

Regular article

A randomized experimental study of gender-responsive substance abuse treatment for women in prison

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Abstract

This experimental pilot study compared postrelease outcomes for 115 women who participated in prison-based substance abuse treatment. Women were randomized to a gender-responsive treatment (GRT) program using manualized curricula (Helping Women Recover and Beyond Trauma) or a standard prison-based therapeutic community. Data were collected from the participants at prison program entry and 6 and 12 months after release. Bivariate and multivariate analyses were conducted. Results indicate that both groups improved in psychological well-being; however, GRT participants had greater reductions in drug use, were more likely to remain in residential aftercare longer (2.6 vs. 1.8 months, $p < .05$), and were less likely to have been reincarcerated within 12 months after parole (31% vs. 45%, respectively; a 67% reduction in odds for the experimental group, $p < .05$). Findings show the beneficial effects of treatment components oriented toward women's needs and support the integration of GRT in prison programs for women. © 2010 Elsevier Inc. All rights reserved.

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1. Introduction

A considerable amount of research over the past two decades has outlined the complex differences between incarcerated men and women that are relevant to their rehabilitation. Compared with men, women offenders report higher rates of childhood trauma and abuse, addiction, posttraumatic stress disorder (PTSD), interpersonal violence, adolescent conduct disorder, homelessness, and chronic physical and mental health problems (Anderson, Rosay, &

Saum, 2002; Bloom, Owen, & Covington, 2003, 2004; Grella, 1999; Grella, Stein, & Greenwell, 2005; Langan & Pelissier, 2001; Messina, Burdon, & Prendergast, 2003; Messina, Burdon, Hagopian, & Prendergast, 2006; Messina & Grella, 2006; Peters, Strozier, Murrin, & Kearns, 1997; Pollock, 2002; Zlotnick, 1997; Zlotnick et al., 2008). Research also indicates that early victimization and severity of addiction are stronger predictors of criminal activity and subsequent mental and physical health problems for women than for men (Bloom et al., 2004; Browne, Miller, & Maguin, 1999; McClellan, Farabee, & Couch, 1997; Messina, Grella, Burdon, & Prendergast, 2007).

This body of literature indicates that women entering substance abuse treatment in prison are at a substantial disadvantage compared with their male counterparts (Messina et al., 2007). However, treatment components that address women's specific needs have not typically been among the focal points of prison-based treatment for women. Therapeutic community (TC) programs are the accepted model of treatment within California and most institutional settings across the nation (Taxman, Perdoni,

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& Harrison, 2007). Rehabilitation in the TC model of treatment focuses on maintaining a drug-free existence and developing prosocial attitudes and values (DeLeon, 2000). TC programs were initially tailored to treat substance-abusing men and remain primarily male-oriented programs. As policy makers and treatment providers consider expanding treatment options for women offenders, it is critical to determine whether programs designed specifically for women offenders produce better outcomes than standard prison TC programs.

This study is the first to conduct a randomized controlled trial in a prison setting to determine the relative effectiveness of a theoretically based and trauma-informed gender-responsive treatment (GRT) program as compared to a standard prison TC treatment program. According to Harris and Fallot (2001), trauma-informed services recognize the importance of trauma in women's psychological development, avoid triggering trauma reactions in women, adjust the behavior of counselors and staff members to support women's coping capacity, and allow survivors to manage their trauma symptoms successfully to access, retain, and benefit from the services. Gender-responsive programs are designed to provide a secure environment for women offenders to safely discuss histories of trauma, abuse, and addiction without fear of judgment (Bloom et al., 2003; Covington, 2008a; Grella, 1999, 2008). (The GRT and the TC programs are described in detail in the Methods section.)

The GRT curricula assessed as part of this study had been fully developed (i.e., *Helping Women Recover and Beyond Trauma*; Covington, 1999, 2003, 2008b) and were designed to attend to the above definitions; however, the activities outlined in this study were the first empirical test of the GRT curricula.

1.1. Prison-based treatment outcomes for women

A small body of literature has evaluated posttreatment outcomes for women who participated in prison-based treatment (predominantly TC treatment). The existing research is limited, and findings are sometimes contradictory (Messina & Prendergast, 2001). For example, a well-cited study of a New York prison-based TC program (*Stay'n Out*; Wexler, Falkin, Lipton, & Rosenblum, 1990) showed that the TC treatment group of women ($n = 247$) had significant reductions in recidivism compared with 113 women who participated in other types of prison programs, such as counseling and milieu therapy (18% vs. 29%, $p < .05$). When comparing the women's TC group to a smaller no-treatment control group of women ($n = 38$), the TC group had a higher percentage who were positively discharged from parole (77% vs. 53%, $p < .05$); however, there were no differences in recidivism rates between those treated in the TC and untreated women parolees.

The Forever Free Program in California has also been extensively studied. An initial study compared 196 women

who participated in the prison TC program with 107 women from two other California prisons and with 110 women in the prison who did not receive treatment (Jarman, 1993). No differences in success on parole were found between the TC participants and the comparison groups. A subsequent evaluation of the Forever Free Program reported the posttreatment outcomes of 47 TC program graduates compared with a no-treatment group of 49 women (Prendergast, Wellisch, & Wong, 1996). Those who completed the prison treatment were more likely to be successfully discharged from parole than the comparison group of women (52% vs. 27%, $p < .05$). Findings from the most recent evaluation of the Forever Free program involved a follow-up of 119 women who received the TC treatment and a no-treatment comparison group of 96 women (Prendergast, Hall, & Wellisch, 2002). The TC participants had a longer time to reincarceration (312 vs. 261 days for the comparison group) and were less likely to have reported drug/alcohol use since release (51% vs. 76%, $p < .05$).

A more recent study compared return-to-prison rates for 171 women participating in prison treatment and 145 nontreated general population women (Messina, Burdon, & Prendergast, 2006). No differences were found between the TC group and the no-treatment comparison group with regard to 6- or 12-month return-to-prison rates. The only significant difference in 6-month reincarceration rates was found between women who participated in prison treatment only compared with women who participated in prison treatment plus community aftercare (21% vs. 6%, $p < .05$).

Preliminary findings from an uncontrolled pilot study reported the initial efficacy of a cognitive-behavioral treatment (*Seeking Safety*) incorporated into treatment-as-usual for incarcerated women (Zlotnick, Najavits, Rohsenow, & Johnson, 2003). The primary aims of *Seeking Safety* are abstinence from drugs and personal safety (Najavits, 2002). Participants ($N = 17$) were diagnosed with co-occurring substance use disorder and PTSD. At the end of treatment, 53% no longer met criteria for PTSD. There was also a significant decrease in PTSD symptoms from intake to posttreatment, which was maintained at a 3-month follow-up. In addition, 65% of the women reported no use of illegal substances at follow-up. The return-to-prison rate was 33% at the 3-month follow-up. Measures of client satisfaction with treatment were also high. The authors suggest that *Seeking Safety* treatment appears to be appealing to incarcerated women with co-occurring disorders, especially for improving PTSD symptoms. However, findings are tentative given that there was a very small sample and no control group.

Many of the above evaluations are limited by the use of quasi-experimental designs, small samples, lack of a control group, or limited outcomes—primarily return-to-prison. In the absence of random assignment, the characteristics of women who volunteer for, or are mandated to, treatment may differ from those of the comparison group in ways that could bias the outcomes. Some success in using the TC model to

treat women in prison has been reported (Prendergast et al., 2002), but the ability of these programs to fully meet the specialized treatment needs of drug-dependent women offenders remains to be seen.

1.2. Theoretical foundation of GRT

The primary theory underlying the GRT model assessed in this study is relational–cultural theory (Miller, 1976); however, the curricula implemented also included elements of addiction theory and trauma theory (Covington, 2008a). Relational–Cultural theory describes women’s psychological development in the context of women’s relationships and their connection to others, which is very different from models of development for men, which typically focus on separation and independence (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991). Covington and Surrey (1997) suggest that relational theory, with its emphasis on the role that relationships and intimate partners play in women’s addiction and recovery, provides a useful conceptual basis for planning and implementing appropriate treatment services for women offenders. Thus, Covington (1999, 2000, 2002, 2003) developed “Helping women recover: A program for treating substance abuse and beyond trauma: A healing journey for women.” The curricula focus on services for women’s specific needs, which are implemented in a manner that promotes psychological growth and prosocial behaviors, and include a special edition for women in the criminal justice system (Covington, 1999).

The lack of a strong prison-based treatment effect from previous studies could be an indication that drug-dependent women offenders need GRT designed specifically for their complex needs. The expectation is that women offenders participating in programs that address their patterns of addiction and recovery through growth-fostering relationships (e.g., same-gender environments, nonconfrontational and nonhierarchical programming) will be less likely to continue their patterns of drug abuse and crime and will be more likely to exhibit increased psychological well-being and functioning compared with women in more traditional treatment approaches. The current pilot study randomized women in prison to two substance abuse programs (a standard TC and a GRT model implementing Covington’s curricula). Hypotheses are listed below:

Hypothesis 1. Women offenders in the GRT condition will have greater improvements in their psychological well-being over time compared with those in the TC treatment condition.

Hypothesis 2. Women offenders in the GRT condition will remain in aftercare treatment longer than women in the TC treatment condition.

Hypothesis 3. Women offenders in the GRT condition will be less likely to report postrelease drug use than will women in the TC treatment condition.

Hypothesis 4. Women offenders in the GRT condition will be less likely to be reincarcerated than will women in the TC treatment condition following release to parole.

2. Methods

2.1. Study design

The data for this study were collected between 2006 and 2008 as part of an experimental pilot study at the Valley State Prison for Women (VSPW) in California. There were two TC programs within the VSPW prison at the time of the study (Integrity and Destiny), which provided inmates with approximately 6 months of traditional TC substance abuse treatment prior to their release. One of the programs was modified to be the GRT program, and the other was used as a natural comparison program. A total of 115 women entering prison treatment who agreed to participate in the study were randomly assigned to the Integrity Prison Program ($n = 60$), a GRT model program using Helping Women Recover and Beyond Trauma, or the Destiny Prison Program ($n = 55$), a standard prison TC program.

All study procedures were reviewed and approved by the respective agency institutional review boards. All of the women approached agreed to participate in the study and provided written informed consent prior to being interviewed. Participants were paid for baseline interviews via money orders deposited into their inmate trust accounts. At follow-up interview time-points, participants were paid via gift cards. Randomization took place at the prison prior to the participants’ transfer to the treatment program. The assignment lieutenant was instructed to place all treatment-eligible women with an even California Department of Corrections and Rehabilitation (CDCR) identification number into the Integrity Program, and all women with an odd CDCR identification number into the Destiny Program. Women were not assigned CDCR numbers with any specificity. Thus, this was the simplest way to randomize women within the institution between the two programs while also being able to monitor any randomization violations.

2.2 Prison-based TCs in California

Prison-based TC programs in California are based on the traditional aspects of TC treatment and include the following: (a) activities that embody positive values that start a process of socialization; (b) treatment staff who provide positive role models (and many are recovering addicts themselves); and (c) an alternative concept of inmates that is usually much more positive than the prevailing beliefs and attitudes held by correctional staff. Programming takes place during the week, and participants spend approximately 20 hours per week in treatment. A voluntary aftercare component for graduates from the prison-based TC programs provides funding for up to 6 months of

continued treatment (residential or outpatient services) in the community following release to parole. Typically, gender issues and trauma histories were not addressed in these prison TC programs. In addition, both men and women were employed as treatment staff to facilitate the groups and counsel the women.

2.3 GRT program

The Integrity program was modified to be the GRT program for the purposes of this study, and the Covington curricula were integrated into the program curricula. Female counseling staff and peer mentors (typically women serving life sentences) at the Integrity program were specially trained for this study by Dr. Stephanie Covington, the developer of the curricula. Dr. Covington provided 2 days (5–6 hours each day) of training in the community for the GRT program staff. An additional 2 days of training was provided within the prison. Training was implemented early in the study to ensure that the program was fully operational prior to subject recruitment. The GRT program was also a unique environment because it was modified to be a gender-specific environment, with only female treatment staff facilitating the groups and counseling the women. The two programs maintained separate counseling staff, separate treatment trailers, and separate housing units to minimize any contamination between treatment conditions.

The GRT model encompasses manualized curricula designed to be relevant to the needs of drug-dependent women in correctional programs. Each provides a facilitator's guide and a participant's workbook. Both curricula use cognitive-behavioral approaches, mindfulness meditation, experiential therapies (guided imagery, visualization, art therapy, movement), psychoeducational, relational, and expressive arts techniques.

Helping Women Recover (Covington, 2008b) is a 17-session program organized into four modules: (a) Self module: women discover what the "self" is; learn that addiction can be understood as a disorder of the self; learn the sources of self-esteem; consider the effects of sexism, racism, and stigma on a sense of self; and learn that recovery includes the growth of the self. (b) Relationship module: women explore their roles in their families of origin; discuss myths and realities about motherhood and their relationships with their mothers; review relationship histories; and consider how they can build healthy support systems. (c) Sexuality module: women explore the connections between addiction and sexuality and discuss body image, sexual identity, sexual abuse, and the fear of sex when sober. (d) Spirituality module: women are introduced to the concepts of spirituality, prayer, and meditation. Spirituality deals with transformation, connection, meaning, and wholeness.

Beyond Trauma (Covington, 2003) consists of 11 sessions focused on three areas: teaching women what trauma and abuse are, helping them to understand typical reactions to trauma and abuse, and developing coping skills.

The foundation of this material is the work of Judith Herman and several other trauma theorists (Covington, 2003). With this curriculum, women begin a process of understanding what has occurred in their past (i.e., sexual or physical abuse, or other victimization) that has been traumatizing. They explore how this abuse has impacted their lives and learn coping mechanisms while focusing on personal safety. This curriculum uses a strengths-based approach.

2.4. Data collection

All participants were interviewed upon entry into the prison programs (baseline) by UCLA research assistants. Baseline interviews focused on capturing behaviors 30 days and also 6 months prior to incarceration. Recruitment began in April 2006 and ended in March 2007 with a total sample of 115 participants. Ninety-four (83% of the sample) participants were located and completed the 6-month follow-up; one participant was found to be deceased and was removed from the potential follow-up sample. Eighty-five participants were located and completed the 12-month follow-up interviews (76%).¹ The remaining women either could not be located or were located and did not keep their appointments for the follow-up interview. Funding ended December 10, 2008.²

Average time from parole to the 6-month interview was 8.8 months ($SD = 5.5$) for the GRT participants and 9.8 months for the TC group participants ($SD = 4.7$). Average time from parole to the 12-month interview was 15.5 months ($SD = 3.2$) for the GRT participants and 13.9 months for the TC group participants ($SD = 2.9$).

The treatment programs provided the prison treatment admission and discharge data to UCLA ISAP through disclosure agreements under CFR 42 Part 2, Section 2.52. Postrelease aftercare participation admission and discharge rates and reincarceration rates were provided from several administrative data systems maintained by CDCR, such as the Offender Substance Abuse Tracking system and the Offender Based Information System. These systems are updated on a weekly basis, reducing the incidence of undetected crime or mental illness due to data entry lag

¹ Because of the higher attrition at the 12-month follow-up time-point, those lost to follow-up at 12 months ($n = 27$) were compared to those who were located and interviewed in regard to their baseline characteristics. There were no significant differences in age, education, or marital status between those interviewed and those not interviewed at 12-months post release. Race/Ethnicity mirrored the demographics of the full sample. Most of those interviewed at 12 months were White (54%) as compared to Hispanic (26%) or African American (14%). There were also no significant differences in criminal history or drug use history.

² A major factor in the reduced rate of 12-month follow-up interviews was a 2- to 3-month hold during a statewide contract suspension due to the California state budget crisis, beginning July 2008 and ending in October 2008. When this order was lifted, follow-up activities resumed; however, funding for follow-up ended shortly thereafter in December 2008. We opted to interview women only once if they were within 3 months past their 6 month interview date.

times. Records-based data were collected at the end of the study.

2.5. Eligibility

Participation in the prison programs is open to women who have a documented history of substance use or abuse (based on a review of their criminal backgrounds and inmate central files) and who have between 6 and 24 months left to serve on their sentence. Those who meet these eligibility requirements are mandated into the California treatment programs. There are, however, certain exclusionary criteria that preclude otherwise eligible inmates from entering the programs (e.g., documented membership in a prison gang, time in administrative segregation for violence or weapons charges within the last 12 months, and felony and Immigration and Naturalization Service holds). Women who did not have a parole date that would allow for a 6- or 12-month postrelease follow-up interview were excluded from the study.

2.6. Participant characteristics

Participants were predominantly either White (48%) or Hispanic (26%), and 43% had never been married at the time of program admission (39% reported being divorced, separated, or widowed). On average, participants were approximately 36 years old ($SD = 9.6$) with 11 years of completed education. Most of the women were either unemployed (20%) or not in the labor force (54%) prior to incarceration. Most of the women also reported histories of sexual abuse (55%) and physical abuse (71%). Seventy-nine percent of the women reported histories of depression, and 26% met the criteria for a diagnosis of PTSD via the Posttraumatic Stress Diagnostic Scale, with 63% of these having a range of moderate to severe PTSD symptoms. Ninety-five percent met *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* criteria for either alcohol/drug abuse or dependence upon program entry. Methamphetamine was the primary drug problem (58%), and almost half reported daily use prior to incarceration (47%). In addition, most of the women were initially incarcerated for property (44%) or drug crimes (37%). No significant differences were found in background characteristics or drug and criminal histories between the two randomized groups (see Tables 1 and 2).

2.7. Data sources and outcome measures

Data were collected on specific outcome measures including community-based aftercare participation, drug use, psychological well-being and self-efficacy, and recidivism. The measures used to describe the study participants and to test hypotheses were collected from standardized instruments such as the Addiction Severity Index (ASI) Lite

Table 1
Background characteristics of sample participants at treatment admission by program

Characteristics	Integrity (<i>n</i> = 60)		Destiny (<i>n</i> = 55)		Total (<i>N</i> = 115) ^a	
	%	<i>M</i> (<i>SD</i>)	%	<i>M</i> (<i>SD</i>)	%	<i>M</i> (<i>SD</i>)
Race/Ethnicity						
White	52		44		48	
Black	20		15		17	
Hispanic	20		33		26	
Other	8		9		9	
Marital status						
Never married	48		36		43	
Married	12		26		18	
Divorced/Separated/ Widowed	40		38		39	
Age at admission		36.1 (9.3)		35.7 (9.9)		35.9 (9.6)
No. of years of education		11.2 (1.7)		11.4 (2.1)		11.3 (1.9)
Employment status prior to incarceration						
Full-time/Part-time	23		30		27	
Unemployed	18		22		20	
Not in the labor force	58		49		54	
Primary source of income prior to incarceration						
Job	15		17		16	
Family/Friends/Mate	31		26		29	
Welfare/Unemployment/ Assistance	12		17		14	
Illegal activities	42		40		41	
Primary living arrangements past 3 years						
Homeless or dependent on others	24		10		18	
Independent living	58		66		62	
Controlled environment	18		24		20	
Mental health symptoms (lifetime)						
Depression	80		78		79	
Anxiety/Tension	78		75		56	
Trouble concentrating/ Remembering	61		47		55	
Ever had trouble controlling violent behavior	42		47		44	
Thoughts of suicide	35		47		41	
Ever sexually abused	52		58		55	
Ever physically abused	73		69		71	
<i>DSM-IV</i> criteria for substance use disorder ^b	96		93		95	
Taking prescribed psychotropic medications	32		31		31	
PTSD ^c	25		26		26	
Correctional clinical case management ^d	16		7		12	

^a No significant differences were found at admission using the $p < .05$ value.

^b A proxy measure using *DSM-IV* criteria for substance use disorder.

^c Diagnosis assessed via the PDS.

^d Determined by the CDCR and data provided by Offender Based Information System.

(McLellan, Alterman, Cacciola, Metzger, & O'Brien, 1992) and the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1997). The ASI has excellent interrater and test–retest reliability as well as discriminant and concurrent validity (McLellan et al., 1992). The PDS has shown a .70 test–retest

Table 2
Drug use and criminal history at treatment admission by program

Characteristics	Integrity (<i>n</i> = 60)		Destiny (<i>n</i> = 55)		Total (<i>N</i> = 115) ^a	
	%	<i>M</i> (<i>SD</i>)	%	<i>M</i> (<i>SD</i>)	%	<i>M</i> (<i>SD</i>)
Primary drug problem (self-report)						
Methamphetamine/ Amphetamines	57		59		58	
Cocaine/Crack	18		20		19	
Heroin	16		10		13	
Other ^b	6		4		5	
None	3		7		5	
Age of first primary drug use	17.6 (8.8)		18.1 (11.7)		17.9 (10.2)	
Drug use 30 days prior to incarceration						
No use	19		22		20	
1–3 times past month	7		6		6	
1–2 times/week	7		7		7	
3–6 times/week	14		15		14	
Daily	49		44		47	
Daily polydrug use prior to incarceration	19		26		22	
Under the influence at time of arrest	70		62		66	
Controlling offense						
Violent	16		13		14	
Property	41		46		44	
Drug	40		33		37	
Other ^c	3		7		5	
No. of years incarcerated in lifetime	4.8 (4.7)		4.7 (4.6)		4.7 (4.6)	
No. of felony convictions	4.7 (6.2)		3.8 (4.2)		4.3 (5.3)	
No. of terms served in prison	3.5 (4.5)		2.8 (4.3)		3.2 (4.4)	

^a No significant differences between groups were found at admission using the $p < .05$ value.

^b Includes phencyclidine (PCP), alcohol, and nonprescription methadone.

^c Other controlling offenses include driving under the influence, possession of a weapon, or arson.

reliability (Foa, Cashman, Jaycox, & Perry, 1997). Prison treatment intake procedures and surveys, the Motivation and Readiness for Treatment Scale (Knight, Holcom, & Simpson, 1994), the Self Efficacy Scale (Annis & Graham, 1988), and administrative records data from CDCR and the treatment providers (admission and discharge dates, completion status, aftercare participation, criminal justice records) were also used to test hypotheses.

2.8. Data analysis

The primary analyses tested the study hypotheses by comparing participants in the GRT group with those in the standard TC group using an intent-to-treat design (i.e., all subjects were included in the analyses, regardless of their completion of the treatment program). Although the hypotheses are expressed as one-tailed, we recognize that outcomes may occur that were not in the direction expected.

Therefore, all hypotheses were tested at the .05 significance level using a two-tailed test. Analysis of variance was used to compare the Integrity GRT program and the Destiny TC program for outcomes represented by a single continuous variable. For categorical and binary outcome variables, chi-square analysis was used. A General Linear Modeling (GLM) for repeated measures approach was used to consider changes over time (e.g., ASI composite score changes from baseline to postrelease at 6- and 12-month follow-ups). Further, “effect sizes” were considered when interpreting the data (i.e., the strength of group differences). Effect sizes (ESs) were calculated using Cohen’s d to explore meaningful differences in outcomes between the GRT and standard TC treatment groups (Cohen, 1988).

In addition, multivariate analyses were run, controlling for specific factors to assess outcomes. We conducted General Linear Modeling (GLM) analysis while controlling for race, marital status, and employment assessing the ASI composite score changes over time. In addition, logistic regression analyses were conducted to determine group differences in completion of residential aftercare treatment and return-to-prison while controlling for race, marital status, and primary living situation. Total days in aftercare treatment (to control for time at risk upon parole) was also included in the return-to-prison regression.

3. Results

Client-level background characteristics for the GRT and standard TC comparison groups are shown in Tables 1 and 2. As a result of randomization, there were no significant differences between the two groups prior to incarceration on any of the background measures collected or motivation and readiness for treatment mean scores (both groups appeared to have a strong desire for help and acceptance for treatment; however, all women scored much lower with regard to their problem recognition). Although the baseline comparisons revealed no significant differences at the conventional $p < .05$ alpha level, it was apparent that there were some “practical differences” with regard to race/ethnicity, marital status, employment, and primary living arrangements prior to incarceration (i.e., homelessness, independent living, or controlled environment over the past 3 years) between the two groups. Results indicated a 10 percentage point or greater difference among the indicators within these variables. A greater proportion of women from the GRT program were White (53% vs. 43%), and a smaller proportion were married (12% vs. 25%) compared to the TC program women. The GRT participants were also more likely to report being homeless or dependent on others for housing for a significant period prior to incarceration (24% vs. 11%), whereas the TC women more often reported independent living (66% vs. 58%). These practical differences may indicate that women in the GRT program were at a substantial disadvantage at program admission than

Table 3
ASI composite and self-efficacy score within group change

ASI	Baseline, <i>M (SD)</i>	6-month, <i>M (SD)</i>	12-month, <i>M (SD)</i>	Within subject, <i>p</i> value
GRT Integrity (<i>n</i> = 60)				
Psychological composite	0.34 (0.27)	.24 (.25)	.23 (.24)	.013
Alcohol composite	0.18 (0.30)	0.02 (0.07)	0.03 (0.08)	.003
Drug composite	0.21 (0.17)	0.04 (0.09)	0.04 (0.08)	.001
Family composite	0.20 (0.25)	0.08 (0.16)	0.10 (0.19)	.040
Self-Efficacy Scale	2.3 (0.57)	2.7 (0.39)	2.6 (0.52)	.143
Destiny (<i>n</i> = 55)				
Psychological composite	0.39 (0.29)	0.21 (0.26)	0.24 (0.26)	.002
Alcohol composite	0.20 (0.24)	0.03 (0.08)	0.07 (0.14)	.001
Drug composite	0.17 (0.15)	0.03 (0.06)	0.02 (0.05)	.001
Family composite	0.25 (0.28)	0.14 (0.24)	0.14 (0.24)	.098
Self-Efficacy Scale	2.2 (0.58)	2.6 (0.47)	2.6 (0.55)	.003

Note. General Linear Models for Repeated Measures was used to assess within-group change over time (significant change over time represented by *p* value).

women in the TC program. Thus, these variables were entered as covariates in all of the multivariate analyses.

3.1. Results for main hypotheses

3.1.1. Psychological improvement and self-efficacy

The ASI psychological composite score and self-efficacy score differences measuring change over time between groups were analyzed in exploration of Hypothesis 1. This hypothesis was not supported because there were no differences in composite scores between the groups over time. Post hoc analyses did show that there was improvement within subjects over time because both group’s mean composite scores generally improved from baseline to follow-up. Table 3 shows the mean score change within subjects by time-point. Participants from the GRT Integrity program show significant and positive mean score changes over time on all of the ASI composites measured. No change was demonstrated on the self-efficacy measure. Similar

improvement was demonstrated for the standard Destiny program participants for all ASI measures, with the exception of the family composite score. Destiny program participants showed significant improvement in their self-efficacy scores over time. Bivariate findings remained after controlling for race/ethnicity, marital status, and employment prior to incarceration.

3.1.2. Retention and completion of aftercare

Hypothesis 2 was supported (see Table 4). Approximately 50% of the women who participated in the prison-based treatment programs voluntarily entered aftercare treatment. The first treatment episode was typically residential and also the longest. Table 4 shows that the GRT Integrity participants stayed significantly longer in the residential aftercare treatment episode than those in the Destiny program (\bar{x} = 2.6 months vs. \bar{x} = 1.8 months, *p* < .04).

Multivariate analyses controlling for race/ethnicity, marital status, and living arrangements also showed a

Table 4
Time in treatment, completion status, and return to custody status by program

Treatment and return to custody ^a	GRT Integrity (<i>n</i> = 60)		Destiny (<i>n</i> = 55)		<i>p</i>	ES
	%	<i>M (SD)</i>	%	<i>M (SD)</i>		
Participated in aftercare treatment upon release (CDCR)	47		56		.20	0.19
Total time in aftercare treatment (months)		4.9 (3.6)		3.4 (3.0)	.10	0.49
Months in first community residential treatment episode		2.6 (1.5)		1.8 (1.4)	.04	0.58
Completed first residential treatment episode (CDCR)					.13	0.67
Completed treatment	54		36			
Disciplinary removal	14		16			
Voluntary quit	18		32			
Transferred/Continuing Treatment/Other ^b	14		16			
Returned to custody post parole (OBIS)	31		45		.10	0.28
Months from parole to return to custody (OBIS)		7.8 (4.5)		5.9 (3.1)	.10	0.61

Note. Chi-square analysis was used for categorical variables, *t* tests were used for continuous variables, and ES thresholds are based on the benchmarks developed by Cohen (1988): 0.20 = small, 0.50 = medium, 0.80 = large. Multivariate analyses controlling for related background characteristics indicated the GRT group were significantly more likely to complete residential aftercare treatment (*p* < .05) and were less likely to return-to-prison (*p* < .05). OBIS indicates Offender Based Information System.

^a Numbers vary slightly due to missing data (OBIS data were provided on 112 cases).

^b Participant was transferred to other prison, removed for other program, or illness.

significant 360% increase in the odds of successfully completing residential aftercare treatment for the GRT group, compared with the standard TC group, $n = 42$, $\beta = 1.53$, $df = 1$, odds ratio (OR) = 4.60, $p < .05$. When comparing the two programs on length of aftercare participation, ES reached or exceeded medium effect thresholds. Total length in aftercare treatment resulted in a medium ES ($d = 0.49$); contrasts for total time in first residential treatment episode exceeded the medium ES threshold ($d = 0.58$); contrasts for completion of residential treatment episode also exceeded the medium ES threshold ($d = 0.67$). The mean ESs were positive and in the hypothesized directions, indicating more success in aftercare treatment (as measured by length of stay and completion) for the GRT treatment participants.

3.1.3. Postrelease substance use

Hypothesis 3 was supported. Initially, bivariate analyses did not indicate a difference in ASI Alcohol or Drug Use Composite Scores across time-points by treatment group using GLM analyses. However, after controlling for race/ethnicity, marital status, and employment, GLM analyses showed a significant decrease in the Drug Use Composite Score for the GRT across time compared to the standard TC group, $n = 94$, $F = 4.61$, $df = 1$, $p < .03$.

3.1.4. Return-to-prison rates

Hypothesis 4 was supported. Initially, bivariate results did not indicate a significant difference between the groups in return-to-prison rates (Table 4). Multivariate results showed that after controlling for race/ethnicity, marital status, and living situation, the GRT participants were significantly less likely to be returned to prison than the TC group participants, $n = 82$, $\beta = -1.11$, $df = 1$, OR = 0.33, $p < .05$. The odds of the GRT participants being returned to prison were decreased by about two thirds (67%) compared with the TC participants.

The contrast assessing return-to-prison rates by group exceeded the small ES ($d = 0.28$). The contrast assessing time to return to prison exceeded the medium ES threshold ($d = 0.61$), indicating more success on parole for the GRT Integrity women compared to the standard Destiny program women with regard to reincarceration.

4. Discussion

The pilot study findings were predominantly in the hypothesized direction, with GRT participants showing significantly more success on parole compared with the standard TC treatment group. Although both treatment groups generally showed improvement in self-reported measured outcomes over time, the GRT group had significantly greater reductions in drug use over time. Official records data also revealed important differences in outcomes. The GRT participants voluntarily remained in aftercare treatment for a longer period and were less likely to be reincarcerated within 12 months of parole than those in the standard TC treatment

group. Abstinence and time in aftercare treatment have been consistently found to be associated with positive outcomes for offenders, specifically reductions in reincarceration (Burdon, Messina, & Prendergast, 2004; Messina et al., 2006). Reductions in reincarceration are of utmost importance for CDCR, especially with the current state of prison overcrowding in California (CDCR, 2007).

It is possible that the GRT milieu, curricula, and trauma-informed materials enhanced the overall treatment satisfaction of the participants compared with those in the standard treatment, underlying the difference in the observed treatment outcomes. In fact, qualitative findings showed that the GRT participants were extremely invested and satisfied with their treatment (especially session topics regarding intimate partners, family roles, and trauma histories), felt supported by other group members, and promoted continued use of these materials and protocols in the prison (Calhoun, Messina, & Carter, 2009). Greenfield, Trucco, McHugh, Lincoln, and Gallop (2007) contend that a GRT environment affords an increased sense of comfort and safety for women so that they more openly share issues regarding their substance abuse. This may be particularly important in a correctional setting, where women tend to have a heightened sense of fear and mistrust (Owen, 1998). Yet, it is difficult to measure “environmental” qualities of a GRT program, especially within a correctional setting, where security is the priority.

Overall treatment satisfaction, a sense of safety and comfort, and a supportive peer environment may have created an increase in adherence to treatment and recovery, which may have led to reductions in drug use, increased retention in aftercare treatment, and reductions in reincarceration. However, it is difficult to untangle the specific effects of the GRT from participation in aftercare treatment. It is possible that length of time spent in residential aftercare was primarily responsible for subsequent reductions in reincarceration.

The large body of literature on the specific needs of women offenders is overwhelmingly consistent and implies a need for GRT as a potentially more effective way to facilitate their recovery. Yet, there has been a lack of empirical studies to support these beliefs, particularly experimental studies that apply rigorous controls. For practical and ethical reasons, random assignment of participants to either a treatment or control group is rare in evaluations of correctional programs.

The primary strength of this study’s design was the use of random assignment, allowing all participants to receive at least the standard treatment, with some participants receiving enhanced treatment designed specifically for women offenders. This rigorous design strengthens the internal validity of our findings, and thus, there is a reasonable probability that the differences detected are suitable for guiding policy recommendations. The study was further strengthened by the large percentage of women who met *DSM-IV* criteria for substance use disorder, inclusion of a standard treatment control group, standardized instruments, two post-prison

follow-up time-points assessing behavioral change, and use of official records and self-report.

There were limitations to the study design as well. Quantitative fidelity measures were not implemented during the active treatment phase. Low fidelity to the curricula may significantly affect any measured outcomes by reducing the potential effects of the intervention. In addition, the “usual care” group was not a “no treatment” group. Thus, the differences between groups were possibly minimized. For example, both groups showed improvement in their psychological functioning over time, which may be a result of the positive reinforcement provided by a therapeutic environment overall. In addition, the sample size in this pilot study may not have been large enough to provide sufficient power to detect differences for some of the outcomes at the conventional .05 level, especially with regard to the relatively small effects that are typically found in correctional substance abuse treatment programs (Pearson & Lipton, 1999). It is highly likely that a larger sample size and higher retention rates might have provided enough power to detect differences at the .05 level. Finally, the study findings are specific to the population from which the sample was derived, that is, women offenders (primarily felons) in prison-based substance abuse treatment programs in California, and hence may not be generalizable to other populations or correctional settings.

4.1. Key recommendations for future research and program implementation

4.1.1. Improving GRT research

Because published data influence funding directions as well as public perceptions of treatment for women, the lack of rigorous science on specific treatment approaches for women offenders can effectively exclude their interests from critically important policy decisions. Further experimental studies are needed to continue to address the gap in knowledge regarding substance abuse treatment for women offenders in general and by providing specific information on the types of services and approaches that should be emphasized when treating women in prison. For example, future studies should focus on the specific components of GRT that may be related to improved outcomes or identify measures (or specify domains) that underlie and sustain change over time, such as retention in aftercare and continuity of care, improved relationships with children, better living situations, improved mental and physical health, and greater economic status.

4.1.2. Overcoming barriers to implementation

There are a number of implementation challenges when integrating a GRT program within an institution. To improve the ability to implement this type of program within a correctional setting, there needs to be ongoing staff training, technical assistance, and monitoring of adherence to the protocol. Future studies would benefit from a quantitative

fidelity measure for the specific curriculum being delivered. Program facilitators would also benefit from specific training on how to deliver quality treatment in large group settings, such as breaking down into smaller groups of five or six women to increase comfort and safety when sharing. Furthermore, programming hours in prison are often limited or interrupted by security issues such as “lock downs.” One solution to such interruptions is invested training for peer mentors of core curricula, which would enable women to continue their treatment exercises when restricted to their housing units.

4.1.3. Cost–Benefit implications

The finding that the GRT program was associated with reductions in reincarceration provides important information for criminal justice agencies with regard to effective rehabilitation. One can speculate that providing GRT may be more costly than standard treatment initially, with regard to curriculum materials, technical assistance, and specific training needs. Yet, reducing recidivism by delivering appropriate services provides a large benefit in future expenditures for the criminal justice system and, potentially, the child-welfare system. There are also viable alternatives to the use of incarceration for drug-related offenses. Diversion programs providing necessary services in residential community facilities are a practical and cost-effective alternative to incarceration (Oser, Knudsen, Staton-Tindall, & Leukefeld, 2009).

5. Conclusion

Understanding the needs and recovery processes of women offenders is important to aid in the design of appropriate prison-based substance abuse treatment programs. This study’s findings are particularly promising given the severity of addiction and criminal history of the sample. Findings from the pilot study support the beneficial effects of including Helping Women Recover and Beyond Trauma in prison treatment, as well as integrating GRT principles oriented toward meeting women’s needs within correctional settings. Future studies are needed to tease out the specific programmatic elements that are associated with postincarceration outcomes and to determine covariates of outcomes.

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