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Gender Differences in Comorbid Disorders among Offenders in Prison Substance Abuse Treatment Programs

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Abstract

This study examined gender differences in a range of lifetime psychiatric disorders in a sample of 272 offenders newly admitted to a prison substance abuse program. Although these men and women did not differ in severity of substance use in the six months prior to incarceration, women were significantly more likely than men to report a lifetime psychiatric disorder and a lifetime severe disorder. Furthermore, gender differences emerged in the pattern of lifetime psychiatric comorbidity. Women reported greater lifetime major depression, posttraumatic stress disorder, eating disorder, and borderline personality disorder; men were more likely than women to meet criteria for antisocial personality disorder. Additionally, female offenders were found to have a higher degree of internalizing disorders than male offenders, but there were no gender differences in degree of externalizing disorders. The study concluded that women offenders newly admitted to a prison substance abuse program present with a greater psychiatric vulnerability and a different pattern of psychiatric comorbidity than their male counterparts.

High rates of co-occurring substance use and psychiatric disorders have been found in studies of male (Swartz & Lurigio, 1999) and female offenders (Abram, Teplin, & McClelland, 2003). Few studies have examined gender differences in patterns of psychiatric comorbidity among substance-using offenders. Studies that have compared general psychopathology of incarcerated men and women in drug treatment programs have found that incarcerated women report more severe substance use histories, coexisting psychological problems, histories of childhood abuse (Messina, Burdon, Hagopian, & Prendergrast, 2006; Peters, Strozier, Murrin, & Kearns, 1997; Messina, Burdon, & Prendergrast, 2003) and psychiatric comorbidity prior to incarceration (Messina et al., 2006) than their male counterparts. To date, only two studies have directly compared gender differences in specific psychiatric disorders of offenders in prison drug treatment programs. Messina et al. (2003) used self-report measures of lifetime depression, anxiety, and psychosis, and found that women were significantly more likely to report ever experiencing these disorders than men. Langan and Pelissier (2001) assessed for

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lifetime major depressive disorder and antisocial personality disorder using the Diagnostic Interview Schedule, and found that women were more likely to have lifetime major depressive disorder but that men and women were equally likely to meet criteria for antisocial personality disorder.

In contrast to incarcerated substance users, research with clinical samples of substance users has found no differences between women and men in severity of substance use (e.g., Downey, Rosengren, & Donovan, 2003; Galen, Brower, Gillespie, & Zucker, 2000). In a review of studies of gender differences in psychiatric comorbidity in substance users (that included antisocial personality disorder, depression, anxiety in general, and posttraumatic stress disorder), Pelissier and Jones (2005) asserted that no definitive conclusions about gender difference in overall mental health difficulties or specific diagnoses in substance users can be made. Gender differences in terms of prevalence of mental health disorders and severity of substance use that exist within substance users in community treatment may not readily generalize to incarcerated substance users in treatment because pathways to substance use treatment entry, and possibly motivation for substance use, may vary between the two groups.

Virtually no studies have examined gender differences in a range of psychiatric disorders among substance-using offenders; understanding these gender differences has assessment and treatment implications for this population. Several authors have recommended “gender sensitive” treatment for substance-abusing women offenders because of their unique needs, including mental health (Alemagno, 2001; Haywood, Kravitz, Goldman, & Freeman, 2000; Koons, Burrow, Morash, & Bynum, 1997).

In order to address gaps in the literature, the current study examined gender differences in lifetime psychiatric disorders in offenders newly admitted to a prison substance abuse program. This study focused on disorders for which empirical evidence suggests gender differences might exist in substance-using offenders (i.e. major depressive disorder (Langan and Pelissier, 2001; Messina et al., 2003) and antisocial personality disorder (Langan and Pelissier, 2001)). Eating disorders and borderline personality disorder are also included, as research suggests that women have higher rates than men of these disorders in samples of substance-users in treatment (Grilo et al., 1998; Marlowe et al., 1995), but this remains untested in our target population. Since most studies of gender differences in the general community have found that women have higher prevalence rates of lifetime affective disorders and anxiety disorders (Kessler et al., 1994), we also explored these gender differences in our sample of substance-abusing offenders. Finally, we explored whether there were gender differences in degree of internalizing and externalizing disorders. Research suggests that gender differences encompass these two major types of psychopathology: internalizing disorders, including anxiety and depression, which are more prevalent in females than in males; and externalizing disorders, including antisocial behavior, in which males predominate (Rosenfield, 2000).

METHOD

The data for this study are from a larger study that aimed to validate the cut-off points for a mental health screening instrument (Co-Occurring Disorder Screening Instrument for Mental Disorders) for co-occurring disorders in offenders in prison substance abuse treatment programs (Sacks et al., 2007).

Participants

The study employed a geographically diverse sample of 280 consecutive new admissions to prison substance abuse treatment programs. A study subject was considered to be a “new admission” for 14 days from his/her entry to the treatment program. Exceptions were made under special circumstances; e.g., potential subjects were missed when a lockdown prevented

interviews from being scheduled so that the initial test battery could not be completed within two weeks of entry to the program.

Four CJDATS (*Criminal Justice Drug Abuse Treatment Studies*) research centers were involved in the data collection and 13 different prison substance abuse treatment programs were used. The participating centers and the numbers of subjects drawn from each were *NDRI Rocky Mountain* in Colorado ($N = 117$), *Lifespan* at Brown University in Rhode Island ($N = 75$), the *Institute for Behavioral Research* at Texas Christian University in Texas ($N = 60$), and the *Integrated Substance Abuse Programs* at UCLA in California ($N = 28$). In order to have a sufficient number of women in the original study, the sample was stratified to include one-third women, which represented an over-sampling compared with the actual percentage of women in state prison populations (7%; Harrison & Beck, 2005). In addition to the 280 subjects who constituted the full sample, 29 (9%) refused to participate in the study and a communication barrier prevented two inmates (0.6%) from participating. The two inmates who reported a problem understanding the questions were replaced by the next subjects to enter the treatment program. Of the remaining 280 cases, eight had missing information on one or more of the diagnoses of interest in this study and were excluded from analyses. Thus, the total sample size for this analysis was 272.

Procedure

The study was approved by the institutional review boards at each of the four research centers, and each received certification from the Office for Human Research Protections (OHRP). The project was also approved by a data safety monitoring board and received a certificate of confidentiality from NIDA. The consent process was free from any coercion; participation was entirely voluntary and had no bearing on the inmate's circumstances, either within the treatment program or as a prisoner.

All measures were administered orally to avoid issues related to literacy in this population. Testing was conducted in two face-to-face sessions within one month of each other. The first session consisted of completing the informed consent and all other measures, besides the SCID. The second session was the administration of the SCID.

Measures

A modified (shorter version) of the structured CJDATS *Intake Interview* (Sacks et al., 2007) was administered to collect socio-demographic background including education and employment, criminal history, health and psychological status, and drug history. The Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 2002) was used to measure lifetime mental disorders. The SCID is widely accepted as the "gold standard" for psychiatric disorders (Baldassano, 2005; Blackburn, 2000; Ramirez Basco et al., 2000; Magruder, Sonne, Brady, Quello, & Martin, 2005; Maffei et al., 1997). Interviewers trained and experienced in the use of the SCID administered the diagnostic interview. All the SCID interviews were reviewed by a SCID supervisor for completeness and accuracy.

To measure severity of substance use in the last six months prior to incarceration, the Texas Christian University Drug Screen (TCUDS; 19 items) was administered (Broome, Knight, Joe, & Simpson, 1996; Simpson, Joe, Rowan-Szal, & Greener, 1997). The TCUDS, designed to screen for alcohol and drug disorders, has been found to be highly effective and reliable over time in identifying substance use disorders in a sample of inmates (Peters, Greenbaum, Steinberg, & Carter, 2000).

The Internal Disorder Screener (IDS; 43 items, alpha of .96) and External Disorder Screener (EDS; 33 items, alpha of .96) subscales of the 15-item Global Appraisal of Individual Needs

Short Screener Version 1.0 (GSS; Dennis, Chan, & Funk, 2006) was used to measure lifetime internalizing and externalizing disorders. Endorsement of one or more symptoms of the IDS has been used to identify over 95% of people with depression, anxiety, suicide ideation, acute/post-traumatic disorders, or other internal disorders. Likewise, one or more symptoms of the EDS has been used to identify over 95% of people with attention deficit, hyperactivity, other impulse control disorders, conduct disorder (including antisocial personality disorder), aggression or violence, criminal activity, or other external behavior problems.

Statistical Methods

Descriptive statistics were initially generated for the sample to examine gender differences and *t*-tests were used to determine significant differences by gender in continuous variables. Crosstabs with Pearson chi-square significance tests were used for gender differences in categorical variables. Multiple logistic regression and analysis of covariance were used to examine outcomes of interest while controlling for important covariates/confounders. Adjusted models included research center, participant gender (male/female), employment status (yes/no), marital status (never/ever), and a combined race/ethnicity variable (African American/Hispanic/Caucasian/other). All analyses were conducted with SPSS Version 11.0 (SPSS Inc., Chicago, IL) and SAS Version 9.1.3 (SAS Institute Inc., Cary, NC).

RESULTS

Demographic Profiles and Psychosocial Dysfunction

Most participants were men (66%). Males and females were similar on demographic variables: median age was 34, approximately one-third graduated from high school, and participants had an average of two minor children (Table 1). Lifetime cocaine use was the most commonly reported drug of use, followed by lifetime heroin use. Women were less likely to be Hispanic, to report daily alcohol use in the past six months, be employed in the past six months, and to have committed lifetime assault than men. Women compared to men were more likely in the past six months to report injection drug use and be homeless, and were more likely to report lifetime psychiatric hospitalization and suicide thoughts, feelings or attempts.

Psychiatric Disorders

Women were significantly more likely than men to have a lifetime psychiatric disorder, after adjusting for race, marital status, employment status and research center (Table 2). Women were 18 times more likely to have an eating disorder and between 2.2 and 3.3 times more likely than men to have major depression, PTSD, borderline personality disorder, or any affective, anxiety, or psychotic disorder. Antisocial personality disorder was the only psychiatric disorder that women were less likely to report than men (adjusted OR 0.5). Examining only lifetime severe disorders (major depression, psychotic disorders and bipolar disorder), 46.7% of women were affected by one or more disorder compared with 24.7% of men (adjusted OR 2.7).

Men and women had similar mean TCUDS scores (4.46 and 4.59 respectively, $p = 0.232$), indicating similar levels of drug dependence. As shown in Table 3, there was no difference in Externalizing Disorder Screen (EDS) scores by gender, but adjusted Internalizing Disorder Screen (IDS) scores were much higher for women than men (3.22 versus 2.31; $p < 0.0001$).

DISCUSSION

The present study confirmed the findings of other studies (Messina et al., 2003, 2006; Peters et al., 1997) that women offenders in a prison substance abuse treatment have more lifetime mental health difficulties than their male counterparts. The present study expanded upon these findings in that it examined gender differences in a range of lifetime psychiatric disorders and

associated lifetime DSM-IV psychopathology. In a sample of offenders newly admitted to various types of prison substance abuse treatment, women were significantly more likely than men to report a lifetime psychiatric disorder, affective disorder, anxiety disorder, and severe psychiatric disorder. Furthermore, women reported greater lifetime major depression, PTSD, eating disorder, and borderline personality disorder. Men in this sample were twice as likely to meet criteria for antisocial personality disorder.

Compared with women in the community, the women in this study were nearly twice as likely to have any affective disorder, a major depressive disorder (Kessler et al., 1994), or PTSD (Kessler et al., 1995), and have a greater likelihood of borderline personality disorder (Torgersen, Kringlen, & Cramer, 2001). Since these disorders have been associated with sexual and physical abuse (Molnar, Buka, & Kessler, 2001; Trull, Sher, Minks-Brown, Durbin, & Burr, 2000) and past studies have reported higher rates of these traumas among incarcerated women than incarcerated males (Langan & Pelissier, 2001; Messina et al., 2003), perhaps an abuse history increases the vulnerability of female offenders with substance use to psychiatric comorbidity. A model that has been proposed to understand the link between childhood abuse, psychopathology, and substance use is the self-medication model. It has been postulated that childhood abuse disrupts the development of affect-regulation skills, which predisposes an individual towards developing psychopathology, such as PTSD, depression, and borderline personality disorder. Substances are then used in an attempt to medicate the profound symptoms of these disorders (Epstein, Saunders, Kilpatrick, & Resnick, 1998; Herman, 1992; Zlotnick et al., 2006). A treatment that focuses on affect management skills, such as Dialectical Behavior Therapy, which has been found to be an efficacious treatment for women with drug dependence and borderline personality disorder (Linehan et al., 1999), might be beneficial to female incarcerated substance users with comorbid disorders associated with childhood sexual abuse.

The only disorder for which men were more likely to meet criteria than women was antisocial personality disorder. Another study of offenders in a prison substance use program found no gender differences for this disorder (Langan & Pelissier, 2001). This latter study used a sample of federal prisoners whereas the current study used a sample of state prisoners. Differences between the studies' samples may account for the divergent results. Also, our finding that men were significantly more likely to have committed assault than women may have contributed to the relatively high proportion of men with a diagnosis of antisocial personality disorder.

The gender difference in degree of internalizing disorders in the current study is consistent with the finding that more women than men reported lifetime major depression, PTSD, and suicidality, given that the internalizing disorder subscale of the GSS includes both depression, anxiety disorder, traumatic distress, and suicide. The finding of a higher degree of internalizing disorders in women suggests that incarcerated women, despite their criminal behavior, tend to have a similar profile in terms of psychiatric morbidity to women in the community, who have also been found to report more internalizing psychopathology than their male counterparts (Rosenfield, 2000). It is possible, however, that the gender differences found in this study (and other studies) reflect women's greater willingness to self-disclose symptoms, especially those related to the internalizing disorders of depression, anxiety, and traumatic stress.

Unlike women in the community, men in our study did not report a higher degree of externalizing behaviors than women. Since externalizing behaviors are highly related to substance use severity (Dennis et al., 2006) and our study did not find gender differences in substance use severity, perhaps substance abuse severity accounted for the lack of gender differences in externalizing behaviors. Also, the externalizing subscale scale of the GSS taps symptoms related to attention deficit and hyperactivity/impulsivity: disorders that are likely to be more prevalent among incarcerated women than women in the general community.

In contrast to most other studies with drug-involved prisoners (e.g. Messina et al., 2003; Peters et al., 1997), the current study found no significant gender differences in recent (within the last six months) severity of substance use or in type of drug used, except that women in our study were more likely to report intravenous drug use. Obvious differences in study findings may be attributable to different designs, including different measures of severity of substance use, as well as different time periods in which studies were conducted, which may be associated with different patterns of drug use. Nevertheless, the fact that there was a gender difference in lifetime intravenous drug use, not measured by other studies, suggests that incarcerated women in prison substance use treatment programs have engaged in more serious drug use than their male counterparts prior to incarceration.

Limitations of this study include the cross-sectional design of the study, which precludes the study from addressing important issues concerning the temporal relationship between substance use disorder and comorbid psychiatric disorders. Research in the general community suggests that individuals with comorbid disorders tend to report that their first mental disorder occurred at an earlier age than their first substance disorder (Kessler, 2004). Longitudinal, prospective studies will contribute to our understanding of how substance use among incarcerated women is related to psychiatric impairment. Another limitation of this study is that it did not differentiate current from past psychiatric disorders, as there was limited power to detect differences due to the low number of cases for many of the psychiatric disorders of interest. Finally, the findings derive from prisoners who chose to participate in a prison substance use program and may not generalize to other prison populations.

Despite these limitations, this study concludes that women offenders who enter various types of prison substance use program present with greater psychiatric vulnerability and a different pattern of psychiatric comorbidity than their male counterparts. This finding highlights the importance of comprehensive psychiatric evaluations for inmates entering a substance abuse prison program, especially for women. The gender difference in psychiatric comorbidity found in this study also suggests the need for gender-specific treatment. Many women in prison substance abuse treatment must address two distressing and often interactive disorders. Future research is needed to address the etiological, therapeutic, and organizational implications of gender differences in psychiatric comorbidity among offenders in a prison substance abuse treatment.

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Table 1Demographics and psychosocial dysfunction of male and female offenders in a prison substance abuse program ($N=272$)

	Total N (%)	Males (%)	Females (%)	<i>p</i> -values
<i>Demographics</i>				
Total sample	272	180 (66.2)	92 (33.8)	
Mean age (SD)	35.1	34.7 (9.6)	35.7 (9.2)	0.39
High school graduate	94 (34.6)	62 (34.4)	32 (34.8)	0.96
<i>Race & ethnicity</i>				
Non-Hispanic Black	49 (18.0)	33 (18.3)	16 (17.4)	0.334
Non-Hispanic White	134 (49.3)	80 (44.4)	54 (58.7)	
Hispanic	73 (26.8)	55 (30.6)	18 (19.6)	
Never married	106 (39.0)	77 (42.8)	29 (31.5)	0.12
Employed in the past 6 months	156 (57.3)	118 (65.6)	38 (41.3)	<0.001
Mean # minor children (SD)	1.97 (1.57)	1.95 (1.6)	2.0 (1.6)	0.81
Homeless	15 (5.5)	5 (2.8)	10 (10.9)	0.013
<i>Psychosocial dysfunction</i>				
<i>Criminal history</i>				
Mean # times arrested (SD)	26.7 (125.6)	22.9 (76.8)	34.0 (187.9)	0.49
Mean months in custody (SD)	59.9 (63.8)	70.6 (70.9)	39.5 (40.6)	<0.001
Ever committed assault	138 (50.9)	104 (75.4)	34 (24.6)	0.001
<i>Substance use lifetime</i>				
Daily alcohol (past 6 months)	55 (20.2)	40 (22.6)	15 (16.9)	0.04
Heroin	72 (26.5)	44 (24.4)	28 (30.4)	0.29
Cocaine	214 (78.7)	139 (77.2)	75 (81.5)	0.41
Injected	99 (36.4)	54 (30)	45 (48.9)	0.002
Lifetime psychiatric hospitalization	51 (18.8)	24 (13.4)	27 (29.3)	0.001
Lifetime suicide thoughts feelings or attempts	49 (18.0)	23 (12.8)	26 (28.3)	0.002

SD-standard deviation.

Table 2

Odds ratio of psychiatric diagnosis by gender

	Males (%)	Females(%)	OR(ref. = male)	Unadjusted		p-value	Adjusted(*)		p-value
				95% CI	OR		95% CI	OR	
Any eating disorder	0.6	5.4	10.3	1.2-89.4	18.0	0.0346	1.4-234.8	Adjusted(*)	0.0277
Major depression	20.6	38.0	2.4	1.4-4.1	2.5	0.0023	1.4-4.7	Adjusted(*)	0.0031
PTSD	8.3	17.4	2.3	1.1-4.9	2.2	0.0293	1.0-5.0	Adjusted(*)	0.0528
Anti-social personality	47.2	31.5	0.5	0.3-0.9	0.5	0.0137	0.3-0.9	Adjusted(*)	0.0277
Borderline PD	8.3	20.7	2.9	1.4-5.9	2.9	0.0048	1.3-6.5	Adjusted(*)	0.0122
Any affective disorder	27.2	44.6	2.1	1.3-3.6	2.3	0.0044	1.3-4.2	Adjusted(*)	0.0043
Any anxiety disorder	17.8	33.7	2.4	1.3-4.2	2.4	0.0037	1.3-4.5	Adjusted(*)	0.0055
Any psychotic disorder	2.2	6.5	3.1	0.8-11.2	3.3	0.0886	0.8-13.9	Adjusted(*)	0.0984
Any severe disorder	26.7	46.7	2.4	1.4-4.1	2.7	0.0010	1.5-5.0	Adjusted(*)	0.0009
Any disorder	35.0	64.1	3.3	2.0-5.6	3.5	<0.0001	2.0-6.3	Adjusted(*)	<0.0001

* Adjusted models control for research center, employment (yes/no), marriage (never/ever), and a combined race/ethnicity variable.

Table 3
 Substance abuse severity¹, lifetime internalizing disorder², and lifetime externalizing disorder³ by gender

	Unadjusted			Adjusted*		
	Mean	SD	p-value	Mean	SD	p-value
<i>Lifetime internalizing disorder</i>						
Female	3.17	1.094	<0.0001	3.22	1.094	<0.0001
Male	2.29	1.617		2.31	1.617	
<i>Lifetime externalizing disorder</i>						
Female	3.28	1.382	0.8364	3.35	1.382	0.5553
Male	3.31	1.982		3.23	1.493	
<i>Substance abuse severity⁴</i>						
Female	5.86	3.000	0.1568	5.93	3.000	0.2451
Male	5.32	2.968		5.47	2.968	

* Adjusted models control for research center, employment (yes/no), marriage (never/ever), and a combined race/ethnicity variable.

¹ Substance abuse severity measured by the Texas Christian University Drug Screen (TCUDS).

² Lifetime internalizing disorder and externalizing disorder measured by subscales of the Global Appraisal of Individual Needs Short Screener.

³ Lifetime internalizing disorder and externalizing disorder measured by subscales of the Global Appraisal of Individual Needs Short Screener.

⁴ Substance abuse severity for 6 months prior to incarceration.