62	−.3332	0.371	.72	.35–1.49
ASPD	.4662	0.011	1.59	1.11–2.29	.6409	0.091	1.90	.90–3.99
Number of depression criteria (without suicidal ideation)								
1	.4477	0.0001	1.57	1.41–1.73	.4422	0.0001	1.56	1.34–1.80
3	1.3431	0.0001	3.83	3.46–4.25	1.3266	0.0001	3.77	3.25–4.37
5	2.2385	0.0001	9.38	8.46–10.40	2.21	0.0001	9.12	7.87–10.56

J Nerv Ment Dis. Author manuscript; available in PMC 2006 January 25.