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Abstinence Social Support Among Ex-Prisoners With Substance Use Disorders

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Abstract

The relationships between abstinence social support, substance use, and abstinence self-efficacy were examined among a sample of ex-prisoners exiting inpatient treatment for substance use disorders. Ordinary least squares regressions and bootstrapping procedure were used to test whether the relationship between abstinence social support and substance use would be mediated by abstinence self-efficacy. Significant relationships between variables were observed, and abstinence self-efficacy mediated the relationship between abstinence social support and substance use. Findings suggest that abstinence social support is enhanced by abstinence self-efficacy, and that these recovery resources can benefit persons with incarceration histories who have substance use disorders.

Keywords

abstinence social support; substance use; abstinence self-efficacy; ex-prisoners; mediation analysis

Introduction

Social support networks consisting of abstinent persons are instrumental in helping persons with substance use disorders maintain abstinence (Havassy, Hall, & Wasserman, 1991; Longabaugh, Wirtz, Beattie, Noel, & Stout, 1995). Persons recovering from substance use disorders typically develop networks based in social support for abstinence through 12-step groups (Groh, Jason, & Keys, 2008), and such abstinence social support has been demonstrated to predict improved abstinence outcomes (Kaskutas, Bond, & Humphreys, 2002). Although social networks consisting of members who encourage or support substance use can negatively affect abstinence outcomes among persons with substance use disorders (Jason, Davis, & Ferrari, 2007; McKay et al., 2013), increasing social networks with members who support abstinence (rather than eliminating members who support substance use) might be characteristic of changes in social support networking among

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persons in recovery over time. For instance, significant increases in the proportion of abstinent persons and significant decreases in the proportion of persons involved with substances were observed within social networks among persons with substance use disorders who remained abstinent at 6 months (Zywiak et al., 2009). However, there is a dearth of literature on the role of abstinence social support among ex-prisoners (i.e., persons with incarceration histories) who have substance use disorders, and there is a need to investigate its relationship to abstinence and other recovery resources such as abstinence self-efficacy.

Abstinence self-efficacy is based on Bandura's (1997) cognitive-behavior self-efficacy theory, and it is regarded as an important resource for relapse prevention (Marlatt & Gordon, 1985). Persons recovering from substance use disorders cope with high-risk relapse situations by utilizing abstinence self-efficacy (Annis & Davis, 1991) that has been found to predict abstinence (Chavarria, Stevens, Jason, & Ferrari, 2012; Greenfield et al., 2000; Johnson, Finney, & Moos, 2006; McKay et al., 2013). Abstinence self-efficacy is strengthened through 12-step involvement in groups such as Alcoholics Anonymous and Narcotics Anonymous (Bogenschutz, Tonigan, & Miller, 2006; Ilgen, McKellar, & Moos, 2007; Majer, Jason, Ferrari, & Miller, 2011; Moos & Moos, 2007), suggesting a link between this recovery resource and abstinence social support.

Abstinence social support might increase abstinence through abstinence self-efficacy among persons with incarceration histories who have substance use disorders because persons recovering from substance use disorders acquire effective coping skills modeled by their peers (Finney, Noyes, Coutts, & Moos, 1998; Litt, Kadden, Kabela-Cormier, & Petry, 2009; Longabaugh, Beattie, Noel, Stout, & Molloy, 1993; Morganstern, Labouvie, McCrady, Kahler, & Frey, 1997). Jason et al. (2007) found abstinence self-efficacy to mediate the relationship between social support for substance use and abstinence, but the role of social support for abstinence was not examined in this capacity. In addition, significant positive relationships were observed between abstinence on one hand and abstinence social support and abstinence self-efficacy on the other hand in a sample that included some persons with incarceration histories (Majer, Jason, Ferrari, Venable, & Olson, 2002). However, Majer et al. (2002) found significant differences in levels of abstinence social support between those with and without incarcerations histories, and little is known about the relationship between abstinence social support and abstinence self-efficacy as recovery resources among persons with incarceration histories who have substance use disorders.

Examining abstinence social support among persons with incarceration histories would have important treatment and research implications because of the high rates of substance use of this population (Chandler, Fletcher, & Volkow, 2009; Epperson et al., 2014; Proctor, 2012). Although it is reasonable to expect high levels of abstinence social support would be related to substance use and abstinence self-efficacy, these relationships have yet to be investigated among persons with incarceration histories who have substance use disorders. In addition, previous investigations have not examined the potential mediating effects of abstinence self-efficacy on the relationship between abstinence social support and substance use with this population.

The present study examined abstinence social support in relation to substance use and abstinence self-efficacy among a sample of ex-prisoners with substance use disorders who had been released from incarceration settings (prisons or jails) in the past 24 months. We hypothesized that high levels of abstinence social support would be significantly related to both substance use and abstinence self-efficacy, and we examined whether the relationship between abstinence social support and substance use would be mediated by abstinence self-efficacy.

Method

Participants

The sample was comprised of 270 ex-prisoners (224 men and 46 women) with substance use disorders who were seeking a complete-abstinence model of recovery in Northern Illinois, in the United States. They reported an average age of 40.4 ($SD = 9.5$) years. Regarding their marital status, 74.9% had never been married; 18.3% were divorced/separated/widowed, and 6.9% were married or remarried. In terms of race, the majority (74.1%) of participants were African American, 21.1% were White, 3.3% were Hispanic, 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 3 years. Participants disclosed an average total monthly income of US\$367.85 ($SD = 709.66$) with an average of 10.9 ($SD = 1.9$) years of education. The respondents had been previously incarcerated an average of 9.9 times, with their most recent incarceration averaging 15.4 months; they had been most recently released from prison for an average of 144.3 days. In terms of substances used, the majority (43.2%) reported a history of using heroin/opiates, followed by cocaine (28.9%), alcohol (14.7%), cannabis (7.1%), polysubstance use (5.6%), and amphetamine/crystal methamphetamine (.4%), with an average of three previous treatments for substance dependence.

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 ($n = 251$) were recruited from inpatient treatment facilities where they were receiving inpatient services, while the remainder of the sample ($n = 19$) were referred to the project through chain-referral sampling, although they had recently completed inpatient treatment for substance use disorders. Five percent of the participants ($n = 13$) were referred to the project through inpatient treatment facilities although they themselves were not receiving inpatient services at the time of recruitment. Two percent ($n = 6$) were referred through reentry/case management services that did not offer inpatient treatment, but served clients who recently completed inpatient treatment. Recruitment began in March 2008 and continued through May 2011.

Eligibility for the present study consisted of having been released from prison or jail in the past 24 months, recovering from a substance use disorder, and agreeing to be randomly

assigned to an experimental design that was used in a separate investigation (Jason, Olson, & Harvey, 2015). The exclusion criteria consisted of not meeting eligibility criteria and/or having a legal history of engaging in violent crime. Of the participants approached, 26 were excluded for eligibility violations (no substance use, no criminal history, convicted of violent crimes, etc.), 13 were not interested in the study, and 15 refused their random condition assignment. 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 US\$40 for their involvement.

Measures

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

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. Participants were asked to describe important persons from their social network within the past 6 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 6 months. Respondents rated members of their social network on a 5-point Likert-type scale that distinguished users and nonusers. This procedure resulted in computing a percentage of important persons identified by dividing the number of nonusing 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 et al., 2009). The IP has good internal consistency (Cronbach's $\alpha = .80$; Longabaugh et al., 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 use 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–.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, Droege, & Jason, 2012; Majer, Jason, & Olson, 2004). 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. The Form-90 provides a retrospective time frame for assessment and has excellent test–retest reliability (Miller & Del Boca, 1994). The internal consistency of alcohol, drug use, and both alcohol and drug use items used in the present study was very good (Cronbach’s $\alpha = .85$).

Data Analysis

The results are a secondary analysis of a larger randomized clinical trial (Jason et al., 2015). Descriptive analyses were conducted to provide sociodemographic characteristics of the sample in addition to describing rates of abstinence social support, abstinence self-efficacy, and substance use in the past 6 months. Pearson correlation tests (all two-tailed), controlling for gender and ethnicity, were conducted to examine the associations between major variables.

Direct and indirect effects were computed in testing for mediation by using ordinary least squares regressions and bootstrapping procedure (Preacher & Hayes, 2004). Bootstrapping has been shown to be a powerful and preferred method for testing intervening variables whereby inference is based on an estimate of the indirect effect without assumptions regarding the sampling distribution (Hayes, 2009). The indirect effect reflects the amount by which the total effect of the independent variable (abstinence social support) is decreased when the mediator (abstinence self-efficacy) is included in the analysis. The significance of the indirect effect is indicated when 95% confidence interval (CI) values, based on 5,000 bootstrap resamples, do not cross zero. Unstandardized coefficients (B) were used in our mediation analysis because they are preferred to standardized coefficients (β) to indicate predicted changes in the dependent variable (Hayes, 2009; Preacher & Hayes, 2004) while controlling for other variables (gender, ethnicity) in the model. We entered gender and race as covariates in our model because of the disproportionate number of cases based on their values.

Missing data—A pairwise deletion approach was used to evaluate data and calculate analyses. Participants with missing data (approximately 7% of all available cases) were excluded from analyses.

Results

Preliminary Analyses

There were proportionately more men than women, $\chi^2(1, N = 270) = 117.34, p < .01$, and African American participants than those from other racial groupings, $\chi^2(4, N = 270) = 532.59, p < .01$, 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 to 180 days over the past 6 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% ($SD = 23.6$).

Primary Analyses

We conducted correlation analyses (all two-tailed) to examine the relationship between primary variables. There was a significant positive correlation between participants' abstinence social support scores and abstinence self-efficacy scores, $r(258) = .21, p < .001$. In addition, there was a negative correlation between participants' substance use on 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 partial correlation tests ($n = 251$), controlling for gender and race, and results were statistically similar in terms of the magnitude and significance of these relationships.

Mediation Analysis

The mediation analysis, controlling for gender and race, was conducted using PROCESS Model 4, using 5,000 bootstrap samples for bias correction and to establish 95% CIs (Preacher & Hayes, 2004). The main results of the mediation analysis are presented in Table 1. Consistent with the correlation analyses, abstinence social support predicted increased abstinence self-efficacy, $B = 14.77, SE = 4.35, 95\% CI = [6.21, 23.33], R^2 = .05, p < .01$, whereas abstinence self-efficacy predicted decreased substance use, $B = -0.41, SE = 0.10, 95\% CI = [-0.61, -0.20], R^2 = .10, p < .001$. Both the total and direct effects of abstinence social support on substance use were significant, indicating a negative predictive relationship between abstinence social support and substance use. The significant indirect effect demonstrates abstinence self-efficacy mediated the relationship between abstinence social support and substance use. In addition, participants' gender and race were not significantly related to any pathway in our test for mediation.

Discussion

The significant negative relationship between abstinence social support and substance use suggests that social networks consisting of recovering or abstinent persons are instrumental in facilitating abstinence among persons with incarceration histories who have substance use disorders. Although low levels of abstinence social support have been observed in relation to identification issues with recovering peers among persons with incarceration experiences (Majer et al., 2002), its significant negative relationship with substance use in the present study is consistent with longitudinal studies involving non-offender samples (Kaskutas et al., 2002; Zywiak et al., 2009). Thus, treatment providers working with ex-prisoners who have substance use disorders should consider interventions focused on developing abstinent support networks that have been demonstrated to increase outcomes over time (Litt et al., 2009; Zywiak et al., 2009). We agree with Polcin (2006) in that sober living homes, particularly self-run communal-living settings such as the Oxford House model that has been demonstrated to assist community reentry through social support and stable housing (Jason & Ferrari, 2010), can help persons with incarceration histories who have substance use disorders develop important social networks for their recovery.

The significant negative relationship between abstinence self-efficacy and substance use is consistent with previous investigations (Jason et al., 2007; McKay et al., 2013), suggesting that abstinence self-efficacy is a cognitive recovery resource that can promote abstinence

among persons with incarceration histories who have substance use disorders. This finding extends previous research that did not find self-efficacy (per se) to be a significant predictor of successful aftercare completion among a sample of ex-offenders with substance use disorders (Houser, Salvatore, & Welsh, 2012) in that the present study examined abstinence self-efficacy. Abstinence self-efficacy is a cognitive resource that is specific to the goal of continued abstinence among persons with substance used disorders, possibly by fostering acceptance and appropriate response to internal states linked to cravings (Gifford, Ritsher, McKellar, & Moos, 2006), which would seem more relevant to the aims of recovery than a general sense of self-efficacy.

Abstinence social support and abstinence self-efficacy were positively and significantly related, a finding that replicates research among persons with substance use disorders (Litt et al., 2009) who did not report incarceration histories. In addition, abstinence self-efficacy mediated the relationship between abstinence social support and substance use in the present investigation, suggesting that abstinence social support is a recovery resource that increases positive affect that could invigorate cognitive-behavioral change (Carrico et al., 2013) by which it promotes abstinence outcomes (Laudet & Stanick, 2010).

This study is one of the few to examine the potential mediating effects of abstinence self-efficacy on the relationship between abstinence social support and substance use, replicating Litt et al.'s (2009) findings of this mediation effect with a sample of persons with incarceration histories who have substance use disorders. In addition, results here extend findings from one study (Davis & Jason, 2005) that examined the mediating effects of abstinence self-efficacy in relation to social support for drinking and substance use, suggesting that abstinence social support is enhanced by abstinence self-efficacy. Although abstinence social support was observed to mediate the relationship between involvement in Alcoholics Anonymous and substance use (Kaskutas et al., 2002), findings in this study extend our knowledge of abstinence social support by suggesting that social mechanisms for recovery are complemented by cognitive factors. Nonetheless, findings in the present investigation suggest that abstinence social support and abstinence self-efficacy are important recovery resources for persons with incarceration histories who have substance use disorders, and more rigorous investigations would help us better understand their dynamic relationship.

Although the relationship between abstinence social support and substance use might be better understood when accounting for abstinence self-efficacy, there are some limitations in the present study. For instance, participants' treatment experiences probably affected their levels of abstinence social support and abstinence self-efficacy. Substance use rates in this investigation were an average of both any substance use plus alcohol use in the past 180 days. A more accurate assessment of total abstinence from all psychoactive substances is recommended in future investigations. Measuring recent rates of substance use in the past 6 months is a proxy measure for abstinence when a follow-up assessment interval examining abstinence rates would provide more insights into the value of recovery resources. In addition, investigations that assess other types of social support, including social support for substance use concurrently with abstinence social support, might help us better understand the influence of social networks among persons with incarceration histories who have

substance use disorders. The use of self-reported data at one time-point is another limitation of this research, as a repeated-measures design might have provided more information in relation to potential increases in abstinence social support, the likely decreases in social support for substance use, and substance use/abstinence rates over time. Finally, investigations should examine the role of 12-step involvement in relation to these recovery resources when examining mechanisms that support ongoing abstinence. Although the results presented here have implications for future research, treatment providers should give serious consideration to treatment plans that encourage the development of both abstinence social support and abstinence self-efficacy among persons with incarceration histories who have substance use disorders.

Conclusion

Few studies have examined relationships between various types of social support and self-efficacy among persons with substance use disorders. This study adds to the small body of research by examining the role of abstinence social support in relation to abstinence self-efficacy and substance use among persons with incarceration histories who have substance use disorders. Our findings draw attention to the need for researchers to examine social support for abstinence (i.e., abstinence social support) in relation to recovery resources such as abstinence self-efficacy. In addition, findings from our investigation suggest researchers should examine cognitive factors when investigating social factors that promote recovery, particularly among persons with incarceration histories who have substance use disorders.

The present study examined predictors of substance use that have not been examined in previous investigations involving persons with incarceration histories who have substance use disorders. Our investigation is innovative in that it examined two types of recovery resources specific to abstinence (social support and self-efficacy), and found abstinence self-efficacy to mediate the relationship between abstinence social support and substance use. Service providers should target the development of social support and self-efficacious behaviors for abstinence when devising aftercare plans for persons with incarceration histories who have substance use disorders to facilitate their transition back into their communities. Overall, findings in this investigation suggest that abstinence-specific recovery resources should be considered when assessing relapse prevention, particularly among persons with incarceration histories who have substance use disorders.

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Biographies

John M. Majer is a professor of psychology at Harry S. Truman College. He is a consultant for DePaul University’s Center for Community Research. A clinician and researcher for the past 25 years working with criminal justice–involved persons recovering from addiction, his interests include self-efficacy, psychiatric comorbidity, 12-Step involvement, and the Oxford House model of substance use disorder residential treatment.

Carolina Plaza is a research volunteer at DePaul University’s Center for Community Research. Her research interests include cultural competency as it relates to sexual orientation and gender identity, and assessing the effectiveness of sexual health education among urban elementary and high school students.

Leonard A. Jason is a professor of psychology and the director of the Center for Community Research, DePaul University. He has developed and empirically verified the value of new ways of reducing underage youth’s access to tobacco, and has played a major role in establishing the scientific basis of chronic fatigue syndrome and myalgic encephalomyelitis. His work has also demonstrated the effectiveness of relapse prevention in recovery residence homes run by individuals recovering from alcoholism, known as Oxford Houses.

Table 1

Mediation Effects of Abstinence Self-Efficacy on the Relationship Between Abstinence Social Support and Substance Use.

Effect	Estimate	SE	95% CI	
			Lower	Upper
Total (<i>B</i>)	-25.18***	7.35	-39.65	-10.72
Direct (<i>B</i>)	-19.20**	7.31	-33.60	-4.81
Indirect (θ)	-5.98*	2.41	-12.39	-2.28

Note. CI = confidence interval.

* $p < .05$.

** $p < .01$.

*** $p < .001$.