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Gender Differences in Substance Use, Consequences, Motivation to Change, and Treatment Seeking in People With Serious Mental Illness

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Abstract

Gender differences in patterns and consequences of substance use, treatment-seeking, and motivation to change were examined in two samples of people with serious mental illness (SMI) and comorbid substance use disorders (SUDs): a community sample not currently seeking substance abuse treatment ($N = 175$) and a treatment-seeking sample ($N = 137$). In both groups, women and men demonstrated more similarities in the pattern and severity of their substance use than differences. However, treatment-seeking women showed greater readiness to change their substance use. Mental health problems and traumatic experiences may prompt people with SMI and SUD to enter substance abuse treatment, regardless of gender.

Keywords

dual diagnosis; serious mental illness; gender differences; motivation to change; treatment-seeking

INTRODUCTION

Substance use disorders (SUDs) among people with serious mental illness (SMI) are widespread and harmful. Depending on the psychiatric diagnosis, rates of lifetime drug and alcohol use disorders in people with SMI generally top between 30% and 45% (Reiger et al., 1990; Winoker et al., 1998). Despite the high prevalence, relatively little is known about differences in substance use and its consequences among subgroups of people with SMI, or whether subgroup differences are clinically important. One important subgroup is women with SMI and comorbid SUDs. Women with SMI have been found to have different patterns of illness onset and course (Angermeyer, Kuhn, & Goldstein, 1990; Childers & Harding, 1990; Kawa et al., 2005; Kennedy et al., 2005; Kessing, 2004; McGlashan & Bardenstein, 1990), better social functioning (Mueser, Bellack, Morrison, & Wade, 1990), and more positive outcomes than men (Childers & Harding, 1990; McGlashan & Bardenstein, 1990; Test, Burke, & Wallisch, 1990). Research with primary substance users without co-occurring mental illness has also found gender differences in substance use patterns (Greenfield et al., 2007; Pelissier & Jones, 2005), consequences (Greenfield et al., 2007;

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the writing and content of the article.

Zilberman, Taveres, Blume, & el Guedbaly, 2003), and treatment utilization (Greenfield et al., 2007; Weisner & Schmidt, 1992). The high rate of substance use among individuals with SMI and the apparent gender differences in illness course and patterns of substance use in other groups of substance abusers suggest the need to look at the ways in which women with SMI and SUDs may differ from men, as well as whether and how these differences need to be addressed in treatment.

Few studies have examined gender differences in people with dual SMI and SUDs. Those that have focused on gender differences have looked at how women differ from men in terms of the nature of their substance use. For example, several studies have examined whether women with SMI and SUDs differ from men in terms of patterns and severity of substance use and types of substances abused.¹ Overall, men and women with SMI have been found to show similar patterns and severity of substance use (Brunette & Drake, 1997; Gearon, Nidecker, Bellack, & Bennett, 2003). Differences in drug of choice have been reported, with women reporting higher rates of heroin and cocaine dependence (Gearon, Nidecker, et al., 2003) and men higher rates of cannabis dependence (Brunette & Drake, 1997; Gearon, Nidecker, et al., 2003; Test et al., 1990) and alcohol abuse (Frye et al., 2003). One fairly consistent gender difference is in consequences of substance use. Several studies have found higher rates of physical and sexual victimization, greater physical health problems, and fewer legal problems in women with SMI and SUDs than in men (Brunette and Drake, 1997; Test et al., 1990), and dually diagnosed women report higher rates of posttraumatic stress disorder than men (Grella, 2003). Other research has found that women with SMI are underrepresented in substance abuse treatment (Alexander, 1996; Bellack & Gearon, 1998; Comtois & Ries, 1995; Gearon & Bellack, 1999), with women seeking treatment only when negative consequences become severe (Rach-Beisel, Scott, & Dixon, 1999; Weisner & Schmidt, 1992).

These findings of differences in substances of abuse, consequences, and representation in treatment would suggest that women with dual SUD and SMI have unique reasons for seeking treatment or issues surrounding access to care. However, research has not fully addressed whether this is the case. Watkins, Shaner, and Sullivan (1999) interviewed 21 men and women outpatients with SMI about their treatment needs and their reasons for and barriers to seeking substance abuse treatment. Few gender differences were identified. The most frequent treatment needs for both men and women were assistance with housing and finances. Reasons for engagement in treatment centered on staying out of legal trouble, although men more often reported family pressure to attend treatment. Both men and women reported concerns about legal consequences of admitting to use, fear, and paranoia as barriers to care. The authors speculate that such factors may disproportionately influence women to stay away from treatment because of their high rates of victimization (Watkins et al., 1999). Grella (2003) examined gender differences in readiness for treatment, treatment needs, and barriers to care among 400 individuals with dual disorders recruited from several residential drug user treatment programs. Participants were asked to rate the importance of 25 different service needs (e.g., treatment/recovery, health, family, basic needs, medication, trauma/domestic violence) and whether they had experienced 10 different barriers to receiving mental health or substance user treatment (e.g., lack of money for treatment, lack of transportation to treatment, fear of negative consequences related to treatment). Results showed no differences by gender in readiness for treatment (as measured by a 3-point readiness for treatment scale) or barriers to obtaining treatment. Females reported a great number of service needs overall, as well as more needs for treatment related to family and trauma issues.

¹The journal's style utilizes the category *substance abuse* as a diagnostic category. Substances are used or misused; living organisms are and can be *abused*. Editor's note.

Overall, this literature suggests that there are some ways that males and females with SMI and SUD appear similar (patterns of substance use, self-reported barriers to care) and some ways in which they are different (drug of choice, consequences of use). However, several questions related to gender differences in individuals with SMI and SUDs remain. First, the literature on gender and substance use in SMI is relatively small. Further comparisons of patterns and severity of substance use in SMI can help to establish whether similarities found in previous research are consistent across samples. Second, gender differences in variables such as motivation to change and reasons for seeking treatment, which might impact treatment engagement and outcome, have not been explored in dually diagnosed individuals in a comprehensive way. Third, it is unclear whether gender differences are more or less pronounced in individuals seeking substance use treatment versus those in the community who are not seeking help for substance abuse. The studies of gender differences reviewed above have been conducted with samples of individuals in treatment. Whether gender differences exist in community samples that are not seeking treatment is not known. Dually diagnosed men and women in the community may show differences in substance use and severity; these differences may attenuate, as individuals of both genders move into severer use and acknowledge that they need to seek treatment. That is, by the time treatment is initiated men and women may appear similar, but in the community prior to seeking treatment, they may have been quite different. Such questions are important as we think about whether women have unique treatment needs and whether and how to structure treatment to meet them.

The present study sought to address each of these issues. First, we explored gender differences in patterns and consequences of SUDs, in order to determine if previous findings in non-SMI samples are relevant to individuals with SMI. Second, we examined potential gender differences in two previously underexplored but clinically important areas: reasons for seeking treatment and motivation to change. Exploration of these domains will allow for a first descriptive look at how women with dual SMI and SUDs come to treatment and what they hope to get from it—both important issues that need to be examined in order to better attract this group of substance users into services. Third, we examined gender differences in two different samples: a community sample that was not seeking substance use treatment and a treatment-seeking sample of clients at community mental health center that agreed to participate in a study of an intervention for substance use designed for people with SMI. While these samples are not balanced and so findings cannot be compared across them, their use here provides the opportunity to look descriptively at the ways in which gender differences may be manifested in different cohorts of individuals with dual disorders and to identify any differences in non-treatment-seeking and treatment-seeking samples that may inform service use and development. Specifically, we examined gender differences in (1) psychiatric diagnosis and symptoms, (2) patterns and severity of substance use, (3) consequences of substance use, (4) motivation to change, and (5) reasons for seeking treatment.

METHOD

Participants

We used data from two studies of SMI and SUDs (see Nidecker, DiClemente, Bennett, & Bellack, 2008) for a description of the community sample and Bellack, Bennett, Gearon, Brown, & Yang (2006) for a description of the treatment-seeking sample). Briefly, Study 1 involved a survey of substance use and motivation to change in nontreatment-seeking individuals with SMI and either current cocaine dependence or cocaine dependence in remission recruited from a Veterans Affairs (VA) medical center and two community clinics in Baltimore, Maryland and assessed five times over 12 months (The Process of Change in Drug Abuse by Schizophrenics, funded by NIDA, A. Bellack, PI, $n = 240$ subjects,

“community” sample). The present study included data from participants with current cocaine dependence ($n = 137$) because of our interest in describing gender differences among individuals with current SUDs. This sample of participants with current cocaine dependence was 59.9% male, 77.4% African American, 19% White, and 3.6% other, had a mean age of 42.4 ($SD = 7.6$; range 22–64) and a mean of 11.9 years of education ($SD = 2.1$; range = 5–18). In terms of diagnosis, 55% of participants in the community sample had a primary diagnosis of schizophrenia or schizoaffective disorder, 45% mood or affective disorder, and 2% other diagnoses. Participants reported a mean (SD) of 6.3 (9.64) years of heroin use, 13.1 (8.05) years of cocaine use, 11.31 (11.62) years of cannabis use, and 12.27 (10.22) years of polydrug use. Study 2 was a randomized trial of a behavioral intervention for substance abuse in a treatment-seeking sample of people with SMI (Behavioral Treatment & Substance Abuse in Schizophrenia, funded by NIDA, A. Bellack, PI, $n = 175$, “treatment-seeking” sample). Participants with current cocaine, heroin, and/or marijuana dependence were recruited from outpatient community clinics and a VA medical center in Maryland. This sample was 63.4% male, 75.4% African American, and 22.3% White and had a mean age of 42.7 ($SD = 7.10$; range 21–57) and a mean of 11.2 years of education ($SD = 2.28$; range 3–18). In terms of diagnosis, 55% of participants in the treatment-seeking sample had a primary diagnosis of mood or affective disorder, 38% schizophrenia or schizoaffective disorder, and 7% other diagnoses. Cocaine was the most frequently abused drug (69%), followed by opiates (25%) and cannabis (7%). Participants reported a mean (SD) of 5.73 (8.76) years of heroin use, 10.2 (8.21) years of cocaine use, 10.2 (10.4) years of cannabis use, and 12.1 (10.7) years of polydrug use.

Measures

Diagnostic and Symptom Assessments—The Structured Clinical Interview for DSM-IV (SCID-I; First, Spitzer, Gibbon, & William, 1994) was used to establish diagnosis. Interviews were completed by doctoral-or masters-level psychologists. Diagnoses were achieved utilizing all available information (patient report, medical records, treatment providers). Interrater reliability (kappa) for the SCID diagnoses (psychiatric and substance abuse/dependence) was greater than 0.80. The Positive and Negative Syndrome Scale (PANSS; Opler, Kay, Lindenmayer, & Fiszbein, 1992) was used to assess symptoms of psychiatric illness, with separate ratings for positive symptoms, negative symptoms, and general psychopathology. The PANSS has good reliability and validity (Kay, Fiszbein, & Opler, 1987).

Substance Use and Treatment Utilization—The Addiction Severity Index (ASI; McLellan et al., 1992) was used at baseline to assess drug use frequency and severity. We administered the drug, alcohol, family/social, and legal sections of the ASI, as they are the most reliable sections for this population (Carey, Coco, & Correia, 1997). The Substance Use Event Survey for Severe Mental Illness (SUESS; Bennett, Bellack, and Gearon, 2006) is a relatively brief (20–30 minutes) measure that assesses clinical issues and service utilization in individuals with SMI and SUDs. The SUESS contains two types of items: (1) items related to service use and (2) items to gather descriptive information that may relate to service use in clients with SMI. The SUESS also gathers information about reasons for starting substance use treatment. Psychometric properties and validity of the SUESS are good (Bennett et al., 2006).

Motivation to Change—Stage of change was assessed with the University of Rhode Island Change Assessment—Maryland (URICA-M; Nidecker, DiClemente, Bennett, & Bellack, 2008). The original URICA is a 32-item self-report questionnaire, which employs a 5-point Likert scale asking respondents to rate their degree of agreement (or disagreement) with each item (DiClemente & Hughes, 1990). Each item refers to a “problem” that the

patient identifies. The URICA-M is a modified version designed to suit the needs of people with SMI. A single readiness to change score is calculated by subtracting the precontemplation score from the sum of the contemplation, action, and maintenance scores (Carbonari, DiClemente, & Zweben, 1994). The possible range of the readiness score is -2.00–14.00 with higher scores representing greater motivation to change. Participants also completed the Temptation to Use Drugs Scale and the Abstinence Self-Efficacy Scale (DiClemente, Carbonari, Montgomery, & Hughes, 1994), 20-item scales that assess the degree to which subjects feel “tempted” to use drugs in different situations and the degree to which they feel confident in their ability to abstain from drug use in those situations. Respondents made ratings using 5-point Likert scales, and a total score was calculated. The Process of Change Questionnaire (POC; Prochaska, Velicer, DiClemente, & Fava, 1988) was used to assess the frequency of occurrence of 10 core processes used to attain the desired behavioral change on a 5-point Likert scale (1 = never to 5 = repeatedly). From this, we calculated a total process score (using all 20 items), an experiential process subscore (10 items), and a behavioral process subscore (10 items). Experiential processes involve more covert cognitive and behavioral processes such as consciousness raising (greater awareness of the problem behavior) and dramatic relief (emotions associated with the problem behavior or solution to the problem are aroused). Behavioral processes involve more overt, observable processes such as contingency management (positive behavioral changes are rewarded) and stimulus control (planned strategies for coping with or avoiding triggers). Psychometric properties of these scales are strong across addictive behaviors (DiClemente et al., 1994; Hiller, Broome, Knight, & Simpson, 2000).

Procedures

For both studies, all procedures were approved by the University of Maryland Institutional Review Board. Medical records of all new intakes at several recruitment sites (a VA medical center and two community clinics in Maryland) were reviewed once per week to determine preliminary eligibility, including diagnosis of SMI. All potential subjects participated in a standardized informed consent process with trained recruiters and were advised at the time that a Federal Certificate of Confidentiality would protect the information they provided. For both studies, participants completed the diagnostic interview and symptom assessment first and generally completed the remaining baseline assessments within a week. Also in both studies, participants subsequently completed self-report interviews regarding their substance use and provided urine samples for drug screens at follow-up time points.

Data Analysis

Separate multivariate analyses of variance (MANOVAs) were used to examine gender differences in symptoms and diagnosis, frequency and severity of substance use, and motivation to change for each sample (treatment-seeking and community). Chi-square tests were used to determine differences in history of trauma/victimization, medical problems, and probation/parole status between men and women in each sample and reasons for seeking substance use treatment in the treatment-seeking sample. *T*-tests were used to examine gender differences in lifetime arrests, lifetime charges, and days incarcerated in the past month. Owing to differences in inclusion criteria between the community and treatment-seeking samples, direct comparisons of the two samples were not done.

RESULTS

Differences in Psychiatric Diagnosis and Symptoms by Gender

Table 1 lists diagnostic breakdown and PANSS scores by gender for both samples. MANOVA was used to assess gender differences in symptoms and diagnosis. The

MANOVA was not significant for either sample. Psychiatric symptoms fell within the mild to moderate range for both samples.

Frequency and Severity of Substance Use by Gender

Separate MANOVAs were conducted to examine gender differences in the frequency and severity of substance use. Frequency was measured by four ASI items tapping drug and alcohol use in the last 30 days (number of days of cocaine use, heroin use, marijuana use, and alcohol use). Severity was assessed with six additional variables by using ASI items: number of days of drinking in the past month, number of days of drinking-related problems in the last month, number of days that more than one substance was used in the last month, number of days of drug-related problems in the last month, the degree of self-reported distress from drug-related problems in the last month, and the degree of self-reported distress from alcohol-related problems in the last month. A seventh variable was constructed that assessed the number of different substances the participant had used in the past month. Results for both samples are presented in Table 2. Overall, there were no differences in last-month frequency or severity of substance use in either sample.

Gender Differences in Victimization, Medical Problems, and Legal Problems

Next, we examined gender differences in victimization, medical problems, and legal problems (Table 3). First, victimization was examined using three items from the ASI that assess lifetime incidence of emotional, physical, and sexual abuse. Rates of victimization were high, with over 70% of participants in both samples reporting emotional abuse, between 48% and 50% of the samples reporting physical abuse, and from one-quarter (community) to one-third (treatment-seeking) of participants reporting a history of sexual abuse. Women in both samples were more likely than men to report a history of sexual abuse (community: $\chi^2 = 3.88, p = .049$; treatment-seeking: $\chi^2 = 13.4, p < .001$). There were no gender differences in physical or emotional abuse. Violent victimization was assessed with a separate variable constructed using five items from the SUESS reflecting whether or not the respondent had been a victim of a violent crime (i.e., robbed or mugged, beaten up or physically injured, raped or sexually assaulted, life-threatening assault, any other life-threatening events, or serious injury) in the 90 days prior to the assessment. Men and women did not differ on this variable (community: $\chi^2 = .04, p = \text{ns}$; treatment-seeking: $\chi^2 = 1.81, p = \text{ns}$). Second, medical problems were assessed with two items from the SUESS: self-report of a physical/medical problem in the last 90 days and met with a doctor or nurse about a medical problem in the last 90 days. There were no gender differences on these variables in either sample. Third, four legal variables from the ASI were compared: current probation/parole, number of lifetime arrests, number of lifetime incarcerations, and number of days incarcerated in the last month. In the treatment-seeking sample, men reported more criminal charges [$Z(136) = -2.00, p = .045$] and convictions [$Z(136) = -2.11, p = .035$] than women. There were no gender differences in criminal charges or convictions in the community sample [$t(174) = 1.76, p = \text{ns}$]. There were no gender differences in probation/parole status or number of days in the jail/prison in either sample.

Motivation to Change

A one-way MANOVA was used to assess gender differences in variables tapping motivation to change (temptation to use drugs, experiential process of change, behavioral processes of change, readiness to change, and drug self-efficacy). The overall MANOVA was significant [$F(5, 165) = 3.07, p = .01$]. Separate one-way analyses of variance (ANOVAs; Table 4) showed that, in the treatment-seeking sample, women reported greater temptation to use drugs, greater use of experiential processes of change, and greater overall readiness to change than men. There were no gender differences in motivation to change in the community sample.

Reasons for Seeking Treatment

We then explored gender differences in reasons for seeking treatment in the treatment-seeking sample (Table 5). Participants reported a number of reasons for seeking treatment. Thinking seriously about the pros and cons of using drugs was the most frequently cited reason for seeking treatment (83%), followed by worsening of psychological or emotional problems (79%), experiencing a major change in lifestyle (72%), experiencing a recent traumatic event (61%), and hitting rock bottom (60%). Gender differences in responses were explored via chi-square analyses. There were no significant gender differences.

DISCUSSION

This study sought to describe the ways in which substance use and severity, motivation to change, and reasons for seeking treatment differed between women and men with SMI and SUDs. Data were collected from two samples of participants with SMI and SUDs: a community sample and a sample seeking treatment for substance abuse. In line with previous research on gender differences in dually diagnosed individuals, women and men in both samples showed more similarities than differences in terms of their patterns and severity of substance use. Alcohol and cocaine were the most frequently used substances for both men and women, and there were no gender differences in severity of substance use. Because all participants in the community sample met criteria for current cocaine dependence, it is not surprising that there were no gender differences in cocaine use or problems from cocaine use. However, no such restriction was in place for the treatment-seeking sample. The fact that women showed similar substance use and severity to men contrasts with findings in primary substance users. Men with primary SUDs typically evidence more problems with alcohol and marijuana use and women more problems with cocaine use (Pelissier & Jones, 2005). The similarity of women and men with SMI and SUDs in the treatment-seeking sample in terms of frequency and severity of substance use may be related in part to symptoms of SMI, which may render both men and women equally vulnerable to using substances and the negative impact of substance use on functioning.

Gender differences were found in rates of some substance-related negative consequences. First, women in both the treatment-seeking and the community samples were more likely to report sexual abuse than men, a finding that is in line with other studies (Alexander, 1996; Brunette & Drake, 1998; Gearon, Kaltman, Brown, & Bellack, 2003; Gearon, Nidecker, et al., 2003). The fact that this gender difference was found in both samples illustrates the pervasiveness of sexual abuse among women with SMI and SUDs and highlights trauma as an issue that impacts women regardless of their substance abuse treatment status. Higher rates of sexual abuse were found among treatment-seeking women compared with women in the community, suggesting that abuse or trauma may play a role in the initiation of treatment. Interestingly, almost a quarter of men reported prior sexual abuse. There were high rates of physical abuse, emotional abuse, or violent victimization overall and no gender differences in these domains in either sample, suggesting a unique risk for women in terms of sexual abuse. Second, men in the treatment-seeking sample were more likely to have legal problems than women, including criminal charges and convictions. This may reflect gender differences in how drugs are accessed and the settings in which drugs are used by people with SMI or the nature of the crimes committed and/or likelihood of being prosecuted for those crimes. Gearon, Nidecker and colleagues (2003) found that women with SMI were more likely to purchase drugs from, use drugs with, and get money for drugs from friends and significant others. This close association between drug use and family may result in women with SMI being less likely to use substances in situations that may place them at risk for legal difficulties (i.e., using in public places, attempting to purchase drugs from drug dealers, using drugs with strangers). The fact that this difference was found only in the treatment-seeking sample suggests that increasing legal problems may be a factor that

propels men with SMI and SUDs into treatment. Third, medical problems were equally prevalent among men and women in both samples. A lack of gender differences in medical problems could reflect the high rate of medical problems among people with SMI in general and particularly among those with comorbid SUDs.

Readiness to change variables and reasons for seeking treatment were of particular interest in this study. Women in the treatment-seeking sample reported greater temptation to use drugs, greater use of experiential processes of change, and greater overall readiness to change than men. This pattern suggests that women come to treatment with greater readiness to attempt change than men and may have already made some change efforts. This finding is in line with others that have found that women with dual diagnoses use more experiential processes as part of their change efforts than men (O'Connor, Carbonari, & DiClemente, 1996). Use of experiential processes is associated with preparing for change (DiClemente et al., 1991). The combination of higher experiential process and readiness to change scores among women could mean that women are more likely to seek treatment once they have committed to change. In contrast, men may begin treatment less convinced of the benefits of change and less likely to have attempted change on their own (Watkins et al., 1999). Interestingly, despite the fact that all participants in the community sample met criteria for current cocaine dependence, no gender differences were found in motivation to change. This suggests that there is likely some factor other than simply drug use severity that impacts women's motivation and treatment seeking. As we have speculated, it is possible that trauma may play a role here, as rates of trauma were higher among women in the treatment-seeking sample.

Men and women reported similar reasons for seeking substance abuse treatment. Engaging in an evaluation of the advantages and disadvantages of substance use was the most frequently endorsed reason for seeking treatment. An increase in psychological health problems, having a major change in lifestyle, and recently experiencing a traumatic event were also frequently identified as reasons for seeking treatment. The lack of gender differences here suggests that there may be a core set of reasons for seeking treatment in people with SMI and SUD. Factors such as mental health problems and trauma may be among the most important experiences that convince people with SMI and SUDs to enter substance abuse treatment, regardless of gender.

These findings have implications for the identification and clinical care of men and women with SMI and SUDs. The high rates of abuse found here and in other studies suggest that trauma and its relationship to substance use should to be assessed as a routine part of substance abuse treatment for both men and women. Given that sexual trauma is particularly prevalent among women with SMI and SUDs, substance abuse treatment for women with dual disorders may need to include strategies specifically focused on reducing risk of abuse and coping with trauma. Inclusion of these strategies could serve to reduce incidence of trauma, minimize the impact of trauma, and improve treatment engagement, retention, and outcome (Bellack & Gearon, 1998). Moreover, assessment of trauma by health care professionals in the community, such as workers in primary care, outpatient mental health, or emergency rooms, might be an important step in getting women with SMI and SUD in the community to think about the harm caused by their substance use and perhaps consider treatment for it. In addition, our findings suggest that when women with SMI and SUDs do come to treatment, they are more highly motivated than men to make a change and may already be engaging in change efforts. This suggests that the initial activities associated with treatment should involve assessment of motivation and tailoring, depending on a woman's level of readiness to change. Women who are already involved in change may want different sorts of advice, assistance, or support from a clinician than others who are less ready or who may be still deciding whether and how to make a change.

Study's Limitations

Several limitations of this study should be noted. Individuals in the treatment-seeking sample were selected because they reported current dependence on at least one of several drugs (cocaine, heroin, or marijuana), while those in the community sample were selected for current dependence on cocaine only (although they could meet criteria for dependence on other drugs in addition to cocaine). Because of these differences, we were unable to directly examine gender differences across samples. A direct comparison of gender differences in treatment-seeking and nontreatment-seeking people with SMI and SUD could provide important information concerning factors that facilitate or impede treatment seeking in this group. In addition, the studies from which these data were taken were not designed to assess gender differences and so may not have captured relevant variables. For example, the list of reasons for seeking treatment used here was designed for substance users regardless of gender and so did not include reasons that may be especially relevant for women such as reasons related to child custody, interactions with child protective services, and housing issues. Future research should include these sorts of reasons for seeking treatment that might be especially important to women.

While these findings provide a useful first step, more remains to be examined and understood about women with SMI and SUDs. Future studies should move beyond patterns and consequences of use and directly assess whether women with SMI and SUDs experience unique barriers to treatment. People with SMI and SUDs have reported numerous barriers to treatment, including cost of treatment, fears about what happens in treatment, and about being hospitalized (Nidecker, Bennett, Gjonbalaj-Marovic, RachBeisel, & Bellack, 2009). It remains unclear if women experience additional barriers such as family-related responsibilities including care of children or other family members and fear about how treatment may impact important social and family relationships. In addition, our finding that women may be more ready to change and may have attempted some behavior change prior to seeking treatment needs to be understood in light of other findings that women with SMI and SUDs are less likely to seek formal treatment than men (Alexander, 1996; Bellack & Gearon, 1998; Comtois & Ries, 1995). Women may attempt more change on their own, seeking out professional assistance only when their change efforts have failed. Thus, motivation and change efforts may actually serve as a barrier to formal care for some women who believe they can change on their own. A better understanding of the factors that keep women away from treatment could lead to the development of relevant and effective outreach and treatment approaches that address or overcome barriers to care for women with SMI and SUDs.

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GLOSSARY

Behavioral Processes of Change	More overt, observable processes (i.e., reinforcement management, helping relationships, stimulus control, etc.) by which behavior change may occur
<i>Dual Diagnosis or Co-Occurring Substance Disorder</i>	having both a psychiatric condition or illness and a substance use disorder

***Experiential
Processes of
Change***

More covert cognitive, and behavioral processes (i.e., increasing awareness of a problem behavior, assessing the impact of behavior on the surrounding environment, self-reevaluation, etc.) by which behavior change may occur

Stages of Change

A key construct in the Transtheoretical Model of Change (Prochaska & DiClemente, 1983) referring to the stages through which an individual progresses when making a behavior change; stages include precontemplation (not thinking about/planning to change in the near future), contemplation (awareness of a desire to change in the near future), preparation (plans made to change in the near future), action (changes in behavior occur), and maintenance (behavior change has occurred and has been maintained for a least 6 months)

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Biographies

Amy Drapalski, Ph.D., is Administrative Core Manager at the Veterans Affairs (VA) Capital Health Care Network Mental Illness, Research, Education and Clinical Center (MIRECC). Her research has primarily focused on identifying barriers and facilitators of recovery and developing, evaluating, and implementing psychosocial treatments for individuals with serious mental illness and their families. Her current research is aimed at understanding the impact of self-stigma and other related factors on recovery and developing interventions aimed at reducing internalized stigma and its effects in people with serious mental illness.

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TABLE 1

Diagnostic and symptom features of a treatment-seeking and nontreatment-seeking sample of people with SMI and SUD by gender

	Treatment-seeking		Community	
	Male (<i>n</i> = 111)	Female (<i>n</i> = 64)	Male (<i>n</i> = 82)	Female (<i>n</i> = 55)
Overall MANOVA	$F(4, 158) = 0.18, p = .95$		$F(4, 132) = 1.21, p = .31$	
Mean positive symptoms (<i>SD</i>)	1.8 (0.7)	1.9 (0.6)	2.0 (0.7)	2.1 (0.9)
Mean negative symptoms (<i>SD</i>)	1.8 (0.6)	1.8 (0.6)	2.0 (0.7)	2.1 (0.8)
Mean general symptoms (<i>SD</i>)	1.9 (0.4)	1.8 (0.4)	1.9 (0.4)	2.0 (0.6)
Percent affective diagnosis (<i>n</i>)	53% (59)	58% (37)	42% (34)	51% (28)
Percent schizophrenia spectrum diagnosis (<i>n</i>)	40% (44)	36% (23)	56% (46)	47% (26)

TABLE 2

Patterns and severity of substance use of a treatment-seeking and nontreatment-seeking sample of people with SMI and SUD by gender

	Treatment-seeking		Community	
	Male (<i>n</i> = 111)	Female (<i>n</i> = 64)	Male (<i>n</i> = 82)	Female (<i>n</i> = 55)
Pattern of substance use (past month) [mean (<i>SD</i>)]				
Overall MANOVA	$F(4, 170) = 1.37, p = \text{ns}$		$F(4, 129) = 1.85, p = \text{ns}$	
Days cocaine use	3.3 (5.6)	4.8 (7.1)	5.7 (6.4)	6.5 (9.2)
Days heroin use	1.2 (4.2)	2.8 (7.6)	1.7 (4.6)	1.7 (6.0)
Days marijuana use	1.2 (4.8)	2.0 (6.3)	0.7 (1.9)	1.4 (4.8)
Days alcohol use	3.2 (6.6)	3.3 (6.1)	6.4 (9.1)	3.8 (6.8)
Severity of substance use (past month) [mean (<i>SD</i>)]				
Overall MANOVA	$F(7, 164) = 1.39, p = .213$		$F(7, 125) = 1.83, p = .087$	
Days drug use	2.1 (4.7)	3.0 (5.2)	3.7 (6.0)	4.0 (7.3)
Number of substances used	1.3 (1.3)	1.5 (1.3)	2.2 (1.2)	1.9 (1.3)
Days drug problems	7.4 (10.3)	12.6 (12.3)	8.8 (11.4)	10.2 (12.5)
Distress from drug problems	1.9 (1.5)	2.4 (1.5)	2.2 (1.6)	2.1 (1.6)
Days alcohol use	3.2 (6.6)	3.3 (6.1)	6.4 (9.1)	3.8 (6.8)
Days alcohol problems	2.8 (6.6)	3.1 (7.7)	4.1 (9.0)	1.6 (4.7)
Distress from alcohol problems	0.9 (1.4)	0.7 (1.2)	1.1 (1.5)	0.5 (1.0)

TABLE 3

Gender differences in victimization, medical problems, and legal problems in a treatment-seeking and nontreatment-seeking sample of people with SMI and SUD

Variable	Treatment-seeking		Community	
	Male (n = 111)	Female (n = 64)	Male (n = 82)	Female (n = 55)
History of trauma/victimization				
Percent emotional abuse, lifetime (<i>n</i>)	73% (81)	83% (53)	74% (60)	72% (39)
Percent physical abuse, lifetime (<i>n</i>)	45% (50)	59% (38)	42% (34)	57% (30)
Percent sexual abuse, lifetime (<i>n</i>)	24% (27)	52% (33) **	21% (17)	37% (19) *
Percent violent victimization, past 90 days (<i>n</i>)	24% (27)	34% (21)	33% (27)	35% (19)
Medical problems (past 90 days)				
Percent reported physical/medical problems (<i>n</i>)	67% (74)	63% (39)	56% (46)	46% (25)
Percent met with doctor/nurse (<i>n</i>)	77% (57)	90% (35)	76% (35)	84% (21)
Legal problems				
Number on probation/parole (%)	24 (27%)	19 (12%)	24 (19%)	11 (6%)
Mean number lifetime arrests/charges (<i>SD</i>)	6.3 (9.4)	3.7 (5.0) *	5.1 (7.5)	3.4 (3.8)
Mean number lifetime convictions (<i>SD</i>)	3.9 (7.4)	2.1 (4.0) *	2.6 (4.9)	1.5 (2.3)
Mean days incarcerated past month (<i>SD</i>)	8.1 (16.1)	4.9 (11.0)	2.0 (8.9)	0.6 (4.1)

* Females and males differ, $p < .05$.

** Females and males differ, $p = .001$.

TABLE 4
Gender comparisons in motivation to change in a treatment-seeking and nontreatment-seeking sample of people with SMI and SUD

	Treatment-seeking			Community		
	Male (<i>n</i> = 111)	Female (<i>n</i> = 64)	<i>F</i> <i>p</i>	Male (<i>n</i> = 82)	Female (<i>n</i> = 55)	<i>F</i> <i>p</i>
Overall MANOVA	<i>F</i> (5, 165) = 3.07, <i>p</i> = .01			<i>F</i> (5, 130) = 0.45, <i>p</i> = .81		
Mean temptation to use drugs (<i>SD</i>)	2.7(0.9)	3.1(1.0)	7.49 .007	3.1(0.9)	3.0(1.0)	0.35 .557
Mean experiential process (<i>SD</i>)	3.3(0.7)	3.6(0.7)	4.26 .040	3.2(0.7)	3.1(0.8)	0.17 .678
Mean behavioral process (<i>SD</i>)	3.4(0.8)	3.5(0.9)	0.70 .403	3.3(0.7)	3.3(0.9)	0.07 .793
Mean readiness to change (<i>SD</i>)	10.2(1.6)	10.9(1.7)	7.95 .005	10.0(1.9)	9.9(2.0)	0.04 .835
Mean drug self-efficacy (<i>SD</i>)	3.2(0.9)	2.9(1.1)	2.93 .089	3.0(0.9)	2.8(1.0)	0.71 .401

TABLE 5Reasons for seeking treatment by gender in a treatment-seeking sample^a (in %)

Variable	Total (n = 77)	Male (n = 47)	Female (n = 30)
Thought seriously about pros and cons of use	83.3	82.2	85.2
Psychological or emotional problems worsened	78.7	75.7	83.3
Major change in lifestyle	72.2	71.1	74.1
Experienced a traumatic or very disturbing event	61.1	62.2	59.3
Hit "rock bottom"	59.7	64.4	51.9
Referred by case manager or therapist	47.3	46.7	48.1
Warned about use by family or close other	41.7	40.0	44.4
Doctor warned you about use	41.7	42.2	40.7
Physical health problems	40.3	42.2	37.0
Someone else quit using or cut down	29.2	28.9	29.6
Religious experience	27.8	28.9	25.9
Saw someone else high	20.8	17.8	25.9
Referred by court/probation/parole officer	15.3	15.6	14.8

^a All chi-square analyses were not significant.