Published in final edited form as:

Community Ment Health J. 2015 May ; 51(4): 437–444. doi:10.1007/s10597-014-9762-3.

Recovery Resources and Psychiatric Severity Among Persons with Substance Use Disorders

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Abstract

A comparative analysis of recovery resources (abstinence social support, abstinence self-efficacy) was conducted among two groups exiting inpatient treatment for substance use disorders: persons with psychiatric comorbid substance use disorders and persons with substance use disorders. Both groups reported comparable levels of abstinence social support, but this resource was not significantly related to substance use among persons with psychiatric comorbid substance use disorders. Although abstinence self-efficacy was significantly related to substance use, persons with psychiatric comorbid substance use disorders reported significantly lower levels of abstinence self-efficacy than persons with substance use disorders. Findings suggest that persons with psychiatric comorbid substance use disorders exit alcohol/drug treatment with lower levels of abstinence self-efficacy compared to their substance use disorder peers.

Keywords

recovery resources; abstinence social support; abstinence self-efficacy; psychiatric comorbid substance use disorders; dual diagnosis

Recovery Resources and Psychiatric Severity Among Persons with Substance Use Disorders
Co-occurring psychiatric disorders among persons with substance use disorders are fairly common, affecting approximately four million adults in the United States (Abou-Saleh & Janca, 2004; Grant et al., 2004; Regier et al., 1990). Although persons with psychiatric comorbid substance use disorders (i.e., “dually-diagnosed” persons) are responsive to treatment interventions, their post-treatment outcomes are typically worse compared to persons with substance use disorders who do not have co-occurring psychiatric disorders (Burns, Teesson & O’Neill, 2005), including high rates of relapse (Kushner, Abrams, Thuras, Hanson, Brekke, & Sletten, 2005). Community-based resources such as 12-step groups like as Alcoholics Anonymous and Narcotics Anonymous have been found to

support abstinence among persons with psychiatric comorbid substance use disorders (Chi, Sarte, & Weisner, 2006; Timko, Cronkite, McKellar, Zemore, & Moos, 2013), suggesting that abstinence social support is a recovery resource for this population.

Abstinence social support has been described as being a key ingredient of 12-step recovery (Groh, Jason, & Keys, 2008). Studies have demonstrated abstinence social support as a recovery resource for persons with substance use disorders, increasing their positive affect that could invigorate cognitive-behavioral change (Carrico et al., 2013) and foster acceptance and appropriate response to internal states linked to cravings (Gifford, Ritscher, McKellar, & Moos, 2006) in addition to promoting abstinence outcomes (Laudet & Stanick, 2010). However, there is a dearth of literature on abstinence social support for persons with psychiatric comorbid substance use disorders.

One qualitative investigation (Davis & O'Neill, 2005) found persons with psychiatric comorbid substance use disorders reported having "positive" social support networks that included persons who were involved in 12-step groups. Social support was found to partially mediate the relationship between participating in dual-focus 12-step based groups (e.g., "Double-Trouble in Recovery") and substance use outcomes (Laudet, Cleland, Magura, Vogel, & Knight, 2004), suggesting that effective social networks are those that include support for abstinence. MacDonald, Luxmoore, Pica, Tanti, Blackman, Catford et al. (2004) found social networks consisting of people who did not use drugs provided greater support for persons with psychiatric comorbid substance use disorders who were in later stages of recovery, though such social support was provided mostly by professionals and not recovery-peers. It is not clear whether persons with psychiatric comorbid substance use disorders acquire abstinence social support as a recovery resource to the extent that persons with substance use disorders do (Aase, Jason, & Robinson, 2008), especially when they are not perceived as peers by some 12-step members who do not have psychiatric comorbidity (Noordsy, Schwab, Fox, & Drake, 1996).

In addition, some persons with psychiatric comorbid substance use disorders might have pervasive cognitive dysfunction (Drake, Wallach, & McGovern, 2005) that might compromise their abstinence self-efficacy; a cognitive resource for recovery based on Bandura's (1997) self-efficacy theory that is regarded as an important treatment consideration for relapse prevention (Annis & Davis, 1991; Marlatt & Gordon, 1985). For instance, investigations that assessed abstinence self-efficacy at treatment intake found depressive symptoms and major depressive disorder were related to low levels of abstinence self-efficacy (Greenfield, Venner, Kelly, Slaymaker, & Bryan, 2012), and that persons with psychiatric comorbid substance use disorders reported significantly lower levels of abstinence self-efficacy compared to persons with substance use disorders at intake (Boden & Moos, 2009).

Abstinence self-efficacy has been reported to predict substance use outcomes among persons with psychiatric disorders in samples with male veterans receiving VA residential alcohol treatment (Boden & Moos, 2009), persons diagnosed with severe mental illness (but not substance use disorders) receiving community mental health services (O'Hare & Shen, 2013), and young, predominantly white males receiving inpatient treatment for substance

use disorders (Greenfield et al., 2012). Although abstinence self-efficacy might be bolstered while in treatment (Greenfield et al.), little is known about abstinence self-efficacy among persons with psychiatric comorbid substance use disorders who are exiting inpatient settings for substance use disorders, and whether they are develop abstinence self-efficacy at levels that are comparable to those who have only substance use disorders.

Furthermore, Aase, Jason, and Robinson (2008) reviewed the literature on 12-step involvement among persons with psychiatric comorbid substance use disorders and concluded that abstinence self-efficacy and abstinence social support are recovery resources that probably mediate the relationship between their 12-step involvement and substance use. It is important to examine these recovery resources among persons with psychiatric comorbid substance use disorders who are exiting inpatient treatments because most treatment services for substance use disorders in the United States are abstinence-based and refer patients to 12-step groups upon discharge.

Taken together, findings across studies suggest that abstinence social support and abstinence self-efficacy are recovery resources utilized by persons with substance use disorders whereas other findings indirectly suggest that these resources might benefit persons with psychiatric comorbid substance use disorders. However, it is reasonable to expect that persons with psychiatric comorbid substance use disorders invest less in abstinence social support and more in social support largely comprised of professionals, family members, and peers with mental illnesses. Likewise, persons with psychiatric comorbid substance use disorders are likely to have less abstinence self efficacy due to their psychiatric conditions than persons who have only substance use disorders. An examination of these recovery resources among persons with psychiatric comorbid substance use disorders exiting inpatient treatment would have important treatment and research implications.

The present study examined abstinence social support and abstinence self-efficacy in relation to psychiatric severity among persons exiting inpatient treatment for substance use disorders. We hypothesized that persons with high levels of psychiatric severity would report significantly lower levels of abstinence social support and abstinence self-efficacy than persons with low levels of psychiatric severity.

Methods

Participants

Two hundred, seventy adults (224 men and 46 women) with a mean age of 40.4 ($SD = 9.5$) years were recruited from inpatient treatment centers in northern Illinois, in the United States. The largest proportion of participants were single (85%), and in terms of race, the majority (74.1%) of participants were Black/African-American, 21.1% were White/Anglo-American, 3.3% were Latino/a-American, and 1.5% reported other racial groupings.

Most participants reported having been unemployed (32.7%), in a controlled environment (27.7%), or employed either part-time (25.4%) or full-time (11.2%) in the past three years. Participants reported an average total monthly income of \$367.85 ($SD = 709.66$) with an average of 10.9 ($SD = 1.9$) years of education. Participants reported an average of 6.3 ($SD =$

13.7) prior convictions, an average of 9.9 ($SD = 17.4$) incarcerations, with a lifetime average rate of 77.2 ($SD = 79.2$) months incarcerated. In terms of substances use, the majority (41.4%) reported a history of using heroin/opiates, followed by cocaine (27.8%), alcohol (12.8%), polysubstance use (11.3%), and cannabis (6.4%), with 7% of the sample reporting injection drug use.

Procedures

The present investigation was proposed to and approved by an institutional review board. All participants were recruited through inpatient substance abuse treatment facilities or reentry/case management programs. Ninety-three percent of the participants ($n = 251$) were recruited from inpatient treatment facilities where they were receiving inpatient services. Five percent of the participants ($n = 13$) were referred to the project through inpatient treatment facilities although the participants themselves were not receiving inpatient services at the time of recruitment. Two percent of the participants ($n = 6$) were referred through reentry/ case management services. All participants were engaged in a process of informed consent, completed interviews prior to or on day of completing their inpatient treatment program, and received \$40 for their involvement. The authors report no known conflicts of interest in conducting this investigation and certify responsibility for this report.

Measures

Demographics—We created a brief survey to collect sociodemographic characteristics. In addition, this brief survey solicited participants' information regarding their incarceration histories and previous treatments for substance dependence.

Psychiatric severity—The *Addiction Severity Index-Lite* (ASI-Lite; McLellan, Cacciola, & Zanis, 1997), a briefer version of the *Addiction Severity Index* (ASI; McLellan et al., 1992), was used to assess current problem severity in areas commonly affected by substance dependence: medical and psychiatric problems, drug use, alcohol use, illegal activity, family relations, and family history. The ASI has good internal consistency, excellent predictive and concurrent validity (McLellan et al., 1992), and the ASI-Lite has been demonstrated as being quite comparable to the ASI with good validity and reliability (Cacciola, Alterman, McLellan, Lin, & Lynch, 2007).

Psychiatric severity was assessed using the Psychiatric Severity Index (PSI), an ASI subscale index that is calculated by a weighted formula that includes questions regarding a range of current psychiatric symptoms and problems (McLellan et al., 1992). Scores range from .00 to 1.00., with higher scores representing greater psychiatric severity. The PSI is a widely used reliable and valid global estimate of the severity of psychopathology without regard to particular type (McLellan, Luborsky, Woody, O'Brien, & Druley, 1983), with good internal consistency ($> .70$; McLellan et al.), and is one of the few ASI indices to demonstrate high internal consistency across studies (Makela, 2004).

The PSI scores were dichotomized into 2 groups (i.e., high vs. low), and this approach has been used by other investigators (Ball, Nich, Rounsaville, Eagan, & Carroll, 2004; Majer et al., 2008). McLellan et al. (1983) defined high and low PSI scores as 1 SD from the mean.

The present sample had a mean of .14 and a *SD* of .17. We therefore selected those participants ($n = 102$) with a PSI score of .00 to represent the low PSI group, and those participants ($n = 39$) with PSI scores above .31 (.14 plus .17) to represent the high PSI group. Participants in the high PSI group reported an average PSI score of .47 ($SD = .13$), which is higher than PSI scores ($M = .34$, $SD = .19$) reported in a sample of persons with persistent mental disorders (Carey, Cocco, & Correia, 1997), and higher than PSI scores reported in other studies among persons with substance use disorders diagnosed with co-occurring psychiatric disorders (Bovasso et al, 2001; Franken & Hendriks, 2001; McKay et. al., 2002).

Abstinence social support—The *Important People Inventory* (IP, Clifford, Longabaugh, & Beattie, 1992) is a measure adapted from the *Important People and Activities Inventory* (Clifford & Longabaugh, 1991), and has been used in previous research to assess abstinence social support from drugs and alcohol among those recovering from substance use disorders (Longabaugh, Wirtz, Beattie, Noel, & Stout, 1995; Majer, Jason, Ferrari, Olson, & Venable, 2002). Participants were asked to describe important persons from their social network within the past six months. This included specifying the quality of their networks relative to drug and alcohol use in addition to the activities they engaged in during the past six months. Participants rated members of their social network on a five-point Likert scale that distinguished users and non-users. This procedure resulted in computing a percentage of important persons identified by dividing the number of non-using persons (i.e., those who were identified as abstinent from alcohol and drugs, or in recovery from substance use) by the sum total of all persons identified as important persons, consistent with previous investigations on abstinence social support (Groh, Jason, Ferrari, & Halpert, 2011; Majer, et al., 2002; Zywiak, Longabaugh, & Wirtz, 2002; Zywiak, Neighbors, Martin, Johnson, Eaton, & Rohsenow, 2009). The IP has good internal consistency (Longabaugh, Beattie, Noel, Stout, & Molloy, 1993), and the internal consistency of the IP in the present study was very good (Cronbach's $\alpha = .83$).

Abstinence self-efficacy—We administered the *Drug-Taking Confidence Questionnaire* (DTCQ, Annis & Martin, 1985), to assess participants' confidence in resisting the urge to use drugs or alcohol across 50 hypothetical situations. The DTCQ is rooted in Bandura's (1997) cognitive behavioral self-efficacy theory, and it is based on antecedents of substance abuse relapse (Annis & Davis, 1991). The DTCQ has been used among people with different addiction typologies (Sklar, Annis, & Turner, 1999). Because confirmatory factor analyses support the eight-factor model of the DTCQ's highly reliable subscales (.79 to .95; Sklar, Annis & Turner, 1997), we used a total confidence score in the present study by collapsing the subscale scores and averaging these scores on a scale that ranges from 0% (*not at all confident*) to 100% (*very confident*). This total score approach to calculating self-efficacy for abstinence has been effectively used in previous studies (Greenfield et al., 2000; Majer, Jason, & Olson, 2004; Miller, Ross, Emmerson, & Todt, 1989). The DTCQ had excellent reliability with the present sample (Cronbach's $\alpha = .98$).

Substance use—We administered Miller's (1996) *Form-90* to collect a continuous record of alcohol and drug use in the past six months. The Form-90 provides a retrospective time frame for assessment and has excellent test-retest reliability (Miller & DelBoca, 1994).

Data analysis

We conducted a one-way MANCOVA to examine differences between participants in the low PSI and high PSI groups on outcome variables related to abstinence social support and abstinence self-efficacy. We controlled for sociodemographic variables (sex, race) because of the significantly disproportionate number of cases among these variables within the sample, and substance use (in the past six months) because of its predictive relationship with dependent variables.

Statistical methods

Descriptive analyses were used to examine sample characteristics, determine whether transformations were needed, and describe overall levels of psychiatric severity, recovery resources (abstinence social support, abstinence self-efficacy), and rates of substance use. Of the 270 participants in our total sample, 248 completed psychological severity index (PSI) questions with scores that fell in the high ($n = 39$) and low ($n = 102$) PSI groups.

Missing data—A listwise deletion approach was used to evaluate data and calculate analyses. Participants with missing data on any analytic model variable were excluded from analyses. We had data for approximately 95% of participants in the high and low PSI groups for our analyses ($n = 136$). A missing values analysis of all the independent and dependent variables indicated that the data were missing at random, Little's MCAR test; $X^2(11) = 13.768, p = .25$.

Results

Preliminary Analyses

There were proportionately more men than women [$X^2(1, N = 270) = 117.34, p < .01$], and African-American participants than those from other racial groupings [$X^2(4, N = 270) = 532.59, p < .01$] in the sample. Participants reported an average number of days using alcohol 20.0 ($SD = 40.7$) and drugs 44.7 ($SD = 57.4$) for a combined alcohol/drug use average of 33.33 days ($SD = 41.21$); ranging from 1–180 days over the past six months. They reported an average abstinence social support score of 68.9% ($SD = 34.4$) and an average abstinence self-efficacy score of 77.1% ($SD = 23.6$).

We examined recovery resources in relation to participants' recent alcohol/drug use through correlation analyses (all one-tailed). As expected, there was a significant negative correlation between participants' alcohol/drug use on the one hand, and their abstinence social support scores [$r(257) = -.20, p < .002$] and abstinence self-efficacy scores [$r(262) = -.28, p < .001$] on the other hand. We also conducted these correlation tests using data only from participants in the high PSI group and the results were statistically similar with respect to alcohol/drug use and abstinence self-efficacy [$r(38) = -.27, p < .05$], but not alcohol/drug use and abstinence social support [$r(37) = -.18, p < .13$].

In addition, we ran a one-way analysis of covariance (ANCOVA) to test for differences between high PSI and low PSI groups in relation to their alcohol/drug use, controlling for race and gender as covariates. Results from the ANCOVA test demonstrated no significant differences in terms of alcohol/drug use between participants in the high PSI group ($n = 39$; $M = 25.89$, $SE = 6.59$) and low PSI group ($n = 101$; $M = 32.00$; $SE = 4.09$).

Multivariate analysis of recovery resources

Differences in levels of abstinence social support and abstinence self-efficacy were examined in relation to whether participants reported high levels of psychiatric severity. A one-way MANCOVA was employed to examine the effects of psychiatric severity (high PSI group, low PSI group), controlling for substance use, race, and sex as covariates, with levels of abstinence social support and abstinence self-efficacy as dependent variables.

Main effects

Results from the MANCOVA test demonstrated a significant main effect for psychiatric severity, Wilks' $\Lambda = .904$, $F(2, 129) = 6.84$, $p < .002$, $\eta^2 = .096$. Follow-up analysis of variance (ANOVA) testing revealed no significant difference in levels of abstinence social support between participants in the high PSI group and low PSI group, [$(M = 70.01$ vs. 70.06 ; $SE = .06$, $.03$); $F(1, 130) = .006$, $p < .94$, $\eta^2 = .00$]. However, follow-up ANOVA testing revealed participants in the high PSI group ($n = 37$) reported significantly lower levels of self-efficacy for abstinence [$(M = 68.02$ vs. 82.84 ; $SE = 3.41$, 2.09); $F(1, 130) = 13.61$, $p < .001$, $\eta^2 = .095$] than participants in the low PSI group ($n = 98$).

Covariate effects—Results from the MANCOVA test demonstrated a significant covariate effect for participants' substance use, Wilks' $\Lambda = .922$, $F(2, 129) = 5.49$, $p < .005$, $\eta^2 = .078$. Follow-up ANOVA testing and parameter estimates of the model revealed a significant negative relationship for substance use with abstinence self-efficacy, $F(1, 135) = 10.11$, $p < .002$, $\eta^2 = .072$, $\beta = -.14$, $t = -3.18$, $p = .002$, but not for abstinence social support. No other significant covariate effects were observed and there were no significant interaction effects between our factor and covariates.

Discussion

High levels of psychiatric severity were used in the present study as a measure of psychiatric comorbidity through the use of psychiatric severity index (PSI) scores of the *Addiction Severity Index* (McLellan et al., 1992), observed in 16% of our sample. High PSI scores have been found to be significant predictors of mood and anxiety disorders among persons with substance use disorders (Dixon, Myers, Johnson, & Corty, 1996; Franken & Hendriks, 2001), and future psychiatric hospitalizations (Bovasso et al., 2001) among persons with substance use disorders diagnosed with co-occurring psychiatric disorders, thus we have basis to support our approach in measuring psychiatric comorbid substance use disorder in the present study. Although the prevalence rate of psychiatric comorbid substance use disorders in the present study is lower than national averages (SAMHSA, 2010), it is consistent with findings from a national investigation that found a prevalence rate of persons with serious or moderate psychiatric disorders at 14%.

Although substance use was not a significant covariate of our analytic model related to abstinence social support, the significant negative relationship between substance use and abstinence social support among persons with low (but not high) levels of psychiatric severity supports the notion that abstinence social support might be a recovery resource for persons with substance use disorders, but not a sufficient resource for persons with psychiatric comorbid substance use disorders (Aase et al., 2008; Magura, 2008). It is possible that abstinence social support may not be enough to counter other social influences related to substance use such as perceptions of 12-step group cohesion and 12-step peers (Noordsy et al., 1996; Rice & Tonigan, 2012), some of whom may not extend a sense of belongingness necessary to counter pathological behavior (You, Van Orden, & Conner, 2011), especially among 12-step peers who view psychiatric medication use as drug-use behavior among persons with psychiatric comorbid substance use disorders (Laudet, 2000). However, these findings may be limited to clients receiving a total abstinence approach to recovery and they may not necessarily generalize among clients receiving drug replacement therapies who attend alternative 12-step groups for those on medications (e.g. Methadone Anonymous).

In addition, the comparable levels of abstinence social support between high and low psychiatric severity groups in the present study suggest that persons with psychiatric comorbid substance use disorders may not seem to be at a disadvantage in terms of being empowered with this recovery resource when they exit inpatient treatment for substance use disorders. It is possible that some persons with psychiatric comorbid substance use disorders exit inpatient alcohol/drug treatment programs with what appears to be an adequate level of abstinence social support, comparable to those who only have substance use disorders, when the potential benefits of abstinence social support (i.e., related to decreased substance use) might be greater among those with substance use disorders.

The significant negative relationship between abstinence self-efficacy and substance use suggests that abstinence self-efficacy is an important cognitive resource for persons with psychiatric comorbid substance use disorders. However, significant differences between high versus low psychiatric severity groups in terms of levels of abstinence self-efficacy in the present study extends previous investigations in that we found post-discharge differences whereas others found differences at treatment intake (Boden & Moos, 2009; Greenfield et al., 2012).

Although significantly low levels of abstinence self-efficacy among persons with psychiatric comorbid substance use disorders in the present study could be related to cognitive dysfunction specific to psychiatric comorbidity, this finding is particularly alarming when extremely high levels of abstinence self-efficacy have been found to be a strong predictor of 1-year abstinence outcomes (Ilgen, McKellar, & Tiet, 2005). Findings in the present study are consistent with previous research findings (Greenfield et al., 2012) that emphasize the need for appropriate interventions to increase abstinence self-efficacy for persons with psychiatric comorbid substance use disorders during treatment. Interventions targeting coping skills and stress management have been effective in increasing abstinence self-efficacy (Ilgen et al., 2007; McKellar, Ilgen, Moos & Moos, 2008), and clinicians should consider treatment objectives that are specific to clients' psychiatric needs in this respect.

Although recovery resources among persons with psychiatric comorbid substance use disorders exiting inpatient alcohol/drug treatment might be better understood by comparing them to those among persons with substance use disorders, there are some limitations in the present study. For instance, we did not examine prescribed psychiatric medication use or participants' need for self-medication that might have influenced our results. Participants' treatment experiences probably affected their social support and self-efficacy for abstinence. Measuring abstinence social support by examining the percentage of network members who are either in recovery or abstainers is only one way to examine support networks, and other social support measures would have helped us better understand the role of social support. Likewise, the inclusion of measures involving perceptions of 12-step groups and peers might explain differences in recovery resources, and possibly in relation to other important outcomes. Finally, the use of self-reported data at one time-point is another limitation of the present study, as a repeated measures design might have provided more information in relation to changes in recovery resources between groups. Although results in the present study have implications for future research, it would be prudent for treatment providers to give serious consideration to interventions that would increase abstinence self-efficacy among persons with psychiatric comorbid substance use disorders.

Conclusion

The present study investigated a sample of persons exiting inpatient treatment for substance use disorders. The comparative design permitted analyses that yielded intriguing findings related to psychiatric severity, recovery resources, and substance use. The use of a standardized diagnostic instrument could provide rates of specific co-occurring mental disorders for additional analyses and should be considered in future clinically-based research. In future research, with other measures pertaining to recovery resources and mental health, and comparison groups including community samples, we can better understand how persons with psychiatric comorbid substance use disorders recover. Overall, findings from the present study suggest that persons with psychiatric comorbid substance use disorders exit alcohol/drug treatment with lower levels of abstinence self-efficacy compared to their substance use disorder peers.

Acknowledgements

We appreciate the financial support from the National Institute on Drug Abuse (NIDA), Bethesda, MD, USA (grant number DA13231).

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