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CORRELATES OF STIGMA SEVERITY AMONG PERSONS SEEKING OPIOID DETOXIFICATION

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Abstract

Introduction—Among people with opioid use disorder (OUD), stigma is a known barrier to accessing treatment and has negative impacts on physical and mental health. The purpose of this study was to understand the factors associated with self-stigma and perceived stigma severity among people with OUD entering an inpatient detoxification program.

Methods—Between December 2015 and August 2016, consecutive persons seeking inpatient opioid detoxification were asked to complete a survey that included socio-demographic, drug use, treatment variables, an 8-item General Self-Stigma scale and a 3-item Treatment Stigma scale. Correlates of stigma severity were estimated using ordinary least squares regression.

Results—The 407 participants had an average age of 32.4 ($\pm$ 8.79) years, with 72.2% male, and 84.5% non-Hispanic White. Two-thirds had ever received medication-assisted treatment for OUD and 323 (79.4%) had ever been admitted to a detoxification program. Adjusted mean General Self-Stigma scores were positively and significantly associated with recent injection drug use (b = 0.262, p = 0.032), and having previously entered detoxification programs (b = 0.330, p = 0.016). Adjusted mean Treatment Stigma scores were positively and significantly associated with years of education (b = 0.142, p = 0.002), having ever been prescribed naltrexone (b = 0.277, p = 0.025), and having previously entered detoxification programs (b = 0.389, p = 0.007).

Conclusion—People with OUD presenting for inpatient detoxification struggle with experiences of self and perceived stigma. Strikingly, people with previous detoxification program admission had higher levels of stigma on both scales. Our findings suggest an opportunity for targeted intervention in this group.

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Keywords

stigma; opioid use disorder; opioids; detoxification; treatment; injection drug use

INTRODUCTION

The United States is currently facing an opioid crisis: in 2015, 33,091 people died from opioid-related overdose, a greater than 200% increase in the rate of opioid-related overdose deaths since 2000 (Rudd et al., 2016a; Rudd et al., 2016b). There are efficacious treatments for opioid use disorder (OUD), however according to the National Survey on Drug Use and Health, of the 2.5 million Americans 12 years and older who misused or were dependent on opioids in 2012, fewer than 1 million received treatment with methadone, buprenorphine/naloxone or naltrexone (Volkow et al., 2014). Entry into a detoxification program can be a first step toward a period of prolonged abstinence when it is associated with linkage to medication-assisted therapies (MAT) (Mark et al., 2002; Carrier et al., 2011; BaileyHerman & Stein, 2013), however, detoxification itself is not a first line treatment for OUD owing to poorer outcomes compared with MAT (Luty, 2003; Strang et al., 2003; MacArthur et al., 2012), nor is admission to detoxification required prior to initiation of MAT. Despite this, many Americans are accessing care for OUD in locales where MAT has traditionally been inaccessible – in inpatient settings including detoxification units or residential treatment settings, and in self-help groups (Saloner & Karthikeyan, 2015).

Stigmatization is the act of applying stigma, or labeling an individual as disgraceful or unworthy in response to a perceived flaw or negative characteristic (Gilmore & Somerville, 1994), and it is among the most common reasons that people with substance use disorders do not initiate treatment or do not maintain treatments that allow for periods of sustained abstinence (Grant, 1997; Keyes et al., 2010; Wallhed FinnBakshi & Andreasson, 2014; Probst et al., 2015). Stigma has also been associated with negative mental and physical health consequences among people with substance use disorders (Link et al., 1997; AhernStuber & Galea, 2007). Various types of stigma have been described. Enacted stigma is the experienced discrimination that comes with membership in a particularly stigmatized group such as those with a diagnosis of opioid use disorder (van Brakel et al., 2006). Perceived stigma describes what a member of a stigmatized group believes others think about that group; for instance, when a person who uses drugs senses negative public attitudes about the need to get treatment (van Brakel et al., 2006). Self-stigma refers to negative thoughts and shame that emerge from identification with a stigmatized group (van Brakel et al., 2006).

It has been well documented that persons with substance use disorders face stigma from health care providers (van Boekel et al., 2014, 2015), family members (van Boekel et al., 2015, 2016) and the general public (van Boekel et al., 2015), which may lead to treatment avoidance or drop-out from ongoing treatment. One qualitative study of people with OUD in China who were treatment-naïve revealed a strong desire for treatment but intense fear of perceived stigma (Lembke & Zhang, 2015). Yet little has been written about stigma among those presenting for opioid detoxification in the United States.

Given the ongoing opioid crisis and the known pernicious effects of stigma, the purpose of this study was to understand the factors associated with perceived and self-stigma among people with OUD entering an inpatient detoxification program. We hypothesized that those who reported higher levels of perceived and self-stigma would be less likely to report previous detoxification program use or prior medication-assisted treatment (MAT). We also hypothesized that persons who were currently injecting drugs would report greater perceived and self-stigma than those who were not.

METHODS

Between December 2015 and August 2016, consecutive persons seeking inpatient opioid detoxification were approached at the time of admission to Stanley Street Treatment and Resources, Inc. (SSTAR) in Fall River, Massachusetts to participate in a survey research study. SSTAR's detoxification program provides evaluation and withdrawal management using a methadone taper protocol, individual and group counseling, and aftercare case management with referrals to medication-assisted treatments, and has a mean length-of-stay of 4.9 days.

Of patients admitted to SSTAR during the recruitment period, 457 were opioid users who were 18 years or older, English-speaking, and able to provide informed consent as approved by the Butler Hospital Institutional Ethics Review Board. Twenty-three refused study participation or were discharged before staff could interview them. The remaining 434 persons completed a non-incentivized, face-to-face interview administered by non-treating research staff that required approximately 15 minutes, and 407 provided responses to all the measures of interest and constitute the study sample.

Socio-demographic variables included age, gender, race/ethnicity, and years of education. Recent injection drug use was defined as having injected drugs in the last 30 days. Treatment access variables included having ever been prescribed methadone maintenance therapy (MMT), buprenorphine/naloxone or naltrexone (oral or extended-release); having ever accessed detoxification; and having accessed a primary care provider in the last year.

Our outcome of interest was stigma severity. Because we were interested in self-stigma and perceived stigma that may lead individuals to avoid treatment, we adapted the General Self-Stigma Subscale and the Treatment Stigma Subscale from Kanter's Depression Self-Stigma Scale. These scales been found to have good content validity, construct validity and internal consistency (KanterRusch & Brondino, 2008; Brohan et al., 2010). The General Self-Stigma Subscale measures personally-relevant stereotype awareness and thus internalized shame. The Treatment Stigma Subscale measures stigmatizing attitudes about receiving treatment (perceived stigma), which in clients presenting for treatment would also reflect internalized shame (self-stigma). For all questions we substituted "I use drugs" for "I am depressed." For instance, we changed "Others think I am not worth the investment of time and resources because I am depressed" to "Others think I am not worth the investment of time and resources because I use drugs." Questions included in each subscale are listed in Table I. We shortened the General Self-Stigma Subscale from nine items to eight (maximum score 56) and the Treatment Stigma Subscale from four items to three (maximum score 21). Internal

consistency reliabilities are 0.826 and 0.688 for the General Self-Stigma Subscale and the Treatment Stigma Subscale, respectively, with higher scores indicating greater stigma.

Additionally, we conducted an auxiliary analysis evaluating the association of stigma with measures of mental and physical health. To do so, we used the PHQ-2 depression screen (KroenkeSpitzer & Williams, 2003) and the first item of the SF-12 (WareKosinski & Keller, 1996) which asks, “In general, would you say your health is excellent, very good, good, fair, or poor,” and serves as a self-rating of general health.

We present descriptive statistics to summarize the characteristics of the sample. Associations were estimated using ordinary least squares regression. All continuous variables were standardized to 0 mean and unit variance prior to estimation. The reported regression coefficients are fully standardized for continuous correlates, and y-standardized for categorical correlates. Tests of significance were based on the Huber-White variance estimates which are robust to heteroscedasticity. We focus our presentation of results on the adjusted associations and only describe unadjusted associations if they are discrepant. We also report product-moment correlations as an auxiliary analysis exploring the association of General Self-Stigma and Treatment Stigma with indicators of self-rated physical health and depressive symptoms.

RESULTS

Participants averaged 32.4 ($\pm$ 8.79) years of age, 72.2% were male, 88.2% were White, 3.7% were African-American and 8.1% were of Hispanic Ethnicity (Table II). Race/ethnicity was dichotomized to contrast non-Hispanic Whites to all ethnic/racial minorities in subsequent analyses. Mean educational attainment was 11.9 ($\pm$ 1.70) years. Most (94.3%) reported heroin was the drug for which they were receiving detoxification; only 5.7% said they were in detoxification for other opioids. Mean number of heroin-use days in the last 30 days was 25.4 ($\pm$ 8.88) days and 70.5% had injected drugs in the past 30 days. 41.5%, 41.8%, and 13.8% reported they had ever been in methadone, buprenorphine/naloxone, or naltrexone treatments, respectively; 275 (66.6%) had ever had any medication-assisted treatment for opioid use and 323 (79.4%) had ever been admitted to a detoxification program. Just over half (52.6%) of the participants had seen a primary care physician in the past year. Mean scores on the General Self-Stigma and Treatment Stigma Subscales were 31.6 ($\pm$ 10.0) and 12.3 ($\pm$ 4.43), respectively.

Persons who reported recent injection drug use had significantly higher adjusted mean General Self-Stigma Subscale scores ($b = 0.262$, $p = 0.032$) than those who had not recently injected (Table III). Adjusted mean General Self-Stigma Subscale scores were also significantly higher ($b = 0.330$, $p = 0.016$) among persons with a prior history of entering detoxification programs. Other evaluated correlates were not associated significantly with stigma severity on the General Self-Stigma Subscale.

Higher Treatment Stigma Subscale scores were positively and significantly associated with years of education attainment ($b = 0.142$, $p = 0.002$) (Table III). Adjusted mean Treatment Stigma Subscale scores were also significantly higher among persons who had ever been

prescribed naltrexone ($b = 0.277$, $p = 0.025$) and among persons who had previously entered detoxification programs ($b = 0.389$, $p = 0.007$). Unadjusted mean Treatment Stigma Subscale scores were significantly higher among persons who reported recent injection drug use ($b = 0.312$, $p = 0.006$) and for persons who had been prescribed buprenorphine/naloxone ($b = 0.258$, $p = 0.008$), though these associations were attenuated and not statistically significant at conventionally accepted levels after controlling for the other covariates included in the multivariate regression model.

Examination of the association of the General Self-Stigma and Treatment Stigma Subscales with indicators of perceived general physical and psychological health revealed higher General Self-Stigma Subscale scores were associated significantly with lower perceived general physical health ($r = -0.21$, $p < 0.001$), though Treatment Stigma Subscale scores were not ($r = -0.08$, $p = 0.114$). General Self-Stigma Subscale scores were associated positively and significantly with PHQ-2 depression ($r = 0.36$, $p < .001$) as were Treatment Stigma Subscale scores ($r = 0.14$, $p = 0.004$).

DISCUSSION

General Self-Stigma and Treatment Stigma Subscale scores were significantly higher among persons with a prior history of accessing detoxification care, which was not in keeping with our original hypothesis. This finding may be mediated by enacted stigma – individuals who previously attended detoxification may have experienced discrimination from healthcare professionals, employers, or relatives related to the admission of opioid use and as a result had an increased sense of self and perceived stigma. Stigmatizing attitudes held by healthcare providers are well documented (van Boekel et al., 2014, 2015). Semple et al. found that enacted stigma was positively associated with treatment history among a sample of methamphetamine users (SempleGrant & Patterson, 2005). Unfortunately, we did not measure enacted stigma in our study, and therefore cannot confirm this possible explanation.

Another possible explanation for these unexpected findings may lie in the fact that these opioid users were care-seeking (presenting for detoxification) and not community-dwelling. We believe that opioid users who have previously attended detoxification may experience an increased sense of self and perceived stigma due to a belief that previous detoxification treatments have failed.

A final possible interpretation of these findings is that higher stigma may motivate people who use substances to seek treatment. This interpretation is not supported by the literature; stigma has consistently been found to be a barrier to treatment for community-dwelling people who use substances (Grant, 1997; Keyes et al., 2010; Wallhed FinnBakshi & Andreasson, 2014; Lembke & Zhang, 2015; Probst et al., 2015); stigma severity has also been consistently associated with lower perceived mental and physical health (Link et al., 1997; AhernStuber & Galea, 2007). Our auxiliary analysis confirmed that in our sample, higher General Self-Stigma Subscale scores were associated with higher depression and lower general health scores.

Treatment Stigma Subscale scores were significantly associated with a history of being prescribed naltrexone, but not with other medication-assisted therapies. This finding is interesting given that previous studies have shown that clients enrolled in methadone maintenance programs reported high degrees of perceived and enacted stigma (Conner; EarnshawSmith & Copenhaver, 2013; Lindgren et al., 2015). To our knowledge however, no studies have examined the role of stigma in clients' choice of naltrexone compared with other therapies, nor clients' experiences of stigma while taking naltrexone. It may be that participants with higher self-stigma chose naltrexone over other therapies for OUD in order to avoid the stigma associated with opioid agonist therapy which is often perceived as "substituting" one addiction for another. This may be a bias in our results overall given that detoxification is not necessary for starting methadone or buprenorphine, and therefore those presenting for opioid detoxification may have higher self and perceived stigma compared to those presenting directly for MAT. Alternatively, given that naltrexone is indicated for both OUD and alcohol use disorder, those clients may have compounded shame associated with using both substances. Again, we don't have data to confirm these speculations, but these findings merit further investigation.

Persons who reported recent injection drug use had significantly higher General Self-Stigma Subscale scores than those who had not recently injected. This finding is not surprising given the known stigmatizing attitudes held by healthcare professionals regarding injection drug use (McLaughlin & Long, 1996; Chan et al., 2008; DecetyEchols & Correll, 2010) as well as stigmatization of this route of drug administration among drug users themselves (Flom et al., 2001).

Finally, higher Treatment Stigma Subscale scores were positively and significantly associated with years of education attainment. There are few studies to our knowledge relating stigma severity to educational attainment or socio-economic status. It is possible that opioid use may be particularly stigmatized among people of higher socio-economic status.

Our study has limitations. The scales used in this study were adapted from Kanter et al. (2008) who were studying depression, and have not been validated in substance-using populations (KanterRusch & Brondino, 2008). Adaptations of mental illness scales however, are common in this literature (KuleszaLarimer & Rao, 2013), given the absence of widely-used substance use stigma scales. For this study, internal consistency reliabilities of the General Self-Stigma Subscale and the Treatment Stigma Subscale were 0.826 and 0.688, respectively. The latter may be considered moderately low however we note that alpha is affected not only by the degree to which items are correlated, but also by the number of items. Second, our study population was primarily male and White which may have led to lower stigma scores considering known effects of gender and race on stigma severity (SempleGrant & Patterson, 2005; Keyes et al., 2010; Brown, 2011; Kulesza et al., 2016). We expect however that this would bias our results toward the null. We do not have data on participants' past non-pharmacologic treatments for opioid use disorder such as Narcotics Anonymous or other forms of counselling which may impact stigma. Additionally, most (94.3%) of the participants in our sample said that heroin was the drug for which they were seeking detoxification. The homogeneity of this sample limits our ability to determine if

stigma would vary by type of opioid used and this merits further exploration. Finally, we did not conduct a structured interview to verify the diagnosis of opioid use disorder in those presenting for opioid detoxification however we feel confident that those included in the study reflect a population of individuals with at least moderate-severity opioid use disorder given that 70.5% had injected drugs in the past 30 days, mean heroin-use days in the last one month was high, and two-thirds had previously accessed medication-assisted therapies.

CONCLUSION

Our findings suggest that opioid users presenting for inpatient detoxification continue to struggle with experiences of self and perceived stigma. Although stigma may be a barrier to accessing a first episode of substance use treatment—which is not the subject of this analysis—it appears that higher stigma is associated with previous detoxification program admissions. Given that stigma is associated with negative mental and physical health consequences among people with substance use disorders (Link et al., 1997; AhernStuber & Galea, 2007), our findings represent an opportunity for targeted intervention. A recent systematic review of interventions to address stigma among substance-using populations found that self-stigma can be reduced through therapeutic interventions such as group-based acceptance and commitment therapy (Livingston et al., 2012). Interventions to reduce stigma among people who use opioids presenting for detoxification could be targeted at those with previous detoxification attempts, those with a history of naltrexone use, those with higher educational attainment, and at patients with more stigmatized drug use behavior such as injection drug use.

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References

- Ahern J, Stuber J, Galea S. Stigma, discrimination and the health of illicit drug users. *Journal*. 2007; 88:188–196.
- Bailey GL, Herman DS, Stein MD. Perceived relapse risk and desire for medication assisted treatment among persons seeking inpatient opiate detoxification. *J Subst Abuse Treat*. 2013; 45:302–305. [PubMed: 23786852]
- Brohan E, Slade M, Clement S, et al. Experiences of mental illness stigma, prejudice and discrimination: a review of measures. *BMC Health Services Research*. 2010; 10:80–80. [PubMed: 20338040]
- Brown SA. Standardized measures for substance use stigma. *Journal*. 2011; 116:137–141.
- Carrier E, McNeely J, Lobach I, et al. Factors associated with frequent utilization of crisis substance use detoxification services. *Journal*. 2011; 30:116–122.
- Chan KY, Stooze MA, Sringernyuan L, et al. Stigmatization of AIDS patients: disentangling Thai nursing students' attitudes towards HIV/AIDS, drug use, and commercial sex. *AIDS Behav*. 2008; 12:146–157. [PubMed: 17364148]
- Conner KO. “You're Nothing But a Junkie”: Multiple Experiences of Stigma in an Aging Methadone Maintenance Population. *Journal of social work practice in the addictions*. 8:244–264.
- Decety J, Echols S, Correll J. The blame game: the effect of responsibility and social stigma on empathy for pain. *J Cogn Neurosci*. 2010; 22:985–997. [PubMed: 19425830]

- Earnshaw V, Smith L, Copenhaver M. Drug Addiction Stigma in the Context of Methadone Maintenance Therapy: An Investigation into Understudied Sources of Stigma. *Int J Ment Health Addict*. 2013; 11:110–122. [PubMed: 23956702]
- Flom PL, Friedman SR, Kottiri BJ, et al. Stigmatized drug use, sexual partner concurrency, and other sex risk network and behavior characteristics of 18- to 24-year-old youth in a high-risk neighborhood. *Sex Transm Dis*. 2001; 28:598–607. [PubMed: 11689758]
- Gilmore N, Somerville MA. Stigmatization, scapegoating and discrimination in sexually transmitted diseases: overcoming 'them' and 'us'. *Soc Sci Med*. 1994; 39:1339–1358. [PubMed: 7801170]
- Grant BF. Barriers to alcoholism treatment: reasons for not seeking treatment in a general population sample. *J Stud Alcohol*. 1997; 58:365–371. [PubMed: 9203117]
- Kanter JW, Rusch LC, Brondino MJ. Depression self-stigma: a new measure and preliminary findings. *Journal*. 2008; 196:663–670.
- Keyes KM, Hatzenbuehler ML, McLaughlin KA, et al. Stigma and treatment for alcohol disorders in the United States. *Am J Epidemiol*. 2010; 172:1364–1372. [PubMed: 21044992]
- Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Med Care*. 2003; 41:1284–1292. [PubMed: 14583691]
- Kulesza M, Larimer ME, Rao D. Substance Use Related Stigma: What we Know and the Way Forward. *J Addict Behav Ther Rehabil*. 2013; 2
- Kulesza M, Matsuda M, Ramirez JJ, et al. Towards greater understanding of addiction stigma: Intersectionality with race/ethnicity and gender. *Journal*. 2016; 169:85–91.
- Lembke A, Zhang N. A qualitative study of treatment-seeking heroin users in contemporary China. *Addict Sci Clin Pract*. 2015; 10:23. [PubMed: 26538288]
- Lindgren B-M, Eklund M, Melin Y, et al. From Resistance to Existence—Experiences of Medication-Assisted Treatment as Disclosed by People with Opioid Dependence. *Issues in Mental Health Nursing*. 2015; 36:963–970. [PubMed: 26735504]
- Link BG, Struening EL, Rahav M, et al. On stigma and its consequences: evidence from a longitudinal study of men with dual diagnoses of mental illness and substance abuse. *J Health Soc Behav*. 1997; 38:177–190. [PubMed: 9212538]
- Livingston JD, Milne T, Fang ML, et al. The effectiveness of interventions for reducing stigma related to substance use disorders: a systematic review. *Addiction*. 2012; 107:39–50.
- Luty J. What works in drug addiction? *Advances in Psychiatric Treatment*. 2003; 9:280–288.
- MacArthur GJ, Minozzi S, Martin N, et al. Opiate substitution treatment and HIV transmission in people who inject drugs: systematic review and meta-analysis. *BMJ*. 2012; 345:e5945. [PubMed: 23038795]
- Mark TL, Dilonardo JD, Chalk M, et al. Trends in inpatient detoxification services, 1992–1997. *Journal*. 2002; 23:253–260.
- McLaughlin D, Long A. An extended literature review of health professionals' perceptions of illicit drugs and their clients who use them. *J Psychiatr Ment Health Nurs*. 1996; 3:283–288. [PubMed: 9004621]
- Probst C, Manthey J, Martinez A, et al. Alcohol use disorder severity and reported reasons not to seek treatment: a cross-sectional study in European primary care practices. *Subst Abuse Treat Prev Policy*. 2015; 10:32. [PubMed: 26264215]
- Rudd RA, Aleshire N, Zibbell JE, et al. Increases in Drug and Opioid Overdose Deaths--United States, 2000–2014. *MMWR Morb Mortal Wkly Rep*. 2016a; 64:1378–1382. [PubMed: 26720857]
- Rudd RA, Seth P, David F, et al. Increases in Drug and Opioid-Involved Overdose Deaths - United States, 2010–2015. *MMWR Morb Mortal Wkly Rep*. 2016b; 65:1445–1452. [PubMed: 28033313]
- Saloner B, Karthikeyan S. Changes in Substance Abuse Treatment Use Among Individuals With Opioid Use Disorders in the United States, 2004–2013. *Journal*. 2015; 314:1515–1517.
- Semple SJ, Grant I, Patterson TL. Utilization of drug treatment programs by methamphetamine users: the role of social stigma. *Journal*. 2005; 14:367–380.
- Strang J, McCambridge J, Best D, et al. Loss of tolerance and overdose mortality after inpatient opiate detoxification: follow up study. *BMJ*. 2003; 326:959–960. [PubMed: 12727768]

- van Boekel LC, Brouwers EP, van Weeghel J, et al. Healthcare professionals' regard towards working with patients with substance use disorders: comparison of primary care, general psychiatry and specialist addiction services. *Journal*. 2014; 134:92–98.
- van Boekel LC, Brouwers EP, van Weeghel J, et al. Comparing stigmatising attitudes towards people with substance use disorders between the general public, GPs, mental health and addiction specialists and clients. *Journal*. 2015; 61:539–549.
- van Boekel LC, Brouwers EP, van Weeghel J, et al. Experienced and anticipated discrimination reported by individuals in treatment for substance use disorders within the Netherlands. *Health Soc Care Community*. 2016; 24:e23–33. [PubMed: 26417904]
- van Brakel WH, Anderson AM, Mutatkar RK, et al. The Participation Scale: measuring a key concept in public health. *Journal*. 2006; 28:193–203.
- Volkow ND, Frieden TR, Hyde PS, et al. Medication-assisted therapies--tackling the opioid-overdose epidemic. *N Engl J Med*. 2014; 370:2063–2066. [PubMed: 24758595]
- Wallhed Finn S, Bakshi AS, Andreasson S. Alcohol consumption, dependence, and treatment barriers: perceptions among nontreatment seekers with alcohol dependence. *Subst Use Misuse*. 2014; 49:762–769. [PubMed: 24601784]
- Ware J Jr, Kosinski M, Keller SD. A 12-Item Short-Form Health Survey: construction of scales and preliminary tests of reliability and validity. *Med Care*. 1996; 34:220–233. [PubMed: 8628042]

Table I

Drug-use Stigma Scales Adapted from (Kanter et al., 2008)

General Self-Stigma Subscale
Others view me as unable to care for myself because I use drugs
Others view me as morally weak because I use drugs
Others think that I am not worth the investment of time and resources because I use drugs
People have told me that using drugs is what I deserve for how I've lived my life
Since starting drugs, I worry about people discriminating against me
When people learned I use drugs, they looked for flaws in my character
People's attitudes about drugs make me feel worse about myself
Some people who know I use drugs have grown more distant
Treatment Stigma Subscale
Receiving treatment for drug use carries social stigma (mark of shame, a black mark)
People will see a person in a less favorable way if they come to know he/she received treatment for drug use
It is advisable for a person to hide from people that he/she has been treated for drug use

Table II

Baseline Characteristics of Participants with OUD Admitted for Detoxification (n=407)

	n (%)	Mean ($\pm$ SD)	Median	Range
Age		32.4 ($\pm$ 8.79)	18	18 – 65
Gender (male)	294 (72.2%)			
Hispanic Ethnicity	33 (8.1%)			
Non-Hispanic White	344 (84.5%)			
Race				
White	359 (88.2%)			
African-American	15 (3.7%)			
Education		11.9 ($\pm$ 1.70)	12	7 – 18
Detox from heroin	384 (94.3%)			
IDU past 30 Days	287 (70.5%)			
Ever MMT	169 (41.5%)			
Ever buprenorphine	170 (41.8%)			
Ever naltrexone	56 (13.8%)			
Ever detoxification	323 (79.4%)			
Primary care in last year	214 (52.6%)			
General Self-Stigma		31.6 ($\pm$ 10.0)	32	8 – 56
Treatment Stigma		12.3 ($\pm$ 4.43)	13	3 – 21

Table III

Unadjusted and Adjusted Correlates of General Self-Stigma and Treatment Stigma Subscales (n = 407).

	General Self-Stigma Subscale		Treatment Stigma Subscale	
	Unadjusted b (p =) ^a	Adjusted b (p =) ^a	Unadjusted b (p =) ^a	Adjusted b (p =) ^a
Age	-.038 (.419)	-.044 (.376)	.038 (.439)	.011 (.823)
Gender (male)	-.209 (.070)	-.233 (.056)	-.019 (.869)	.012 (.914)
Non-Hispanic White	-.135 (.391)	-.117 (.447)	-.032 (.831)	-.054 (.720)
Education	.042 (.423)	.017 (.754)	.144 (.002)	.142 (.002)
Detox from heroin	.203 (.176)	-.026 (.864)	.093 (.499)	-.120 (.444)
IDU past 30 days	.331 (.003)	.262 (.032)	.312 (.006)	.189 (.141)
Ever MMT	.100 (.318)	.042 (.690)	.006 (.955)	-.130 (.199)
Ever buprenorphine	.180 (.070)	.067 (.553)	.258 (.008)	.148 (.179)
Ever naltrexone	.110 (.399)	.018 (.892)	.400 (.001)	.277 (.025)
Ever detoxification	.396 (.001)	.330 (.016)	.512 (<.000)	.389 (.007)
Primary care in last year	-.012 (.900)	-.105 (.2966)	.111 (.264)	-.010 (.919)

^a All continuous variables, including disclosure concern and general stigma, were standardized to 0 mean and unit variance prior to analysis. The reported regression coefficients are fully standardized for continuous correlates, and y-standardized for categorical correlates. Tests of significance were based on the Huber-White standard errors which are robust to heteroscedasticity.