

The Relationship between Drug User Stigma and Depression among Inner-City Drug Users in Baltimore, MD

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ABSTRACT *There is growing awareness of the role of stigma and discrimination in HIV prevention, testing, and medical care. Yet, few studies have examined the stigma associated with using illicit drugs. In the present study, we examined the relationship between social network characteristics, drug user stigma, and depression. Study participants were comprised of 340 individuals who reported cocaine, crack, and/or heroin use in the prior 6 months and were involved in an HIV prevention study. They were recruited through street outreach, referrals, and word of mouth in inner-city Baltimore, MD, USA. The stigma scale was comprised of eight items, such as “how much do you feel ashamed of using drugs?” Depression was assessed with the Center for Epidemiological Studies Depression Scale, using cutoffs of 16 and 20 or greater. In the bivariate analyses, gender, homelessness in the past 6 months, drug user stigma, larger size of drug network, and current use of heroin, cocaine, and crack were all significantly associated with high levels of depression, whereas in the multivariate analyses, only drug user stigma remained significantly associated with depression. The results of this study suggest that drug treatment providers and other professionals who provide services to drug users should consider developing trainings to address drug user stigma. These programs should focus on the attitudes and behaviors of health and service providers toward drug users, among drug users themselves, and among family members and others who provide social support to drug users.*

KEYWORDS *Stigma, Depression, Drug use, Social networks, Heroin, Crack cocaine*

INTRODUCTION

Cocaine and heroin are linked to numerous physical health problems. In addition, a link between these drugs and depression is well established.^{1,2} Studies of opiate and cocaine users in treatment have revealed high levels of depressive symptomology and dual diagnosis of drug use and depression are common.^{3–5} Moreover, cessation of drug use is linked to a reduction in depressive symptoms. In a longitudinal study of recovery from heroin dependence, Hser⁶ found that lower levels of psychological distress predicted long-term recovery, and individuals who reported recovery of five or more years had significantly lower levels of depressive symptomology as assessed by the Center for Epidemiological Studies Depression Scale (CES-D). Other studies

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have also found that depression predicts relapse.⁷⁻¹¹ Drug treatment among cocaine users may lead to a reduction in depressive symptoms.¹²

A less-studied consequence of drug use is that of stigma. Drug use and mental illness are both potentially highly stigmatizing conditions. Studies of stigma have found high levels of stigmatization of alcoholics.¹³⁻¹⁵ Moreover, alcoholics tend to be perceived as responsible for their alcoholism compared to those with other mental illnesses.¹³ Stigma toward alcoholics has been shown to influence health-seeking behavior. The results from the 2004-2005 National Epidemiologic Survey of Alcohol and Related Conditions indicated that among individuals with a lifetime history of alcohol use disorders, those who reported higher levels of stigma toward alcoholics were less likely to report use of alcohol treatment services.¹⁴ Research on stigma also suggests that the level of stigma toward alcoholics is as high as stigma associated with schizophrenia.¹⁵

There is growing awareness and debate on the role of stigma and discrimination in HIV prevention, testing, and medical care.¹⁶⁻¹⁸ Most of these studies have focused on stigma among people who are living with HIV/AIDS. A few studies have examined how HIV stigma may impede HIV prevention activities and HIV testing and counseling.¹⁹⁻²¹ Another type of stigma, drug user stigma, may also influence the health of cocaine and heroin users who are at high risk for HIV infection. However, there is relatively little research on how stigma associated with drug use and the discrimination that drug users encounter may negatively influence their mental and physical health.

Studies have documented stigma toward drug use among health care providers.^{22,23} Patients with hepatitis C infection may be stigmatized by health care providers due to hepatitis C's association with injection drug use.²⁴ One study found that the drug user stigma was associated with risky injection behaviors among injection drug users in India.²⁵ Although the research on drug use-associated stigma is sparse, one large study of stigma, discrimination, and alienation recruited over 1,000 current cocaine, crack, or heroin users in New York City. The authors reported that self-reported experiences of discrimination were associated with poor mental and physical health.^{26,27}

Several studies have examined the public's attitudes toward drug users.^{28,29} These studies generally find high levels of social disapproval and stigmatization. Palamar and colleagues³⁰ found that individuals who reported using illicit drugs in the prior year held less stigmatized views of drug users, whereas those who self-reported greater exposure to drug users had higher levels of negative attitudes toward drug users. Investigators have also measured stigma toward treatment of substance use.³¹ In a study of stigma of drug use treatment, injection drug users, as compared to non-injectors, reported greater levels of drug treatment stigma.³²

Stigma is a multifaceted construct involving prejudice, stereotypes, and discrimination and can be experienced as enacted, anticipated, and internalized. Phelan et al.³³ have proposed that there are three functions of stigma and prejudice: (1) exploitation/domination, (2) enforcement of social norms, and (3) avoidance of disease. According to this perspective proposed by Link,³⁴ discrimination is considered a subset of behaviors that manifests because of prejudice and stigma. In the current analyses, and based on the work of Link, Phelan and colleagues, we treat stigma, prejudice, and discrimination as a single, intertwined concept.^{35,36} For this paper, we call this construct "drug user stigma" and examined the relationship between drug user stigma, which included reports of treatment by others and attitudes toward self based on drug use, and the outcome of depression.

Drug user stigma may also influence type and level of social support and social interactions. Link and colleagues³⁴ conclude that the stigma associated with

belonging to a stigmatized group may be expressed through discrimination, separation, and loss of status. Lack of social support may lead to depression³⁷ and drug use relapse.³⁸ Drug user stigma may also lead to rejection by non-drug users³⁴ and greater affiliation with other drug users. Consequently, in the present study, we also examine the relationship between social support networks and drug networks, drug user stigma, and depression. We anticipated that social network factors would be associated with depression but that this association would be attenuated when drug user stigma was included in a multivariate model of depression.

METHODS

The current analyses are cross-section from the (CHAT) study. “CHAT” was an acronym for a set of communication skills, taught in a social network-based HIV/STD prevention intervention for women and their social network members⁴⁰. The CHAT intervention trained women to be peer mentors for encouraging HIV and STI risk reduction within their social networks. The sample was comprised of two types of participants: index (76 %) and network participants (24 %). Women who were index participants were recruited through street outreach, referrals, and word of mouth in inner-city Baltimore, MD, USA.

Eligibility criteria for index participants included: (1) female gender, (2) age between 18 and 55 years, (3) did not report injecting drugs in the past 6 months, (4) reported sex with at least one male partner in the past 6 months, and (5) reported at least one of the following risk behaviors in the past 6 months: (a) more than two sex partners, (b) recent sexually transmitted infection (STI) diagnosis, and (c) having a high-risk sex partner (i.e., injected heroin or cocaine, smoked crack, HIV seropositive, or male who has sex with men). Index participants also referred their peer and risk network members to the study. Eligibility for network participants included: (1) injecting heroin or cocaine in the past 6 months, (2) sex partners of the index participant, or (3) people the index participants felt comfortable talking to about HIV or STIs.

Both index and network participants completed the same study visits. Interviews were conducted at a community-based research clinic. After providing written consent, participants were administered an interview by a trained interviewer using Audio-Computer-Assisted Self-Interview. Participants were compensated \$35 for completion of the baseline and 6 and 12 month visits. They were compensated with \$45 for completion of the 18-month visit. All study procedures were reviewed by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

Based on random assignment, half the indexes were assigned to the experimental condition, which consisted of five group sessions and one individual session. Participants were interviewed at baseline and 6, 12, and 18 months. The present analyses are based on the 18-month assessment, which were conducted between May 29, 2007, and February 17, 2009. Out of the 746 participants who completed the baseline, 672 completed the 18-month assessment.

Measures

Drug User Stigma The drug user stigma scale was comprised of eight items, which were based on a prior scale of drug user stigma,²⁵ and included items such as “how much do you feel ashamed of using drugs?”, “how much do you feel people avoid you because you use drugs?”, and “how much do you fear you will lose your friends

because you use drugs?” The 4-point response categories ranged from “not at all” to “very much.” Based on a factor analysis using principal component methods and scree plots, one strong factor emerged, which accounted for 46 % of the variance. All items loaded 0.40 or greater on the one factor. Cronbach's alpha for the stigma scale was 0.82. For the subsequent analyses, the response categories were added, averaged, and then dichotomized based on a mean split of ten and below versus greater than ten.

Social Network Characteristics A network inventory was used to collect social network data. Participants provided the first name and initial of the last name of individuals named in response to a set of 17 name-generating questions such as “during the last 6 months, who could you talk to about things that were personal and private or who could you get advice from?” and “during the last 6 months, who actually loaned or gave you some money over \$25 (or some valuable object that you needed)?” After the network lists were created, characteristics of each network member were collected including drug use history and relationship. The size of the social support network is a count of the number of people listed in the network inventory who provided material, emotional, or informational support in the past 6 months. The size of the drug network is a count of the number of people listed in the network who used cocaine, heroin, or crack. We also computed the number of family members in the social network as a role-based measure of social support.

Depressive Symptoms Depression was assessed with the CES-D.⁴⁰ The two standard cutoff points of 16 and greater and 20 and greater were used to create the outcome variables.⁴¹ In the analyses, we used both cutoff points to examine whether the associations differed by depression severity.

Individual-Level Characteristics We assessed several individual-level characteristics. Age was recorded as a continuous variable. Employment was categorized as employed at least part time or unemployed, and education was dichotomized as a high school diploma or lower and greater than a high school diploma. Homelessness in the past 6 months and main sexual partner were categorized as yes or no. Participants also reported their use of heroin, crack, and cocaine in the past 6 months.

Analyses

The sample was limited to index and network participants who reported cocaine, crack, and/or heroin use in the prior 6 months. Bivariate and multivariate logistic models were computed. Variables that were significant in the bivariate analyses ($p < 0.05$) were included in the multivariate models. In addition, to control for demographic variables, age, gender, and education were also included in the multivariate model.

RESULTS

Overall, 49.3 % of the participants had CES-D scores of 16 or greater and 36.9 % had CES-D scores of 20 or higher. Tables 1 and 2 present the bivariate associations with level of depressive symptoms. Table 1 uses a CES-D cutoff of 16 and above, whereas Table 2 uses a CES-D cutoff of 20 and above. In both sets of analyses, female gender, homelessness in the past 6 months, drug user stigma, larger size of drug network, and current use of heroin, cocaine, and crack were all significantly associated with high levels of depression. Lower education level was marginally associated with depression.

TABLE 1 Demographic data stratified by depression (CES-D cutpoint of 16)

Variable	CES-D \geq 16	CES-D<16	Overall %	<i>p</i> value
	<i>N</i> (%)	<i>N</i> (%)		
Gender				
Male	66 (20) ^a	100 (29.41)	24.70 ^b	0.005
Female	264 (80)	240 (70.59)	75.30	
Education				
High school or less	291 (88.72)	286 (84.12)	86.27	0.083
Some college or college degree	37 (11.28)	54 (15.88)	13.73	
Homelessness				
Yes	69 (20.91)	35 (10.29)	15.48	0.000
No	261 (79.09)	305 (89.71)	84.52	
Main sexual partner				
Yes	235 (72.76)	248 (75.38)	74.08	0.444
No	88 (27.24)	81 (24.62)	25.92	
Drug stigma				
High	90 (58.06)	27 (29.35)	47.37	0.000
Low	65 (41.94)	65 (70.65)	52.63	
Crack use				
Never	92 (27.88)	128 (37.65)	32.89	0.000
Former	116 (35.15)	135 (39.71)	37.50	
Current	122 (36.97)	77 (22.65)	29.61	
Cocaine use				
Never	166 (50.46)	169 (49.71)	49.93	0.008
Former	129 (39.21)	156 (45.88)	42.77	
Current	34 (10.33)	15 (4.41)	7.30	
Heroin use				
Never	109 (33.03)	133 (39.12)	36.16	0.000
Former	132 (40.00)	160 (47.06)	43.60	
Current	89 (26.97)	47 (13.82)	20.24	
	Mean (SE)	Mean (SE)	Mean (SE)	
Age	44.07 (0.47)	43.97 (0.47)	44.04 (0.33)	0.001
Size of drug network	0.78 (0.07)	0.42 (0.06)	0.60 (0.05)	0.0001
Size of social support network	3.34 (0.12)	3.42 (0.10)	3.38 (0.08)	0.630
Size of family network	2.91 (0.13)	2.94 (0.12)	2.93 (0.09)	0.787

^aNumber of subjects in that category and percentage between brackets for categorical variables,

^bOverall frequency for categorical variables

In the multivariate analysis, Table 3, only drug user stigma remained associated with depression in both models. In the model with CES-D \geq 16 as the outcome, gender was marginally associated with depression, whereas in the CES-D \geq 20 model, female gender remained significantly associated with depression ($p < 0.01$, OR=2.89). The variables of drug use status and homelessness, which were significant in the bivariate models, became nonsignificant in the multivariate models. In addition, size of drug network became nonsignificant in the multivariate model.

DISCUSSION

The results of this study suggest that depression is linked to both drug use and drug user stigma and that active drug use does not statistically explain the association

TABLE 2 Demographic data stratified by depression (CES-D cutpoint of 20)

Variable	CES-D \geq 20	CES-D < 20	Overall %	p value
	N (%)	N (%)		
Gender				
Male	41 (16.60) ^a	125 (29.55)	24.70 ^b	
Female	206 (83.40)	298 (70.45)	75.30	0.000
Education				
High school or less	220 (89.80)	357 (84.40)	86.27	
Some college or college degree	25 (10.20)	66 (15.60)	13.73	0.050
Homelessness				
Yes	56 (22.67)	48 (11.35)	15.48	
No	191 (77.33)	375 (88.65)	84.52	0.000
Main sexual partner				
Yes	176 (73.33)	307 (74.51)	74.08	
No	64 (26.67)	105 (25.49)	25.92	0.740
Drug user stigma				
High	76 (61.79)	41 (33.06)	47.37	
Low	47 (38.21)	83 (66.94)	52.63	0.000
Crack use				
Never	66 (26.72)	154 (36.41)	32.89	
Former	81 (32.79)	170 (40.19)	37.50	
Current	100 (40.49)	99 (23.40)	29.61	0.000
Cocaine use				
Never	123 (50.00)	212 (50.12)	49.93	
Former	96 (39.02)	189 (44.68)	42.77	
Current	27 (10.98)	22 (5.20)	7.30	0.000
Heroin use				
Never	77 (31.17)	165 (39.01)	36.16	
Former	103 (41.70)	189 (44.68)	43.60	
Current	67 (27.13)	69 (16.31)	20.24	0.003
	Mean (SE)	Mean (SE)	Mean (SE)	
Age	44.22 (0.53)	43.90 (0.42)	44.04(0.33)	0.637
Size of drug network	0.96 (0.09)	0.69 (0.05)	0.79(0.05)	0.007
Size of social support network	3.40 (0.15)	3.36 (0.10)	3.38 (0.08)	0.811
Size of family network	2.98 (0.16)	2.90 (0.11)	2.93 (0.09)	0.685

^aNumber of subjects in that category and percentage between brackets for categorical variables

^bOverall frequency for categorical variables

between drug user stigma and depression. We also found that drug user stigma was associated with size of drug network but not with size of social support network. These results suggest that drug user stigma may be linked to differential affiliation as assessed by interacting with more drug users but not social isolation as assessed by size of social support network. In the multivariate model, the size of drug network was no longer associated with depression, suggesting that this association between size of drug network and depression may be in part explained by the association between drug user stigma and depression.

Several study limitations should be noted. This sample was not randomly selected. Participants were recruited in targeted neighborhoods, which tended to have high levels of drug use, and individuals were only eligible to enroll if they reported HIV risk behaviors. Moreover, these data were based on self-reports. The measure of drug users' stigma may not have adequately captured all the dimensions of this

TABLE 3 Multivariate association between drug user stigma and two levels of depression

Variables	CES-D $\geq 20^a$		CES-D $\geq 16^a$	
	OR (95 % CI)	<i>p</i> value	OR (95 % CI)	<i>p</i> value
Age	1.00 (0.957, 1.053)	0.864	1.00 (0.950, 1.051)	0.968
Gender	2.89 (1.432, 5.838)	0.003	2.08 (0.992, 4.350)	0.053
Education	0.55 (0.229, 1.338)	0.189	0.66 (0.257, 1.692)	0.386
Size of drug network	1.02 (0.850, 1.222)	0.837	1.04 (0.866, 1.260)	0.648
Homelessness	1.29 (0.630, 2.645)	0.485	1.36 (0.679, 2.707)	0.389
Drug user stigma	3.02 (1.688, 5.409)	0.000	2.77 (1.504, 5.113)	0.001
Crack use				
Never	Ref.	–	Ref.	–
Former	0.94 (0.285, 3.102)	0.918	0.89 (0.223, 3.565)	0.871
Current	0.89 (0.330, 2.409)	0.820	0.62 (0.211, 1.808)	0.379
Heroin use				
Never	Ref.	–	Ref.	–
Former	1.26 (0.548, 2.889)	0.589	0.83 (0.360, 1.934)	0.672
Current	0.86 (0.429, 1.710)	0.660	0.89 (0.439, 1.818)	0.755
Cocaine				
Never	Ref.	–	Ref.	–
Former	0.84 (0.402, 1.736)	0.630	0.83 (0.404, 1.709)	0.614
Current	1.21 (0.543, 2.675)	0.646	1.18 (0.507, 2.728)	0.706

^a244 subjects in the multivariate analysis

construct. These data are also cross-sectional; hence, we do not know the direction of the casual pathway between drug use, drug user stigma, size of drug network, and depression. Drug use can lead to depression, and depression may lead to subsequent drug use. Drug user stigma may lead to rejection and social isolation, which is linked to depression. However, in the current study, we did not find that stigma was associated with size of overall social support network, which may suggest that social support is not a unidimensional concept or functions differently in different social contexts. Future studies should examine specific domains of social support and its relationship to stigma. Future study may also benefit from examining different factors or domains of drug user stigma. Inventories with more items may be able to discern important factors of drug user stigma. Sampling for this study was primarily conducted in neighborhoods with high levels of drug use. Consequently, drug users may be more socially integrated with non-drug users in neighborhoods with high levels of drug use. Although stigma may lead to depression, it is also feasible that depression may alter self-concept and heighten self-stigma. It is likely that drug use and drug user stigma are mutually enhancing concepts, which influence depression and impede drug use cessation.

The stigma of drug use is a double-edged sword. The stigma of drug use can be used as a means of social control to help prevent the use of licit and illicit drugs. Yet, several studies suggest that the stigma of tobacco smoking may have unintended negative consequences, including discrimination, negative mental health, and delay in seeking medical care.⁴² Increasing the stigma of using illicit drugs may increase drug users' self stigma and the stigmatizing behaviors of others. This in turn may result in impaired access to treatment of drug use, depression and subsequent relapse, and greater affiliation with active drug users, which is associated with continued drug use.

A fundamental question for public approaches to controlling drug use is how to make hazardous drug use less desirable without stigmatizing drug users. With legal drugs, such as tobacco and alcohol, reducing access and controlling advertisements by tobacco and alcohol companies are effective means that do not necessarily lead to increased stigma of users. However, with illicit drugs, the same public health approaches are not available. Messages of the negative consequences of drug use may be difficult to convey without promoting drug user stigma. Given the lack of documented effectiveness of many public service announcements on drug use prevention, we should also consider the unintended negative consequences of how drug users are portrayed in health communications.

Given the link between drug user stigma and depression, future longitudinal studies should assess the direction of this association. Regardless of the direction of the causal association, drug treatment program providers and other professionals who provide services to drug users should consider developing trainings to address drug user stigma. These programs should focus on the attitudes and behaviors of health and service providers toward drug users, among drug users themselves, among family members, and others who provide social support to drug users.

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