

## Does recent criminal involvement matter? A study of women with co-occurring disorders in a multisite national trial

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**Aims:** To investigate criminal involvement in relation to treatment outcome in a multisite study. We compared 381 women with recent criminal involvement (RCI,  $n = 381$ ; past 3 months) to 681 women with no lifetime history of criminal involvement (NCI,  $n = 681$ ) at baseline and at 6 months from start of treatment (RCI 6 mos:  $n = 282$ ; NCI 6 mos:  $n = 556$ ).

**Methods:** Outcome measures were alcohol severity, drug severity, general mental health, and PTSD symptoms. We compared RCI versus NCI women at baseline and compared RCI versus NCI women from baseline to 6 months by treatment condition. Treatment conditions were integrated care for co-occurring disorders versus treatment-as-usual. Age and baseline scores were covariates.

**Results:** In the baseline comparison, RCI women were younger, had greater drug addiction severity but better mental health than NCI women. In the over-time analysis, RCI and NCI 6-month clinical outcome scores improved irrespective of intervention type.

**Keywords:** criminal involvement; mental health; substance use; treatment outcome; women

### Introduction

Substance use disorder (SUD) and mental health problems frequently co-occur and represent distinct treatment challenges for those with the disorders, for communities with fragmented service models, and for clinicians operating in settings with limited expertise in integrating services (Grella, 2003; Harris, 1994). Women with co-occurring substance use and mental health disorders often have histories of trauma and violence (Jennings, 1994; Najavits, Sonn, Walsh, & Weiss, 2004), adding to the complex treatment needs of these women. Moreover, they may be forced to leave behind dependent children while receiving inpatient or residential treatment, or may pursue outpatient care that does not adequately address both their SUD and mental health problems.

Limitations of traditional sequential and parallel treatment models, and “one size fits all” treatment, have been described elsewhere (Veysey & Clark, 2004). Women who

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are involved in the criminal justice system through arrest, incarceration, or parole, often have higher rates of experiencing violence and substance use disorders than non-offender women (Covington, 2002; Green, Miranda, Daroowalla, & Siddique, 2005; Teplin, Abram, & McClelland, 1996). Recognizing the needs of women with histories of violence and co-occurring substance and mental health disorders prompted the Substance Abuse and Mental Health Services Administration (SAMHSA) to sponsor the Women Co-Occurring Disorders and Violence Study (WCDVS).

In 2001, the WCDVS began a nine-site outcome trial designed to focus on women with SUD, at least one co-occurring mental health disorder, and a history of violence (Salasin, 2005). The main comparison was integrated treatment or treatment as usual (TAU). Integrated treatment had four components (Morrissey et al., 2005b):

- (a) implementation of at least one trauma-specific intervention [Seeking Safety (Najavits); Trauma Recovery and Empowerment Model (Fallot & Harris); the Addiction, Trauma, Recovery Integration Model (Miller & Guidry); and Trauma Adaptive Recovery Group Education and Therapy (Ford)];
- (b) a wide array of services including advocacy, parenting education, and crisis management;
- (c) training of staff in trauma-informed approaches to service delivery; and
- (d) involving consumers to play a role in service provision.

Each site offering integrated treatment was matched with a site in its community that offered treatment-as-usual care (TAU), with TAU serving as a non-randomized control condition. TAU was defined as treatment services delivered in the manner customary for that location. McHugo et al. (2005) have described the characteristics of TAU sites, with some offering elements of the integrated services described for integrated treatment conditions, but none utilizing the trauma-specific interventions. A TAU site may or may not have case management services, parenting classes, crisis management, or consumer involvement, but the key distinction between integrated treatment and TAU sites was the provision of trauma-specific interventions. A further discussion of this can be found from McHugo et al. (2005). The main SUD outcomes were Addiction Severity Index – alcohol composite (ASI-A) and Addiction Severity Index – drug composite (ASI-D). General mental health functioning was measured using items from the Brief Symptom Inventory (BSI) and the Behavior and Symptom Identification Scale (BASIS-32). These items were combined to create a Global Symptom Severity Index (GSI) for the WCDVS project. Symptoms associated with traumatic stress were evaluated using the PTSD Symptom Scale (PSS). Because women with histories of SUD and trauma often report an array of psychosocial problems and impaired functioning, these four measures (ASI-A; ASI-D; GSI; and PSS) represent a concise summary of overall functioning. The current study thus also focused on these four main outcomes.

Previous papers involving this dataset have examined 6- and 12-month treatment outcomes based on client (Morrissey et al., 2005a) and program level characteristics (Cocozza et al., 2005). Morrissey et al. (2005a) concluded that across all treatment types, women with the worst mental health and SUD symptoms reported the greatest gains at 6- and 12-month follow-up. Cocozza et al. (2005) reported that there were significant improvements with the integrated treatment approach and that these gains were modestly above those identified in TAU conditions. These improvements,

however, were significant across three of four clinical dimensions, including addiction severity and mental health symptoms (but not PTSD symptoms) in those sites offering the most integrated counseling.

The study analyses thus far, however, have not addressed one high-risk group of women; those with recent criminal justice system involvement (RCI). The number of incarcerated women has quadrupled in the past several decades and continues to increase at both the state (6.6% of State prison population) and federal level (7% of the Federal prison population) (Bureau of Justice Statistics, 2008). The notable increase in the female prison population can be traced to the increased enforcement of drug laws, limited availability of substance treatment options for addicted women, and, among women arrested, a report of high rates of substance use compared to men with criminal histories and women without criminal histories (Bloom, Chesney-Lind, & Owen, 1994). Women in prison have high rates of SUD and post-traumatic stress disorder (PTSD), are often survivors of childhood and adult violence, and are commonly caregivers to their own and their partner's children (Covington, 2002; Browne, Miller & Maguin, 1999; Green et al., 2005; Teplin et al., 1996). As women are released, paroled, or offered alternatives to incarceration, the treatment community must determine whether current and developing treatment approaches are adequate for their needs or whether existing approaches need to be augmented for these women.

The purpose of the current study was therefore to conduct a secondary data analysis of the WCDVS to compare women with recent criminal justice involvement (RCI) to women with no history of lifetime criminal justice involvement (NCI). The goal was to address two primary topics:

- (a) a comparison of differences between the two groups at baseline on various measures,
- (b) an outcome analysis at 6 months (i.e. over-time analysis of the two groups by study condition, INT versus TAU), on the main study variables (ASI-A, ASI-D, GSI, and PSS).

For topic 'a', we predicted that RCI women would evidence more severe symptoms than NCI women at baseline (Hypothesis 1). For topic 'b', we predicted that RCI women would show greater improvement in outcomes than NCI women (Hypothesis 2a), and that these improvements would be largest for RCI women in the INT condition (Hypothesis 2b).

## **Methods**

### *Sample*

Women in the WCDVS were treated at nine sites (PROTOTYPES, Allies, Community Connections, Triad Women's Project, Franklin County Women and Violence Project, Palladia's Portal Project, Arapahoe House, WELL Project, and New Directions for Families), of which all but one provided data for the current study. Of the initial 2729 women enrolled, 1759 women from each of the eight sites whose data we examined completed the 6-month follow up. Participants for this study were restricted to women with complete baseline (RCI,  $n = 381$ ; NCI,  $n = 681$ ) and 6-month follow up (RCI,  $n = 282$ ; NCI,  $n = 556$ ) survey data for the 4 main outcomes (ASI-A; ASI-D; GSI; and PSS).

A multisite evaluation tool (Giard et al., 2005) offered several items to assess criminal justice contact including number of recent arrests, number of nights spent in jail over the past 90 days, experiences of criminal court-ordered substance or mental health treatment, and lifetime history of incarceration or juvenile detention. Although no single item uniformly assessed degree of criminal justice contact, the items did allow for selection of participants based on indicators of criminal justice contact within 3 months prior to the baseline study assessment.

### *Procedures*

Women were classified into two groups. 'No criminal justice involvement' (NCI, baseline  $n = 681$ ) was assigned when women denied a lifetime experience of jail or juvenile detention; denied being criminally court-ordered for substance use or mental health treatment; and denied any recent (past 90 days) arrests or recent (past 90 days) stays in jail or correctional centers. 'Recent criminal justice involvement' (RCI, baseline  $n = 381$ ) was assigned for women who had been criminal court-ordered into substance treatment or mental health treatment, or had ever been to jail or juvenile detention and who reported recent (past 90 days) arrests or stays in jail or correctional centers. Women were selected with both lifetime history of jail or juvenile detention, along with recent history of arrest or incarceration, in order to further distinguish those with remote contact from those with recent contact. We decided to focus solely on the distinction between those with very recent (90 days) and those with no reported criminal involvement history because earlier reports (Becker et al., 2005) established that 76% of the WCDVS sample had some level of criminal justice system contact over their lifetime. We therefore believed that the strongest contrast was between those most recently connected to the criminal justice system compared to those with no reported history. Moreover, items that reflected lifetime criminal justice involvement did not specify dates of such involvement, and thus we chose to omit such women from our study unless they also reported recent (past 90 days) involvement, which was specified in the data set. This selection excluded 921 women with 6-month data from eight of the nine sites from our analysis.

### *Sociodemographics*

Women in this study, on average, were 36.4 years old ( $SD = 8.7$ ), and had completed 11.4 years of education ( $SD = 2.3$ ). Thirty-two percent ( $n = 333$ ) of the present sample had never married, 28% ( $n = 291$ ) reported they currently had a dating or sexual partner, 14.6% ( $n = 150$ ) reported they were divorced, 12% ( $n = 133$ ) were separated, while 11.8% ( $n = 128$ ) were married. The women were from diverse racial and ethnic backgrounds with 51% ( $n = 547$ ) identifying as white non-Hispanic, 28% ( $n = 298$ ) as black non-Hispanic, 14.8% ( $n = 158$ ) Hispanic, and less than 1% as other non-Hispanic. These distributions are similar to those reported by Morrissey et al. (2005a) in their review of 6-month outcomes using the larger WCDVS database.

### *Measures*

The following measures were used in the original multisite study and archived data used for this project stems from these measures. Additional details about the

selection and design of these measures can be found in Becker et al. (2005), Giard et al., (2005) and McHugo et al., (2005).

#### *Cross-site protocol*

The cross-site protocol was created to elicit standardized information including personal history, traumatic life events, sociocultural demographics, health and family history. In addition to background questions, four areas of clinical functioning were further assessed with additional instruments included in the cross-site protocol (Giard et al., 2005). These indices are described below.

#### *ASI-A and ASI-D*

Items from the Addiction Severity Index (McLellan et al., 1992) were used to create separate composite scores for alcohol and other drugs (Becker et al., 2005). Alcohol addiction severity was assessed using an alcohol composite score (ASI-A). Drug addiction severity was assessed using a drug composite score (ASI-D) derived from isolating questions related to lifetime history of use and those related to alcohol and drug composite. Women were instructed to answer either for the most recent month or for the month prior to their entry into SUD treatment programs. As Becker et al. (2005) report, no normative data exist for the ASI alcohol composite score as this and the drug composite score vary by population and treatment program type. The composite scores are designed to indicate current level of treatment need and may range from 0 (no significant problem) to 1 (extreme problem; Becker et al., 2005). Baseline ASI-A scores for the original WCDVS sample were  $M = 0.20$  ( $SD = 0.30$ ) whereas the baseline ASI-D scores were  $M = 0.17$  ( $SD = 0.16$ ) (Becker et al., 2005).

#### **Results**

Attrition rates of RCI and NCI women participating in 6-month follow up were compared along demographic (age and education level) and baseline clinical variables (ASI-A, ASI-D, GSI, and PSS) and were not significantly different. Separate ANOVAs revealed that both age ( $F(2, 2289) = 6.82, p < 0.00$ ) and education level ( $F(2, 1794) = 30.94, p < 0.00$ ) were significantly different between RCI and NCI. RCI women were younger ( $M = 34.88, SD = 7.63$ ) and had fewer years of education ( $M = 11.07, SD = 2.30$ ) compared to NCI women ( $M = 36.44, SD = 9.45; M = 12.02, SD = 2.31$ , respectively). For this reason, these demographic variables were later evaluated as covariates.

#### *Hypothesis 1: RCI and NCI women would differ along baseline clinical variables*

Separate ANOVAs showed that RCI women had significantly higher ASI-D scores than did NCI women ( $F(2, 2323) = 25.73, p < 0.00$ ). Among clinical variables measuring mental health functioning, however, NCI women reported more severe mental health (GSI;  $F(2, 2324) = 7.54, p < 0.00$ ) and trauma (PSS;  $F(2, 2247) = 4.56, p < 0.01$ ) than did RCI women. Table 1 displays baseline clinical scores between RCI and NCI by treatment condition.

Table 1. Baseline and 6-month outcome measures by criminal involvement level and treatment condition.

	Recent criminal involvement				No lifetime criminal involvement			
	INT <i>n</i> = 170		TAU <i>n</i> = 297		INT <i>n</i> = 110		TAU <i>n</i> = 257	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<i>Baseline</i>								
ASI-Alcohol	.20	.31	.24	.30	.16	.27	.19	.29
ASI-Drug	.20	.17	.22	.16	.12	.15	.14	.14
GSI	1.28	.71	1.32	.75	1.50	.82	1.43	.81
PTSD severity	23.44	11.65	23.49	11.70	26.19	12.04	23.95	11.98
<i>Month 6</i>								
ASI-Alcohol	.05	.14	.09	.17	.08	.15	.11	.20
ASI-Drug	.05	.09	.08	.11	.06	.09	.09	.10
GSI	.98	.67	1.06	.74	1.29	.81	1.28	.82
PTSD severity	18.33	11.78	29.33	12.47	21.93	12.72	21.38	12.30

*Note:* Sample sizes differ due to missing data. INT = Integrated treatment condition, TAU = treatment-as-usual treatment condition, ASI = Addiction Severity Index (5th edition), GSI = Global Symptom Severity Index.

***Hypothesis 2a: RCI women would show greater improvement than NCI women at 6 months***

Separate 2 (Criminal level group)  $\times$  2 (Treatment Condition) ANCOVAs were computed with age and baseline scores as covariates. Education was not selected as a covariate because it did not meet an established  $r > 0.10$  threshold with any baseline clinical score (Morrissey et al., 2005b). The homogeneity of slopes for each of the outcome variables indicated that the assumptions for the ANCOVA were met for all clinical variables except ASI-A, which was thus excluded from further consideration.

There were two significant main effects for ASI-D ( $F(1,812) = 8.56, p < 0.01$ ) and for GSI ( $F(1,814) = 9.76, p < 0.00$ ). For ASI-D, adjusted means were higher for NCI ( $M = 0.08, SE = 0.004$ ) compared to RCI ( $M = 0.06, SE = 0.006$ ). For GSI, adjusted means were higher for NCI ( $M = 1.23, SE = 0.026$ ) compared to RCI ( $M = 1.09, SE = 0.04$ ).

***Hypothesis 2b: RCI women would show greatest improvements from participation in the integrated treatment condition***

There were no significant interactions between Criminal level  $\times$  Treatment Condition for any of the clinical variables with age and baseline scores as covariates. However, there was a main effect for treatment condition for ASI-D ( $F(1,812) = 15.39, p < 0.00$ ). For ASI-D, adjusted means for integrated treatment condition ( $M = 0.05, SE = 0.004$ ) were lower than TAU condition ( $M = 0.08, SE = 0.005$ ).

**Discussion**

In this study we conducted secondary data analysis of the WCDVS data to evaluate the impact of criminal involvement. Specifically, we compared women with recent

criminal involvement (RCI; past 90 days) to those with no lifetime criminal involvement (NCI).

We predicted that RCI women would evidence more severe clinical symptoms at baseline. Our findings partially confirm this hypothesis in that RCI women had higher drug addiction severity while NCI women had poorer mental health and higher trauma symptoms. RCI women report worse drug addictive disorder symptoms but not worse mental health or trauma symptoms. This finding may reflect an externalizing vs. internalizing difference between women with and without recent criminal justice system contact. It is also possible that the distinction between women with and without criminal justice contact may reflect differences in use of illicit (drugs) as opposed to licit substances (alcohol) with the resulting differences in consequences but, because age covaried with baseline alcohol scores, we were unable to further consider this distinction.

While participation in the WCDVS study required a history of substance use disorder, a history of trauma in childhood or adulthood, and at least two prior failed treatment attempts (Becker et al., 2005) our findings indicate that even within the sample women differed in how their symptoms were displayed. RCI women engaged in externalizing behaviors which led to arrest and detention and reported fewer mental health symptoms than NCI women who themselves endorsed greater post-traumatic stress and mental health symptoms. This pattern may reflect different ways of coping with trauma, which in turn may lead to different life experiences, and presumably different treatment needs. These distinctions within our sample again support the importance of attending to trauma symptoms in the treatment of substance use disorders.

We also predicted that RCI women would improve more than NCI women after 6 months of treatment. On two of the four outcome measures, drug severity and general mental health, RCI women demonstrated greater improvement at 6 months than did NCI women. Our baseline scores indicated RCI women were reporting fewer mental health symptoms than NCI women and at 6 months they continue to report fewer general mental health symptoms. At the same time, their drug addiction severity scores do show greater improvement and suggest that treatment is particularly helpful for those with recent criminal justice system involvement.

We additionally predicted RCI women would improve most when participating in integrated treatment. We anticipated this because criminally involved women often have extensive histories of child and adult violence and, therefore, may respond to a greater degree to treatments that are systematically trauma informed as was the case with the integrated treatment condition. However, we found no support for an interaction between criminal involvement level and treatment condition.

Overall our findings indicate some support for differences between RCI and NCI women. These women are likely to be drug addicted and may improve irrespective of treatment condition by 6 months. This improvement at 6 months may be partially a result of criminal justice system supervision, however because we were not able to determine the degree of monitoring each woman was exposed to we could not specifically examine this as a covariate. The role of criminal justice supervision in reducing substance abuse behaviors has been documented elsewhere, but as that was not part of the initial WCDVS study we are unable to comment here on the implication this may or may not have had for our findings.

### *Strengths and limitations*

This project represents a unique re-examination of an important multisite trial data set that addresses a highly disadvantaged population: women with co-occurring disorders and a history of surviving violence. The data offered a large sample size that was diverse in geography, sociocultural background, and treatment setting. We compared the subset of women in the study who had lifetime and recent (90 days prior) criminal justice involvement versus those with no lifetime criminal justice involvement.

This comparison is clinically relevant in its focus on a major variable that could potentially impact outcomes. Nonetheless, there were also notable limitations to the project. First, there were limitations in the original WCDVS study, including non-random assignment to treatment condition (integrated treatment versus TAU); lack of control over treatment dosage; lack of knowledge over degree of continued criminal justice contact or supervision; lack of adherence ratings for the INT treatments; and measures that were administered without the rigor that would accrue to a formal randomized controlled trial (e.g. inter-rater reliability). Second, there were limitations of our current study including reliance on exclusively post-hoc data analysis, without a priori assignment to study condition (RCI and NCI). In addition, our classification of RCI and NCI were limited by the WCDVS assessment that was used. That measure was solely self-reported (not verified by actual criminal justice records), was not psychometrically validated for determining criminal justice involvement, and resulted in use of only a smaller portion of the sample due to the need to omit people with lifetime, but no recent, criminal justice involvement. The study also did not offer specification of types of arrests (e.g. actual crimes committed). Lastly, we had no information about the degree of continued criminal justice contact or supervision among the women enrolled in the study.

### *Implications for clinical practice and policy*

What do these findings mean for public policy and treatment revision plans already underway? One might argue that since RCI women showed no significant difference in their response to integrated or non-integrated treatment, there is no call to offer specialized programming to accommodate their needs. Domino, Morrissey, Nadlicki-Patterson and Chung (2005) found that integrated treatment and TAU approaches had equivalent costs per client; however, beginning integrated treatment approaches would require settings currently offering TAU services to expend both time and money to implement INT approaches so that they are as widely available as the TAU approaches. It would seem that municipalities facing difficult budget decisions need not implement expensive integrated treatment models that require interagency collaboration, quality assurance checks, and individualized service provision, when TAU approaches yield the same quality of clinical response (at least at a 6-month comparison point). However, our findings indicate that drug addiction severity specifically does respond differently when women are offered integrated treatment approaches. Rates of arrest and incarceration are increasing for women (1.2% increase) and at a faster rate than they are for men (7% increase; Bureau of Justice Statistics, 2008), and there is a larger percentage of women on probation, in jails, or in state or federal prisons between the ages of 25 and 34 (40.8%) than for any other age cohort (Greenfeld & Snell, 1999). Offering these women treatment that



addresses what is underlying the majority of criminal charges (substance use/abuse violations) would appear to go a long way towards reducing recidivism rates, which would in turn save municipalities money. For this reason, although only one of the four targeted outcome measures, the reduction of drug addiction severity alone may support implementation of integrated service approaches for all women, and most especially for younger drug-addicted women with recent criminal involvement.

#### *Future directions*

It is hoped that future research will elaborate on our findings. This might include greater understanding of criminal justice variables beyond what we were able to study (e.g., type of offense, status of charge, sentencing and disposition). Moreover, it might include more rigorous evaluation of the treatment models used in the WCDVS (the four trauma-specific interventions) as well as the other components of the integrated treatment condition (e.g., training staff generally in trauma-informed care). Finally, future research would benefit from additional outcome variables, more exploration of women's own understanding of the relationship between their substance abuse and trauma histories and their criminal justice involvement, and a-priori study designs.

#### **Author note**

Dr. Brady conducted all statistical analyses on this paper and is responsible for their accuracy. Special thanks is provided to Dr. Kathleen Flannery for consultation and manuscript review.

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