

# SUICIDAL IDEATION AMONG AFRICAN-AMERICAN NON-INJECTION DRUG USERS

The objective of the study was to explore correlates of suicidal ideation among African Americans in a community-based cohort in Baltimore, Md. Participants had initiated use of heroin, crack, or cocaine by means other than injection in the prior 10 years. An interview-administered questionnaire collected information regarding drug use history, depressive symptoms, drug dependence, and suicidal thoughts and attempts within the past six months. Multiple logistic regression was used to identify factors independently associated with suicidal ideation. Of 148 persons, median age was 27 years, and 60.8% were female. Suicidal ideation was reported by 21.6% of participants. Those reporting suicidal ideation were significantly more likely to be dependent on two or more drugs (adjusted odds ratio=2.93, 95% confidence interval=1.25, 6.88). Our findings underscore the need to integrate treatment for psychiatric comorbidity and drug dependence and target these services toward young, African-American drug users. (*Ethn Dis.* 2004;15:110-115)

**Key Words:** African American, Depression, Drug Dependence, Suicidal Ideation, Suicide

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## INTRODUCTION

The incidence of suicide in persons under 30 years of age has increased three-fold within the past several decades,<sup>1-3</sup> which has been attributed in part to increased drug use among young persons.<sup>4,5</sup> The National Center for Health Statistics<sup>6</sup> estimates that suicide is the third leading cause of death in 15- to 24-year-old African Americans. Historically, suicide rates among African Americans have been lower than that of Caucasian adolescents and young adults.<sup>7</sup> More recent estimates, however, found a significant increase (126%) in completed suicides among African Americans, especially among adolescents.<sup>7</sup>

Previous studies found that suicidal ideation and substance abuse are closely associated.<sup>8-10</sup> In their epidemiologic study of suicidal behavior from the National Comorbidity Survey (NCS), Borges et al found both heroin use and poly-drug use increased the risk of suicidality.<sup>11</sup> Other than these survey data, little is known about the relationship between drug use and suicidal behavior among users not seeking drug treatment (ie, community samples), and far fewer studies have explored this relationship in a predominantly African-American sample.

Given this virtually unexplored link between community-based drug users and suicidal behavior, in addition to the increasing rates of suicidal behavior among African-American adolescents and young adults, further research of this relationship is warranted. The purpose of this study was to examine correlates of suicidal ideation among a cohort of young, predominantly heroin-dependent African-American non-

injection drug users (NIDUs). Such information could help inform possible intervention strategies aimed at suicide and drug use prevention in this population.

## METHODS

### Study Sample

The Risk Evaluation and Community Health (REACH-II) study is a community-based study of young drug users in Baltimore, Md, methods for which have been previously described.<sup>12</sup> Participants were eligible for enrollment if they were 15 to 30 years of age and had initiated heroin, cocaine, or crack use by means other than injecting within the previous 10 years.

Participants were recruited by placing flyers in neighborhoods and local community centers, word of mouth, and through contact with study staff who approached potential participants in neighborhoods with open-air drug markets. After providing informed consent, subjects were administered an hour-long questionnaire by trained interviewers in a confidential location.

### Data Collection

The baseline questionnaire included demographic and socioeconomic indicators, suicidal ideation, suicide plans and attempts within the past six months, depressive symptoms, drug dependence, sexual history, institutional history, and exposure to abuse and violence. Participants were asked whether they had received drug treatment within the past six months as well as whether they were currently in treatment. To measure suicidal ideation, the participants were asked: "During the last six

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*The National Center for Health Statistics<sup>6</sup> estimates that suicide is the third leading cause of death in 15- to 24-year-old African Americans.*

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months, have you ever had thoughts of taking your own life, even if you would not actually do it?" Participants were also asked, "Have you made an attempt on your own life during the last six months?" to assess whether they had recently attempted suicide.

The Center for Epidemiologic Studies Depression scale (CES-D) was used to determine severity of depressive symptoms.<sup>13</sup> Reliability of the CES-D is good, with similar results across ethnic groups.<sup>14</sup> While unable to discriminate between different subgroups of depressive subjects (eg, bipolar depression vs major depressive disorder), it is nonetheless a useful screening tool for detecting depressive symptoms in community-based cohorts.<sup>15</sup> This study used a modified version of the CES-D that measured depressive symptoms over the past year, a time frame which was in accord with the majority of survey questions. The scale contained 28 items with yes/no responses and was scored from 0 to 28.

Dependence on crack, heroin, alcohol, and cocaine within the past year was assessed with a subset of questions from the National Household Survey on Drug Abuse,<sup>16</sup> as previously described.<sup>17</sup> These questions correspond to seven specific dependence criteria from the Diagnostic and Statistical Manual of Mental Disorders, 4th edition.<sup>18</sup> These include much time spent obtaining or using substance, substance taken in larger amounts or longer period of time than intended, tolerance, reduction of

important activities, use despite continued problems, withdrawal, and persistent desire to cut down.<sup>18</sup>

Following the interview, participants underwent venipuncture to test for HIV and hepatitis C antibodies; testing was accompanied by pre- and post-test counseling. Those recruited to the study were reimbursed \$15 for the baseline visit and \$10 for returning for test results. The Johns Hopkins Bloomberg School of Public Health Committee on Human Research approved the study protocol.

### Statistical Analyses

The study sample included 148 African Americans who reported first using heroin, cocaine, and/or crack within the past 10 years through routes of administration other than injection. The primary outcome of this analysis was suicidal ideation, which is associated with future suicidal acts, particularly in drug users,<sup>10,19</sup> and in a study of African-American adolescent girls, suicidal ideation predicted suicide attempts.<sup>20</sup>

Previous research demonstrated a wide variety of associations with suicidal ideation and attempts in both drug-related and normal community samples. In comparing ideators and non-ideators, variables subsequently tested were chosen a priori on the basis of these findings.<sup>8-10</sup> Dichotomous and continuous variables were tested by using chi-square tests and the Wilcoxon rank-sum test, respectively. Unadjusted odds ratios were computed by using bivariate logistic regression, and multiple logistic regression was used to examine factors associated with suicidal ideation, controlling for gender. Since depression is associated with suicidal behavior, inasmuch as suicidal behavior is often a symptom of depressive disorders, depressive symptoms are possibly in the causal pathway from drug use to suicidal behavior.<sup>10,21</sup> Therefore, separate multivariate models were constructed with and without depressive symptoms. All analyses were conducted by using SPSS, version 10.0.<sup>22</sup>

### Results

Within the six months before the baseline interview, 32 (21.6%) participants reported contemplating suicide. Of the ideators, eight (25%) had attempted suicide. Of the 148 subjects studied, 60.8% were female, and the median age was 27 years (interquartile range [IQR]: 25-29) (Table 1). Median age at initiating heroin, cocaine, and crack use was 19.5, 19, and 22 years, respectively. Most participants (77.7%) met DSM-IV criteria for heroin dependence, 28.4% met criteria for crack dependence, and 9.5% met criteria for cocaine dependence. Alcohol dependence was also assessed, with 10.1% of participants meeting DSM-IV diagnostic criteria. A total of 31.8% met dependence criteria for two or more drugs; the most common comorbid dependencies were heroin and crack (23%), heroin and cocaine (9.5%), and heroin and alcohol (8.8%). Half of NIDUs reporting recent suicidal ideation scored in the upper quartile on the CES-D, compared with 19.8% of those without suicidal ideation ( $P=.002$ ).

None of the individual drugs (heroin, cocaine, or crack) assessed for DSM-IV-diagnosed dependence was significantly related to suicidal ideation, and alcohol dependence was only marginally associated ( $P=.068$ ). However, multiple dependencies with at least two drugs were positively associated with suicidal ideation (odds ratio [OR]=2.74, 95% confidence interval [CI]=1.22, 6.14) (Table 2). The unadjusted odds ratio for elevated depression scores ( $\geq 20$ ) among those with suicidal ideation was 12.16 (95% CI=2.55, 57.92).

As shown in Table 3, after adjusting for age, gender, and depressive symptoms, poly-dependence was no longer significantly associated with recent suicidal ideation. The interaction of elevated depressive symptoms and multiple DSM-IV dependence diagnoses was examined but was not significant. How-

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**Table 1. Characteristics of 148 African-American NIDUs with and without suicidal ideation**

	Suicidal Ideation N=32		No Suicidal Ideation N=116		P value
	N	%	N	%	
Gender					
Male	12	37.5	46	39.7	.825
Female	20	62.5	70	60.3	
Age, median (IQR)*	27 (25–28.75)		17 (24–29)		.811
Marital status					
Married	0	0	7	6.0	.155
Single/divorced	32	100.0	109	94.0	
Education					
Did not complete high school	20	62.5	77	66.4	.683
High school/beyond high school	12	37.5	39	33.6	
Homeless (past 6 months)					
Yes	6	19.4	7	7.9	.063
No	25	80.6	105	92.1	
CES-D score (quartiles)					
≤8	2	6.3	35	30.2	.002
9–15	9	28.1	30	25.9	
16–19	5	15.6	28	24.1	
≥20	16	50.0	23	19.8	
Heroin dependent					
Yes	26	81.3	89	76.7	.586
No	6	18.8	27	23.3	
Cocaine dependent					
Yes	4	12.5	10	8.6	.507
No	28	87.5	106	91.4	
Crack dependent					
Yes	11	34.4	31	26.7	.395
No	21	65.6	85	73.3	
Alcohol dependent					
Yes	6	18.8	9	7.8	.068
No	26	81.3	107	92.2	
Poly-Dependent					
Yes	16	50.0	31	26.7	.012
No	16	50.0	85	73.3	
Received drugs for sex	5	17.9	5	4.6	.031
Received money for sex	7	25.0	15	13.9	.155
Ever in jail/prison/detention	21	65.6	76	65.5	1.00
Ever in mental health ward/facility	2	6.3	13	11.2	.525
Verbal abuse†	13	40.6	33	28.7	.198
Emotional abuse†	19	59.4	45	39.1	.046
Witnessed threatening with weapon†	14	43.8	56	49.6	.689
Witnessed beating†	25	78.1	75	65.2	.202
Witnessed killing†	10	31.1	38	33.0	.848
Threatened with a weapon†	5	15.6	17	14.8	1.00
Beaten†	5	15.6	8	7.0	.131
Wounded by weapon†	3	9.4	1	0.9	.032
Engaged in violence†	12	37.5	42	36.5	1.00
Ever forced to have sex	5	15.6	9	7.8	.184

\* Wilcoxon Rank-Sum used to test for differences in median age.

† In 6 months before baseline interview.

ever, when depressive symptoms are not included in the model, poly-dependence is independently associated with recent suicidal ideation (adjusted OR=2.93, 95% CI=1.25, 6.88).

## DISCUSSION

In this population of community-based, African-American drug users, we found a high prevalence of suicidal ideation, with 21.8% of participants reporting recent suicidal thoughts. In a study of African-American young adults by Ialongo et al,<sup>23</sup> six-month prevalence of suicidal ideation was 1.9%. Similarly, in a 1997 report by Juon and Ensminger,<sup>24</sup> the lifetime prevalence of suicidal ideation in the young adult African-American cohort was 9%. These prevalence estimates of suicidal ideation are lower than that observed in our study population, which suggests that drug-dependent adolescents and young adults are especially vulnerable to suicidal behavior.

We found a strong association between depressive symptoms and suicidal ideation. This finding is not surprising, since depression and suicidal behavior are often linked,<sup>25,26</sup> especially among drug users.<sup>27</sup> However, epidemiologic evidence, such as was found in the NCS or Epidemiologic Catchment Area (ECA) surveys, of the relationship between depression and suicidal behavior among African Americans is lacking.<sup>23</sup> Therefore, whether our results are consistent with other populations is difficult to determine. In a study of African-American young adults in Chicago, substance use and depression were independently associated with suicidal behavior,<sup>24</sup> although participants were not exclusively drug users. Our results contrast with the findings of Rotheram-Borus et al, who found that depression was not associated with suicidal behavior among African-American adolescents.<sup>28</sup> Our findings may not compare to other published reports, however, since our cohort

**Table 2. Unadjusted correlates of suicidal ideation among 148 African-American NIDUs**

	Unadjusted Odds Ratio	95% Confidence Interval
Poly-Dependence	2.74	1.22–6.14
CES-D score (quartiles)		
≤8	1.00	—
9–15	5.24	1.05–26.07
16–19	3.12	0.56–17.31
≥20	12.16	2.55–57.92
Received drugs for sex	4.48	1.20–16.75
Homeless (past 6 months)	2.80	0.91–8.59
Emotional abuse	2.27	1.02–5.05
Alcohol dependence	2.74	0.90–8.39
Wounded by weapon	11.79	1.18–117.57
Female	1.09	0.49–2.45

was composed exclusively of heroin, crack, or cocaine users.

The results of this study did not support the hypothesis that drug dependence exerted an independent effect on suicidal ideation when depressive symptoms were considered in the multivariate model. However, depressive symptoms are likely in the causal pathway from drug use to suicidal behavior. If so, adjusting for depressive symptoms in our model would be inappropriate, and poly-dependence would be independently associated with suicidal ideation among this cohort of African-American NIDUs.

Given the prevalence of poly-dependence in this cohort, drug treatment programs that cater to urban NIDUs

likely do not fully address the needs of the poly-dependent drug user; however, Caplehorn et al<sup>29</sup> found that those in methadone maintenance treatment were 75% less likely to die from overdose or suicide than heroin users not in treatment. This finding suggests that drug treatment, even without a specific suicide prevention component, can potentially protect from self-harm. Ideally, reaching untreated drug users may be effective in simultaneously treating their poly-drug use and comorbid depressive symptoms, which would in turn have a positive effect on suicidal behaviors.

Young drug users are less likely to be in contact with the mental health system (including drug treatment) if comorbid disorders are not present.<sup>30</sup> In

*In this population of community-based, African-American drug users, we found a high prevalence of suicidal ideation, with 21.8% of participants reporting recent suicidal thoughts*

our sample half of those reporting suicidal ideation had comorbid depressive symptoms, yet only 21.9% had sought treatment for their drug use in the previous six months, and none was receiving drug abuse treatment at the time of the baseline interview.

One limitation of our study is the lack of a comparison group. If compared with a non-drug-using population, drug dependence may have been associated with suicidal ideation. However, since suicidal behavior has not been adequately studied among African-American NIDUs, this study provides guidance for future research. Given the cross-sectional nature of our study, limitations also lie in the lack of ability to assess the temporal sequence of events

**Table 3. Adjusted correlates of suicidal ideation among 148 African-American NIDUs**

	Adjusted Odds Ratio	95% Confidence Interval	Adjusted Odds Ratio*	95% Confidence Interval*
Poly-Dependence	2.74	1.22–6.14	2.93	1.25–6.88
CES-D score (quartiles)				
≤8	1.00	—	—	—
9–15	5.24	1.04–26.30	—	—
16–19	3.19	0.57–17.80	—	—
≥20	11.13	2.31–53.55	—	—
Received drugs for sex	4.48	1.20–16.75	ns	—
Homeless (past 6 months)	2.80	0.91–8.59	ns	—
Emotional abuse	2.27	1.02–5.05	ns	—
Alcohol dependence	2.74	0.90–8.39	ns	—
Wounded by weapon	11.79	1.18–117.57	13.04	1.17–145.50
Female gender	1.09	0.49–2.45	1.20	0.49–2.96

ns = not significant.

\* Multivariate model excluding depressive symptoms.



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and duration of suicidal thoughts. For example, we were unable to determine whether depressive symptoms occurred before, during, or after the time the subject was having suicidal thoughts. Another potential limitation is the sample size; other associations with suicidal ideation may have emerged given a larger sample.

The strength in this research lies in the unique population of African-American NIDUs studied. Results of this study indicate that interventions aimed at this group are warranted, especially since the time from ideation to attempts is shorter among African Americans and they are less likely to seek help.<sup>31</sup> However, appropriate suicide- and drug-prevention efforts cannot be adequately implemented without knowing characteristics of suicidal drug users in community-based populations, some of which have been explored here. These findings may also be useful in designing integrated suicide-prevention and drug-treatment programs aimed at young adults.

The results of this study further support a recent report by the surgeon general on reducing suicide rates in the United States, recommendations of which included increasing access to drug abuse and mental health treatment, reducing stigma attached to obtaining these services, integrating drug abuse and mental health services, and promoting suicide research.<sup>3</sup>

Finally, since depressive symptoms often lessen or dissipate once drug treatment has begun,<sup>32</sup> enrollment in drug treatment may be one way in which to reduce suicidal acts in this population. For those with more serious depressive or other psychiatric disorders, screening for psychiatric symptoms with referrals to appropriate mental health care should be integrated into existing drug-treatment programs.

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### AUTHOR CONTRIBUTIONS

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