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Who Benefits from Gender Responsive Treatment? Accounting for Abuse History on Longitudinal Outcomes for Women in Prison

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Abstract

This study explores outcome variation among women offenders who participated in gender-responsive substance abuse treatment (GRT). In order to identify subgroups of participants that may differentially benefit from this treatment, secondary analyses examined the interaction between randomization into GRT and a history of abuse (physical/sexual) on depression and number of substances used post-treatment. The sample consisted of 115 incarcerated women assessed at baseline and 6- and 12-months post parole. Longitudinal regression showed that women reporting abuse randomized into GRT had significantly reduced odds of depression ($OR = .29, p < .05, 95\% CI = .10 - .86$) and lowered rates of number of substances used ($IRR = .52, p < .05, 95\% CI = 0.28-0.98$), in comparison to those who reported abuse and were randomized to the non-GRT group. GRT for women offenders who have experienced prior abuse would maximize the benefits of the trauma-informed, gender-sensitive intervention.

Keywords

Gender Responsive Treatment; Women-Offenders; Depression; Longitudinal Outcomes

Whether they are *street women*—escaping abuse/violence, *drug-connected women* partaking in abusing substances with intimate partners (Daly 1992), or, as they have more recently been identified, *victimized, socially withdrawn and depressed* (Brennan, Breitenbach, Dieterich, Salisbury, & Van Voorhis, 2012), women offenders' histories of trauma and abuse have been consistently linked to their drug histories and, subsequently, to their criminal involvement. Women offenders have higher rates of substance use disorders than their male counterparts and are 10 times more likely to be dependent on drugs than women in the general population (Fazel, Bains, & Doll, 2006). Such patterns have been partially attributed to higher rates of experiences with sexual abuse, assault, domestic violence, and poverty among women offenders (Covington, 2008a). Whereas trauma is more likely to occur after the development of substance use disorders for men, it serves as a precursor to substance abuse for women (Sonne, Back, Zuniga, Randall, & Brady, 2003). Based on a survey analysis of over two million male inmates and 190,000 female inmates in federal, state, and local correctional facilities in the United States, a recent report indicates that women

offenders are 7 times more likely to have experienced sexual abuse, and 4 times more likely to report experiencing physical abuse prior to incarceration as compared with male offenders (Center on Addiction and Substance Abuse [CASA], 2010). Other studies have shown that among incarcerated populations, women have experienced a higher prevalence of sexual abuse (50%) and physical abuse (75%; Staton-Tindall, Duvall, Leukefeld, & Oser, 2007), and have higher odds of trauma in their lifetime in contrast to women in the general population (Grella, Lovinger, & Warda, 2013).

There is strong evidence to suggest that in addition to a high prevalence of abuse history, women offenders also suffer from co-occurring substance use and mental health disorders. Recent findings indicate that 40.5% of women offenders and 22.9% of men offenders were found to have co-occurring substance use and mental health problems (CASA, 2010). Over the last decade, the role of trauma, particularly a history of abuse, has been highlighted in the research on women's co-occurring substance use and mental health disorders. Women offenders who have been exposed to trauma and have substance abuse histories are at higher risk for mental health disorders compared to men offenders (Bloom, Owen, & Covington, 2004; Heckman, Cropsey, & Olds-Davis, 2007; Messina, Grella, Burdon, & Prendergast, 2007) and women in the general population (Grella et al., 2013). Particularly studies show consistent links between traumatic events and psychological distress, such as post-traumatic stress disorder (PTSD), among women in drug treatment programs in the criminal justice system (Sacks, 2004; Warren, Loper & Komarovskaya 2009). PTSD is an anxiety disorder which follows an extreme psychologically distressing event. Symptoms of PTSD include re-experiencing a distressing event, avoidance of stimuli associated with the event and persistent symptoms of increased arousal (American Psychiatric Association [APA] 2000).

Based on prior research, women engage in substance use as a self-medicating strategy to combat their depression or anxiety (e.g. PTSD) resulting from abuse, to increase vigilance against further victimization (particularly with the use of cocaine and amphetamines), or to increase sociability (which becomes a challenge when abuse leads to low self-esteem) (Grayson & Noelen-Hoeksema, 2005; Jarvis, Copeland, & Walton, 1998). In turn, substance use disorders make women more vulnerable to additional trauma, weaken their ability to defend themselves, and alter their judgment, which can lead them into unsafe situations (Millay, Satyanarayana, O'Leary, Craceilius & Cottler, 2009; Testa, Livingston, Vanzile-Tamsen, & Frone, 2003).

Such findings have implications for women offenders with substance use disorders who have access to in-custody treatment. Research suggests that women offenders with a history of abuse are in need of more specialized treatment than standard models of care (e.g., standard therapeutic communities), which have historically been male-oriented (Messina, Grella, Cartier, & Torres, 2010). Prior findings also indicate that women need multi-modal treatments that address a range of issues simultaneously instead of single-issue interventions (Lipsey, 1995). Such models not only encompass trauma-informed components but also provide secure environments where participants can avoid being judged for their history of abuse and addiction (Bloom, Owen, & Covington, 2003; Covington, 2008a; Grella, 1999, 2008).

In addition to improving their mental and physical health, effective treatment in prison also has implications for women offenders' criminal justice re-involvement. Lack of appropriate treatment in prison leads women parolees back to their communities without tools to change their lives and subsequently leads them back on criminogenic pathways (Richie 2001). Substance abuse is one of the ways that the women can violate their parole or release conditions. Appropriate substance abuse treatment can serve to reduce risk of recidivism in the form of substance abuse, a kind of risk that may not necessarily be captured by standard risk assessment tools (e.g. LSI-R) (Reisig, Holtfreter & Morash 2006).

Acknowledging women's histories of abuse and the central role that abuse plays in the development of their substance use disorders has led to the development of gender-responsive treatment (GRT; Covington, 2000, 2002, 2003) as an approach to women's recovery. The predominant model of substance abuse treatment within correctional settings has been therapeutic communities (TCs), which use group-based therapy sessions and often employ a confrontational approach (Campling, 2001). As a modification to the original TC, GRT is specifically designed for women's multiple needs and involves "creating an environment that reflects an understanding of the realities of women's lives and addresses the issues of the women" (Bloom & Covington, 2000, p.11). Centered on the premise that treatment leads to psychological well-being and higher functioning for women offenders through growth-fostering relationships (e.g., same-gender environments, non-confrontational and nonhierarchical programming), GRT is delivered using a manualized program (i.e., with facilitator guides and participant workbooks) within a gender-specific environment, where only female counselors and facilitators who are often also in recovery provide the treatment services.

Theoretical Frameworks

Multiple theoretical and organizational frameworks inform GRT's approach toward understanding women's realities as they relate to criminal behavior and substance use. First, the pathways perspective is based on the premise that criminal activity differs between men and women offenders primarily because their paths to such activities also differ. Women's pathways to crime mainly include a history of abuse, economic marginality, and a lack of resources to care for children (Daly, 1992, 1994; Belknap & Holsinger, 2006; Steffensmeier & Allan, 1998). Studies have consistently documented the link between experiences of sexual/physical violence, childhood trauma, neglect, and poverty to both criminal activity and substance abuse in samples of women offenders (Chesney-Lind & Pasko, 2004, Moloney, van den Bergh, & Moller, 2009). Thus, one of the principles of GRT is to address substance abuse, trauma, and mental health issues through comprehensive and integrated services (Bloom et al., 2003).

Second, the relational-cultural theory (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991; Chodorow, 1978) contextualizes women's psychological development within their social relationships and interactions. Subsequently, women's substance abuse is also considered to be embedded in interpersonal relationships (Jarman, 1993; Knight, Simpson & Hiller, 1999), including their families of origin and their marriage or sexual relationships. As such, one of the principles of GRT is to account for and promote healthy relationships (e.g., with

children, intimate partners, etc.; Bloom et al., 2003; Covington & Surrey, 1997). Additionally, GRT takes a patient's trauma into account, avoids the triggering of trauma reactions among patients, and adjusts the behaviors of counselors, staff, and organizations to promote and support the use of positive coping skills by patients. Incarceration itself is a highly traumatic event for most offenders, and this experience may be heightened among women with a history of trauma and abuse (Chesney-Lind, 1995; Owen, 1998). In fact, recent findings indicate that factors associated with women offenders' needs (e.g., trauma) contribute to women's maladjustment in prison (Wright, Van Voorhis, Salisbury & Bauman, 2012). Finally GRT encourages participants to manage their trauma through acquisition of coping skills and development of supportive relationships (Bloom et al., 2003).

GRT as an integrated model for treating substance abuse disorders for incarcerated women is seemingly promising based on prior research findings and its congruency with feminist frameworks. However, tests of the empirical validity of GRT (and other gender-sensitive treatments) have been few and limited in their methodological and statistical rigor (for notable exceptions, see Messina et al., 2010, and Sacks, Mckendrick & Hamilton, 2012). Moreover, whereas prior research has highlighted the importance of addressing the role of trauma in women's substance use and recovery, seldom have studies directly examined whether those with traumatic experiences have differential outcomes after receiving trauma-informed services. Addressing differential patterns is similar to recent approaches (e.g. Brennan et al., 2012; Salisbury & Van Voorhis, 2009;) that delineate and identify comprehensive and more complex pathways to criminality which would ultimately be used to design more effective correctional treatments. We argue that just as pathways to criminality can differ across social groups (age, race, etc.) (Simpson, Yahner & Dugan, 2008; Siegel & Williams, 2003) pathways out of criminality (through treatment) can also vary based on prior life experiences of women in prison.

Multimodal Treatment Effectiveness

Therapeutic communities, a standard model of substance use treatment in prisons in California and nationwide (Taxman, Perdoni, & Harrison, 2007), have been shown to be effective for both male and female inmates with co-occurring serious mental and substance use disorders (Sacks et al., 2012; Sullivan, McKendrick, Sacks, & Banks, 2007). However, given the greater prevalence of trauma/abuse among women offenders, treatment approaches that target multiple conditions (substance use, mental health, and trauma) simultaneously (i.e., using multimodal models) and account for histories of abuse are most appropriate for women offenders (Holtfreter & Morash, 2003; Wright et al., 2012). Dual diagnoses studies also indicate that women with depression and substance abuse benefit from trauma-informed interventions (Greenfield, Trucco, McHugh, Lincoln, & Gallop, 2007). In particular, women receiving trauma-informed services have shown improvements in trauma-related symptomatology, reductions in PTSD, and positive substance use outcomes (Hien et al., 2010; Messina, Calhoun, & Braithwaite, in press; Morrissey, Ellis, & Gatz, 2005). Still, some have raised concerns about trauma-focused interventions triggering a relapse of substance use (Pitman et al., 1991; Triffleman, Carroll, & Kellogg, 1999). Although further research is needed to address these concerns, a recent study found that trauma services

incorporated into substance abuse treatment have minimal impact on adverse psychiatric and substance abuse symptoms (Killeen et al., 2008).

In sum, GRT was developed in response to the body of research documenting the higher prevalence of trauma exposure and associated co-occurring substance abuse and mental disorders among women offenders. Primary outcomes reported in the original randomized controlled trial study show effective results with regard to reduced drug use, longer time in aftercare and lower probability of re-incarceration for those who received GRT in comparison to the standard therapeutic community group (see Messina et al., 2010 for comprehensive results). However, what remains unanswered is whether the application of GRT can be successfully generalized to all women offenders, regardless of trauma history, or whether specific patterns associated with abuse lead to better outcomes for some women and not others. In the current study, longitudinal analyses were conducted to predict psychological and substance use outcomes for incarcerated women with prior experience with physical/sexual abuse receiving GRT. This approach examines the empirical validity of GRT as a trauma-informed intervention by distinguishing outcomes of women who have, and those who have not, experienced trauma who received GRT as compared to those who received standard TC treatment. The research question posed is whether women who report prior abuse and receive GRT have improved outcomes as compared with women who report prior abuse who are in a standard therapeutic care group. In other words, do all women benefit from GRT, or do psychological and substance use outcomes vary when trauma in the women's past is taken into account? The following hypotheses are tested:

Hypothesis I: Women offenders reporting prior abuse randomized to a GRT group will have lower odds of depression at follow-up compared to women reporting prior abuse randomized to a TC group.

Hypothesis II: Women offenders reporting prior abuse randomized to a GRT group will have a lower rate of substance use at follow-up compared to women reporting prior abuse randomized to a TC group.

Method

Women inmates in the Valley State Prison for Women (VSPW) in California participated in a GRT randomized control trial between 2006 and 2008 as part of a pilot study. The two treatment groups involved were Integrity-GRT (using *Helping Women Recover* [Covington, 2008b] and *Beyond Trauma* [Covington, 2003]) and Destiny (using a standard TC group). Eligibility was determined based on a documented (inmate central files) history of substance abuse and whether the women had between 6 and 24 months remaining on their sentence. Participants ($N = 115$) provided written consent prior to the study and were randomly assigned to either Integrity ($n = 60$) or Destiny ($n = 55$). Random assignment was primarily performed by the assignment lieutenant, who placed 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. Study procedures were approved by the respective agency institutional review boards.

Data Collection

Recruitment of participants occurred from April 2006 to March 2007. Participants were interviewed in person by trained UCLA research assistants at study intake, and follow-up interviews were primarily conducted by telephone. Face-to-face interviews were conducted for women who had been re-incarcerated at follow-up. For the first follow-up (6 months after release to community), recruitment yielded a response rate of 83%; for the second follow-up (12-months after release to community), recruitment yielded a response rate of 76%.¹ Because of issues related to scheduling and locating participants after their release from prison, interviews did not always occur exactly 6 and 12 months after participants paroled. Time between parole and the first follow-up interview was an average of 8.8 months ($SD = 5.5$) for the Integrity group and 9.8 months ($SD = 4.7$) for the Destiny group. For the second follow-up interview, the average time since parole was 15.5 months ($SD = 3.2$) for the Integrity group and 13.9 months ($SD = 2.9$) for the Destiny group. Participants were compensated for their baseline interviews with money orders deposited directly into their inmate trust accounts. For the two follow-up interviews, participants were compensated with gift cards.

The *Addiction Severity Index (ASI) Lite* was used to assess participants at the three time-points. Researchers have established the ASI's test-retest reliability and its discriminant and concurrent validity in prior examinations (Butler et al., 2001; Leonhard, Mulvey, Gastfriend & Schwartz, 2000). Particular questions used from the ASI Lite were worded in the following ways. The first dependent variable, depression, was assessed based on the question, "In the past 30 days have you experienced serious depression, sadness, hopelessness, loss of interest, difficulty with daily function?" The second dependent variable, number of substances used, was constructed based on responses to the question of how many (out of the past 30) days the substance was used. If the respondent reported any days of use for a particular substance, that substance was scored as "1" (or as "0" for no reported use). A simple count of the number of substances scored as "1" in the past 30 days was used as the second dependent variable. The abuse measure was based on two questions, "Did anyone abuse you (1) physically (cause you physical harm) (2) sexually (force sexual advances/acts) in your life?" If respondents indicated a "yes" on either part, they were coded as having been abused.

The *Posttraumatic Stress Diagnostic Scale (PDS)*, which follows the DSM-IV (APA, 2000) criteria, was used to determine a diagnosis of PTSD (Foa, 1997). The criteria requires exposure to a traumatic event that causes fear of injury and/or helplessness; re-experiencing symptoms (e.g. "Reliving the traumatic event, acting or feeling as if it was happening again"); avoidance symptoms (e.g. Trying to avoid activities, people, or places that remind you of the traumatic event); arousal symptoms (e.g. Being jumpy or easily startled (for example, when someone walks up behind you); symptom duration of 1 month or more; and distress or impairment in functioning. In order to account for differences between abused women who met criteria for PTSD and those who reported abuse but did not meet the

¹There were no significant differences in race $\chi^2(1, N=115) = .68, p > .05$, education level $\chi^2(1, N=112) = .72, p > .05$, marital status $\chi^2(1, N=115) = .04, p > .05$, or employment status $\chi^2(1, N=115) = .17, p > .05$, between those interviewed at follow-up ($n = 97$) and those not interviewed at either (6-, or 12- month) follow-up ($n = 18$).

requirements for PTSD, a binary variable was included in the regression models. Socio-demographic characteristics included race, marital status, education, employment history, and having dependent children.

Treatment Intervention

The GRT interventions were *Helping Women Recover: A Program for Treating Substance Abuse* and *Beyond Trauma: A Healing Journey for Women* (Covington, 2000, 2002, 2003). These programs focus on women-specific needs and are implemented in strategic ways to promote psychological growth and pro-social behaviors. Both have been modified for women in the criminal justice system (Covington, 2008b), and both use cognitive-behavioral approaches, mindfulness meditation (paying attention to one's own thoughts and emotions in a nonjudgmental way), experiential therapies (e.g., guided imagery, visualization, art therapy, and movement), and psycho-educational, relational, and expressive arts techniques. The trauma-informed component is aimed to help women understand the different forms of trauma, reactions to abuse, and how a history of victimization interacts with substance use.

Helping Women Recover (Covington, 2008b), a 17-session program, is organized into four modules: (a) the Self module, where women discover the “self” (e.g., they learn to understand addiction as a disorder of the self, learn where to draw their self-esteem from), (b) the Relationship module, where women examine their social connections and relationships (e.g., they discuss myths and realities about motherhood and learn how to build healthy support systems), (c) the Sexuality module, where women explore the association between addiction and sexuality (e.g., they discuss body image and the fear of sober sexual activity), and (d) the Spirituality module, where women are exposed to prayer and meditation. The *Beyond Trauma model* (Covington, 2003) has 11 sessions with a focus on defining trauma and abuse, discussing typical reactions to trauma and abuse, and developing coping skills.

The comparison group received a standard model of care that involved a 6-month therapeutic community treatment approach. This TC program, like other TCs in California, was composed of (1) activities that embody positive values that start a process of socialization, (2) treatment staff who provide positive role models (many are recovering addicts themselves), and (3) an alternative concept of inmates that is usually much more positive than the prevailing beliefs and attitudes held by correctional staff. Gender and trauma issues were not addressed in the prison TC program and both men and women provided treatment services (facilitating groups and counseling) to the women. Both groups received 20 hours of treatment in a 5-weekday course and participants in both groups repeated sessions/modules since many were there for extended periods of time.

Analysis

Hypotheses were tested using robust time-series Generalized Estimating Equations (GEE) models. These models correct for the correlation between responses of the same individual and account for the correlation between successive time points. Because Depression was measured dichotomously (1=depressed), a GEE model with the logistic link function was

used, and effects are reported as adjusted odds ratios (ORs). Participants provided a count of the number of substances used in the prior 30 days, and over-dispersion of this variable necessitated the use of GEE models employing the negative binomial link function; effects are reported as incidence rate ratios (IRRs). All results represent the average estimated factor change in the dependent variable for a one-unit increase in each predictor variable.

Statistical controls for the negative binomial and logistic regressions were chosen based on prior literature and include: presence/absence of diagnosed PTSD (1 = met criteria for diagnosis), participant race (1 = White), employment (1 = full-time or part-time employment) education (1 = at least a high school diploma/GED), marital status (1 = married) and whether the participant had children (1 = yes). Though longitudinal analysis techniques account for the auto-correlative effects of time, in order to test for the unique effect of time (i.e., whether, over time, distinct patterns were found for the Destiny vs. the GRT group), time (coded 1 = baseline, 2 = 6-months post baseline, 3 = 12-months post baseline) was also included as a covariate in the multivariate model. The three time points roughly correspond with participants' time spent on parole, and coefficient estimates on this ordinal variable would express the unique effect of the passage of time on study outcomes. Analyses were conducted with Stata SE v13.

Results

Sample Characteristics

Most of the participants were White (48%) or Latino (26%), had at least a high school/GED education (54%), and had children (66%). The mean age of participants was 35.9 ($SD = 9.6$). These demographics correspond to federal and California state prison populations of women.² Seventy-one percent of the participants reported prior physical abuse, and approximately half of the women reported prior sexual abuse (55%). Thirty-five percent of the women met the clinical criteria for PTSD. At baseline, half of the participants reported experiencing depression in the 30 days prior to incarceration, and the average number of substances used was 2.3 ($SD = 1.7$) prior to incarceration (see Table 1). There were no significant differences between the randomization groups (GRT vs. Destiny) in proportions relating to baseline background characteristics, experience of physical/sexual abuse, depression, or the number of substances used.

Longitudinal Regressions

Table 2 features odds ratios (ORs) or exponentiated logistic regression coefficients for the depression model (Wald = 36.5, $p < .001$), incidence rate ratios (IRRs) for the number of substances used model (Wald = 115.71, $p < .001$), and confidence intervals corresponding to each model ($n = 110$).

²In 2007, women in the California state prisons were mostly White (37%), followed by Hispanic (29%), and Black (29%) with an average age of 37 (California Department of Corrections and Rehabilitation [CDCR] 2007). In 2009-2010, women in federal prisons were reported as mostly White (46%), followed by Black (25%) and Hispanic (18%) with a median age category of 35-39 (Guerino, Harrison, & Sabol, 2011).

As indicated in the results of the multivariate longitudinal regressions, GRT alone did not have a significant main effect on depression or number of substances used. Physical/sexual abuse shared a strong and positive association with depression and number of substances used, indicating that the presence of prior abuse was a very strong predictor of both psychological and substance use outcomes. However, receiving GRT *negatively moderated* the positive and strong association between prior physical/sexual abuse and each outcome. Those who reported prior physical or sexual abuse *and* received GRT (vs. standard therapeutic community treatment) had reduced odds of depression ($OR = .29, p < .05, 95\% CI = .10-.86$) and reduced rates of substances used ($IRR = .52, p < .05, 95\% CI = .28-.98$). In other words, as we moved from no abuse to abuse and from TC to GRT, the odds of depression and rates of substances used decreased. Conversely, the results of this study indicate that the GRT program was not as successful in reducing depression or substance use for women who did not report a history of physical/sexual abuse as it was for women who did.

PTSD had a strong and positive main effect on depression ($OR = 3.59, p < .01, 95\% CI = 1.79-7.19$), but did not yield a significant effect on substance use³. With regard to the effect of time, it did not yield a significant unique effect on depression; however, time had a significant negative effect ($IRR = .50, p < .01, 95\% CI = .35-.73$) on the rate of number of substances reported, indicating that rates reduced over time for both GRT and TC groups. Of the socio-demographic controls, significant effects were found between employment and depression, and having children and number of substances used. As one would expect, being employed lowered ($OR = .43, p < .01, CI = .22-.84$) the likelihood of depression. On the other hand, having children was positively associated ($IRR = 1.53, p < .05, CI = 1.02-2.07$) with the number of substances used.

The predicted probabilities for depression are shown in Figure 1, and the predicted counts for the number of substances used are shown in Figure 2 for each group combination (abused/not abused and GRT/TC). These predictions are based on odds/rates derived from the multivariate longitudinal regressions (which included socio-demographic controls) for which results are reported in Table 2. These bar charts highlight key findings from the interaction effect between GRT and abuse. Someone who reported prior physical/sexual abuse and received GRT had a 47% chance of having depression, whereas someone reporting abuse in the standard therapeutic care group had a 67% chance of having depression. Similarly, someone who reported prior abuse and received GRT had a predicted count of .54 of number of substances used in comparison to someone reporting abuse in the Destiny group (.58)⁴.

As illustrated, physical/sexual abuse increased the likelihood of depression as well as the predicted counts of the number of substances used. However, that association was moderated by the treatment intervention in that those who were in the TC group had a 37% increase in odds of depression and those who received GRT had only a .06% increase.

³Separate models with interactions between PTSD and GRT (with and without prior abuse as a control) did not yield a significant effect on either outcome.

⁴These findings are based on the longitudinal analysis which takes into account all three time-points simultaneously.

Similarly, physical/sexual abuse also led to a higher number of substances used. However, for those who were in the TC group, there was a .26 increase in the predicted counts, and for the GRT group there was only a .11 increase. In order to account for effects of post-release program participation on longitudinal outcomes for both groups, we examined CDCR-defined “aftercare” participation and found no significant differences between the GRT and non-GRT groups $\chi^2(1, N=115)=1.08, p>.05$. Additionally, controlling for this variable did not change the longitudinal regression results reported in this paper.

Discussion

In this study, gender-responsive treatment has shown potential for mitigating negative outcomes (i.e., depression and substance use) associated with histories of abuse for incarcerated women. Women offenders who had experienced prior traumatic events (i.e., physical/sexual abuse) improved their psychological status and decreased the number of substances they used in the trauma-informed gender responsive substance abuse treatment group. Even when controlling for the presence of clinical level trauma distress (i.e. PTSD), GRT successfully moderated the association between abuse and depression/substance use.

Those who were randomized to the TC group and reported prior abuse showed an increased risk of depression and substance use in comparison to all other study groups (i.e. GRT-Abuse, GRT-No Abuse and TC- No Abuse). GRT participants without a history of physical/sexual abuse showed higher odds of depression and rates of substances used than TC participants who had not experienced prior traumatic events. In addition to showing promising effects of GRT for those with histories of abuse, the findings also imply that GRT's focus on trauma may not be as beneficial to women offenders without experience of a potentially traumatic event such as physical or sexual abuse.

Abuse is a common obstacle for women in prison, and is an important target for trauma-informed interventions like GRT. Although the presence of prior abuse is not a direct measure of trauma, which has been defined as a response to a violent or adverse event (Bloom et al., 2003), in some cases, trauma occurs but is not recognized immediately because the individual may perceive the event as normal (Bloom et al., 2003). As part of the GRT intervention, women learn about different forms of trauma and its role in substance use. Whereas some women may not have originally defined the abuse as traumatic, undergoing GRT helped them to contextualize and problematize the abuse and redefine it as a traumatic experience. This may also partly explain why controlling for PTSD did not change the effect of abuse and GRT on the outcomes. Perhaps those who did not meet the clinical requirements for PTSD, experienced lower levels of trauma distress associated with prior abuse and still benefited from the trauma-informed component of GRT. One can speculate that these processes lead them to more positive outcomes related to combating depression and substance use.

The protective effect of employment in regard to depression that was found in this study is consistent with other studies that show employment, as a form of social support, serves as a buffer against depression and anxiety, particularly among abused women (Carlson, McNutt, Choi & Rose, 2002). The finding that having children increased the number of substances

used lead us to further examine the relationship of the women with their children. Of the 75 (66%) participants who had children, 14 (18.7%) reported that their children were living with someone else due to child protection court orders and only 5(6%) reported having significant problems with their children 30 days prior to each interview. Links between domestic contexts and women's substance abuse have previously been identified in Daly's (1992) description of "drug-connected" women. Moreover, the finding associated with the presence of children lends itself to a similar pattern found in women's misconduct in prison. Just as women offenders' needs (e.g. economic marginality, history of abuse, and primary care-giver role) translate to risk factors in women's behavior in prison (Wright et al., 2012), unmet treatment needs or stressors associated with parenting may also increase women's risk for relapse (Arditti & Few 2006). Additionally, time had a significant effect in predicting the number of substances used. This may suggest that because both groups received some form of substance abuse treatment, they fared equally well with regard to reducing substance use over time.

Strengths of this study were multifaceted. The use of randomized control trial data obtained from a large California prison, a standardized instrument, and two-follow-up assessments make this a unique and methodologically rigorous study. Analytically, a longitudinal design as well as a test of an interaction effect examining within-group variation also make this study unique since prior GRT studies have not examined within-group differences, and they have not analyzed longitudinal outcomes.

Nevertheless, there are also some limitations associated with this study. First, because this study uses the ASI, data were limited to a one-item, dichotomous variable on depression. Such a measure relies on self-reported presence/absence of depression symptoms as opposed to standard and clinical assessments of depression severity (e.g. Beck's Depression Inventory (BDI) or Major Depression Inventory (MDI)). A one-item measure limits reliability (less consistency in y/n responses), and threatens construct validity (i.e. narrower scope for measuring depression). However, given the prevalence of trauma- related depression and anxiety among women offenders, the use of the depression variable is an important and relevant outcome for understanding the effects of GRT. Second, the outcome variable of "number of substances" presents the risk of treating all substances as equal. On average, the women reported 10 years of poly-substance use, and the average number of substances used in the 30 days prior to incarceration was 2.3 for the total sample; the participants showed a pattern of substance use which does not show a preference for one substance. Since substance use treatment programs target drug-free outcomes, another way of measuring substance use outcomes, in contrast to abstinence, can be derived from the number of substances used. The findings associated with number of substances used in this study should not be extended to imply severity of use. Future studies on the efficacy of GRT should address these measurement shortcomings.

Third, given that GRT is based on manualized curricula, there is a risk of infidelity in implementing the program. This study did not have a systematic procedure to evaluate the fidelity of the intervention to GRT's principles and specific components. Additionally, although the programs were delivered in physically separate units, interactions (e.g., on the yard) between the treatment groups had the potential for GRT's components to bleed into the

standard treatment group, or for control participants to be aware that they were not receiving services that others were. Finally, the relatively small sample size ($n = 115$) limits the generalizability of the study findings and poses a potential for a Type II error, in that there was a statistical effect that we failed to find.

In sum, incarcerated women reporting past physical or sexual abuse evidenced superior psychological and substance use outcomes after GRT, demonstrating that the trauma-informed intervention was more effective when participants had themselves experienced prior trauma. Findings support the application of GRT in populations of women offenders with high rates of prior abuse. Identifying such subgroups of women who benefit from gender-responsive approaches can not only help program administrators implement more effective treatment but can also help participants get the most out of GRT. Future studies are needed to further test the empirical validity of GRT in order to expand our understanding of the impact of GRT, not only compared with other types of treatment, but to potentially expose differential patterns within GRT groups. For instance, differences in when abuse/trauma occurs in one's developmental trajectory (i.e. childhood/adulthood) may play a role in GRT's effectiveness. Future research on outcomes directly associated with the stated principles of GRT, such as parenting and family/social relations, would be particularly well-suited for analyses that address the question of whether GRT is more effective for some women than for others.

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Figure 1. Predicted Probabilities for Depression

Figure 2. Predicted Counts for Number of Substances Used

Table 1
Characteristics by Treatment Group at Baseline

	Integrity (GRT) <i>n</i> = 60 % / mean (<i>SD</i>)	Destiny (TC) <i>n</i> = 55 % / mean (<i>SD</i>)	Total <i>N</i> = 115 % / mean (<i>SD</i>)
Race			
White race/ethnicity	52	44	48
Latina	20	33	26
Black	20	15	17
Other	8	9	9
Marital Status			
Married	12	25	18
Separated/Divorced/Widowed	40	38	39
Single/Never Married	48	36	43
Age	36.1 (9.3)	35.7 (9.9)	35.9 (9.6)
High school/GED	52	55	54
Employed (full or part-time)	23	29	26
Have Children	61	71	66
Number of Children	1.4 (1.5)	2.0 (2.2)	1.7 (2)
PTSD	34	37	35
Ever Physically Abused	73	69	71
Ever Sexually Abused	52	58	55
Depression (past 30 days)	52	53	52
# of Substances Used (past 30 days)	2.2 (1.5)	2.3 (1.9)	2.3 (1.7)

Table 2
Multivariate Longitudinal Regression: Depression and Number of Substances Used

	Depression		Number of Substances Used	
	<i>OR</i>	<i>CI: 95%</i>	<i>IRR</i>	<i>CI: 95%</i>
Gender Responsive Tx	1.57	.71 – 3.48	1.64	.94 – 2.85
Physical/Sexual Abuse	4.62**	1.94 – 10.97	2.92**	1.64 – 5.17
GRT × Abuse	.29*	.10 – .86	.52*	.28 – .98
PTSD	3.59**	1.79 – 7.19	.91	.66 – 1.26
Time	.97	.65 – 1.44	.50**	.35 – .73
White	1.01	.52 – 1.97	1.09	.79 – 1.50
Employed	.43**	.22 – .84	.90	.60 – 1.35
HS/GED	.76	.39 – 1.49	.80	.57 – 1.12
Married	1.72	.71 – 4.19	1.07	.70 – 1.66
Have Children	1.04	.52 – 2.08	1.53*	1.02 – 2.07

*
 $p < .05$

**
 $p < .01$