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Effects of Correctional-based Programs for Female Inmates: A Systematic Review

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Abstract

Objective: To examine the effectiveness of interventions for incarcerated women. **Method:** The researchers use a two-model system: the risk-reduction model for studies analyzing interventions to reduce recidivism rates, and the enhancement model for studies that target psychological and physical well-being. **Results:** Incarcerated women who participate in substance abuse interventions appear less likely to reoffend than those who do not participate. Enhancement model studies report mixed results. Overall, psychological-oriented interventions and substance abuse programs improve mental health symptoms and substance use among participants as compared control or comparison groups. Results for HIV prevention programs are ambiguous and parenting skill programs show no significant effect. **Conclusion:** Results highlight interventions that appear useful with female inmates. More rigorous research is needed to address many of these variable evidence-based interventions.

The number of individuals incarcerated in U.S. jails and prisons has increased dramatically over the past 30 years. The population of incarcerated offenders grew from approximately 200,000 offenders in 1973 to more than 2.2 million at the beginning of 2007 (Pew Center on the States, 2008; Travis, 2005). Although an extreme increase overall, the increased rate of incarceration has been particularly dramatic for women. The proportion of female prisoners in the United States has steadily increased, soaring from 12,300 in 1980 to approximately 17 times that amount in 2008 (207,700; Ashley, Marsden, & Brady, 2003; Beck, 2000; West & Sabol, 2009). In large part, these higher rates of female incarceration are the result of policies that criminalize drug abuse, with almost 30% of female offenders arrested for drug crimes and approximately 33% reporting they were on drugs or obtaining drugs when arrested (Hall, Prendergast, Wellisch, Patten, & Cao, 2004; Messina, Burdon, & Prendergast, 2006). Changes in systemic response to drug abuse combined with changes in female deviant behavior have nearly doubled the rate of incarceration for women as compared with the rate for men (Pew Center on the States, 2008; Prothrow-Stith & Spivak, 2005).

In response to the growing proportion of female offenders, the research focus of the past two decades has been to investigate the etiology of female criminality and to develop interventions that would reduce female criminal behavior (Chesney-Lind, 1998; Messina et al., 2006). Interventions tailored to the unique needs of female offenders are needed not only to increase public safety but also to improve the lives of incarcerated women and their families (Belknap & Holsinger, 2006). Accordingly, most in-prison treatment programs have two primary goals: (a) to reduce risk of recidivism when offenders are released to the community, and (b) to reduce disruptive behavior within the institution by increasing psychosocial well-being (Bonta, Pang, & Wallace-Capretta, 1995). Two models of intervention for achieving these aims with

women inmates are described below: (a) the risk-reduction model, which focuses primarily on reducing recidivism rates; and (b) the enhancement model, which focuses on the psychological and physical well-being of incarcerated women.

Risk-Reduction Model

The primary aim of most in-prison or jail programs is to reduce recidivism. Criminologists use a risk-management model to identify risk factors for criminal behavior. In working from the risk-reduction model, program development is focused narrowly on addressing dynamic or malleable factors that have been empirically shown to predict recidivism – often termed empirically-based criminogenic factors (Andrews & Bonta, 1998). The effectiveness of these programs is determined by evaluation of offenders' post release re-incarceration rates.

Substance abuse, a criminogenic factor, is one of the most prevalent pathways to crime for female offenders (Chesney-Lind, 1998; Covington, 1998). On average, female offenders have more extensive histories of substance abuse than male offenders, and substance abuse plays a critical role in the initiation and continuation of female criminal behavior (Peugh & Belenko, 1999). Often, female offenders have reported they were using substances at the time of their offense or that they committed crimes to gain access to money for drugs (Covington, 1998; Hall et al., 2004; Messina et al., 2006). Further, offenders with either a family history of substance abuse or those with active substance or alcohol abuse problems are more likely than other female offenders to reoffend after release from prison (Dowden & Brown, 2002).

Consequently, the majority of research using the risk-reduction model consists of studies that have evaluated the ability of substance abuse treatment programs to reduce women's rates of reoffending after release from prison. Even though the programs under examination are substance abuse interventions, many studies using a risk-reduction framework assess recidivism

rather than sobriety as the primary outcome of interest. The overall goal of these programs is to reduce rates of reincarceration, and substance abuse treatment is viewed as an avenue to that end. Correctional facilities most often provide substance abuse treatment through programs that use either a therapeutic community or cognitive-behavioral approach (Hall et al., 2004; Koons, Burrow, Morash, & Bynum, 1997; Pelissier, Motivans, & Rounds-Bryant, 2005). Cognitive-behavioral interventions attempt to alter the offenders' maladaptive thinking patterns, whereas therapeutic communities encompass a holistic approach toward modifying offenders' socialization and underlying values (De Leon, 1986; Messina et al., 2006). Interventions using either of these treatment strategies are commonly evaluated using the risk-reduction model to determine a program's ability to reduce recidivism.

Enhancement Model

The enhancement model aims to address women's psychological and physical well-being to improve their functioning while incarcerated and after release (Ward & Stewart, 2003). Programs based on the enhancement model strive to improve issues such as coping with physical or sexual abuse, parenting, and HIV risk (Schram & Morash, 2002), with the assumption that improved psychosocial well-being will ultimately reduce women's likelihood of criminal behavior (Sorbello, Eccleston, & Ward, 2002). Accordingly, evaluation efforts based on the enhancement model assess indicators of well-being and examine a range of outcomes including mental health, abstinence from substance use, physical health, self-esteem, effective parenting, and life-skill development.

A common focus of enhancement model interventions is the offenders' experience of trauma. As compared with male victimization, female offenders' experiences of victimization and trauma are often more extreme (Byrd & Davis, 2009; Wolff, Blitz, & Shi, 2007), and are

frequently associated with serious mental health consequences, substance abuse, self-harm behaviors, and suicide attempts (Borrill, Snow, Medlicott, Teers, & Paton, 2005; Johnson, 2006; Messina & Grella, 2006; Milligan & Andrews, 2005; Spohn, 2000). Many therapeutic in-prison interventions focus on helping women to heal emotionally from past victimization; to decrease symptoms or incidence of depression, posttraumatic stress disorder, and anger; and to increase self-esteem (Bedard, Pate, & Roe-Sepowitz, 2003; Bonta et al., 1995; Schram & Morash, 2002; Valentine & Smith, 2001).

Improving parenting skills represents another rehabilitative need of many female offenders. Approximately 65% of female prisoners have minor children (Bilchik, Seymour, & Kreisher, 2001). Many incarcerated women worry about retaining custody upon release and feel guilt about their absence while incarcerated (Bloom & Steinhart, 1993). Women in prison can often benefit from parenting training, including understanding and meeting the developmental needs of their children, using alternatives to corporal punishment to maintain control, and establishing appropriate parenting roles (Green, Miranda, Daroowalla, & Siddique, 2005). Interventions that target parenting skills and provide opportunities for family visitation are designed to strengthen family bonds and improve communication, thereby improving women's support systems and family environments post release (Gonzalez, Romero, & Cerbana, 2007). In addition, parenting programs seek to improve women's psychological well-being by increasing their confidence, self-esteem, and motivation to abstain from crime (Gonzalez et al., 2007; Thompson & Harm, 2000).

Finally, correctional-based programs grounded in the enhancement model also focus on improving women's physical health by providing interventions to increase HIV awareness and prevention (Pomeroy, Kiam, & Abel, 1999). Given the high estimates of HIV prevalence among

incarcerated women, such as 18% in New York state prisons and 25% in Washington DC jails, in-prison programs aim to reduce common pre- and post-release risk behaviors, including exchanging sex for money or drugs, sharing needles when injecting drugs, and low rates of condom use (St. Lawrence et al., 1997). Moreover, in-prison programs intervening with women offenders who are HIV positive address these inmates' feelings of isolation, stigma, shame, and poor self-image (Pomeroy et al., 1999; Chung & Magraw, 1992).

Synthesizing the Evidence

Through examining female offenders' unique needs, researchers and treatment providers have developed interventions to reduce risk factors and rehabilitate incarcerated women. Dowden and Andrews (1999) conducted a meta-analysis that synthesized then-current research on interventions for female offenders, and underscored the importance of addressing family functioning, deviant peers, and antisocial cognitions in reducing recidivism. Our systematic review updates Dowden and Andrews' important contribution to the field by including studies conducted through 2008. In addition, this review advances Dowden and Andrews' work in notable ways. First, Dowden and Andrews primarily focused on outcomes with juvenile offenders, which poses a limitation because juvenile and adult offenders not only have different needs but are also treated differently by the criminal justice system, and therefore, require different services. As such, this article focuses solely on interventions designed to meet the needs of adult female offenders in correctional facilities. Isolating effects for this population is crucial to providing specific direction for program development in adult prisons and jails serving women.

Second, Dowden and Andrews' meta-analysis included only those studies that used a measure of recidivism. Although recidivism is an important variable when assessing

effectiveness of prison-based interventions, excluding studies that do not measure recidivism artificially limits the analysis to outcomes from the risk-reduction model. This limitation prohibits an analysis of the programs using the enhancement model that measure outcomes such as psychological well-being, HIV prevention, and parenting skills. To expand the current understanding of interventions for women prisoners, we examine effectiveness studies that are based in both the risk-reduction and enhancement models, looking at the intervention treatment effects toward reducing recidivism and improving female offenders' well-being.

Third, Dowden and Andrews included studies that examined interventions offered in Canadian and U.S. prisons. However, the criminal justice policies and systems in these two countries differ so drastically that Canadian studies are likely not applicable to the population of women incarcerated in the United States. For example, .1% of the Canadian adult population is incarcerated compared to 1% of the American adult population, Canadian prisoners generally receive much shorter sentences than their American counterparts, and Canadian prisoners are usually released from prison after serving 66% of their sentence (Doob & Webster, 2006). Our study isolates U.S. studies to provide clear implications for rehabilitating women involved with the U.S. justice system.

Thus, to extend knowledge regarding whether women inmates are benefiting from interventions designed for and delivered in correctional institutions, this study examined the efficacy and effectiveness of interventions for adult female offenders in the United States over the past 20 years.

Review Method

Search Strategies for Identification of Studies

To identify studies, two members of the research team performed independent searches of existing literature for all studies evaluating the effectiveness of correctional-based interventions for women inmates in jails or prisons. We searched the following electronic databases sporadically from February 2008 until January 2009: PsycINFO, Social Science Citation Index, Social Services Abstracts, and Sociological Abstracts. Searches were conducted using the following terms: *women*, *female*, or *gender*; *offender*, *inmate*, *incarcerated*, or *prisoner*; *corrections*, *prison*, or *jail*; *recidivism* or *re-incarceration*; and *outcome*, *evaluation*, *effectiveness*, or *efficacy*. We used reference searches of each identified study to find additional publications for inclusion.

Review Criteria and Categorization

Several inclusion criteria were established for this systematic review on interventions for women in adult correctional institutions. First, the researchers chose to include studies using an experimental, quasi-experimental, or one-group pretest-posttest research designs that provided sufficient information to calculate effect sizes (results from studies with one-group pretest-posttest designs were analyzed separately from studies using quasi-experimental and experimental designs). Given the limited number of experimental and quasi-experimental studies on interventions for women offenders, we chose to include studies using a one-group pretest-posttest research design to systematically review as much of the literature as possible. Second, only studies conducted in the United States between 1988 and 2008 were included in this review. The 1988 time point was selected because it coincided with the dramatic increase in incarceration rates for women. Third, unpublished dissertations were included in the search to reduce publication bias (Lipsey & Wilson, 2001). Studies that included both women and men in

the sample were included if there were separate results for women, allowing us to calculate the effect of the intervention on the women inmates.

To minimize selection bias, studies that reported attrition rates of more than 30% and that did not include study dropouts in the analyses were excluded from our review. Some studies met the above criteria, but were missing other necessary statistical information; however, before excluding these studies, the researchers attempted to contact the authors to obtain the missing information.

Included studies that used the risk-reduction model had recidivism as the primary outcome. Studies included in this review that used the enhancement model measured outcomes of psychological well-being, substance abuse, HIV prevention, and parenting skills, and were organized into subgroups defined by these primary outcomes. If sufficient statistical information was available, we conducted separate analyses to determine the effects for studies within each of the subgroups (i.e., psychological well-being, substance abuse, HIV prevention, and parenting skills outcomes). Psychological outcomes included psychiatric diagnoses as well as major symptom categories linked to psychiatric diagnoses included in the *Diagnostic and Statistical Manual of Mental Disorders-Text Revision* (American Psychiatric Association, 2000) including anger expression, anxiety, depression, posttraumatic stress disorder, self-esteem, and self-efficacy.

Data Extraction and Management

The research team developed a coding sheet before data extraction. Working independently, two researchers coded the studies and then conferred to ensure coding reliability. An initial test of the coding procedures was conducted after the researchers had coded 50% of

the studies, and showed a 93% rate for initial agreement on codes. The researchers reviewed and discussed disputed items until they reached consensus.

Effect size estimates of studies included in this review were calculated using *Comprehensive Meta Analysis 2.0* (Borenstein, Hedges, Higgins, & Rothstein, 2005) software. Odds ratio effect sizes were calculated for dichotomous outcomes and for studies reporting odds ratios. Hedges' *g* effect sizes were calculated for continuous outcomes. In an attempt to avoid the criticism of combining outcomes that are not similar in construct, overall effect size estimates were calculated for outcomes categorized and grouped by five different construct types: recidivism, psychological well-being, substance abuse, parenting skills, and HIV prevention. However, only the recidivism and psychological well-being subgroups had enough studies to synthesize and calculate an overall effect size estimate. Therefore, effect size results for the studies in the substance abuse, parenting skills, and HIV prevention subgroups are reported individually. In addition, effect sizes for one-group pretest-posttest studies were pooled separately from the studies using an independent-group design. Accompanying variances were calculated for each study and used to calculate weights by taking the inverse of the variance score. If a study included in the systematic review used multiple measures to examine a single outcome construct, we then calculated individual effect sizes for each of the different measures, but used a combined average effect size per study to ensure statistical independence when pooling the effect sizes of the studies. Guided by Nugent's (2009) findings regarding the potential influence of construct validity variance on meta-analytic findings, we report both single measure and combined averaged effect size estimates for outcome constructs (Lipsey & Wilson, 2001).

In pooling individual effect size estimates, both a fixed- and random-effects model can be conducted using weights based on sample size using *Comprehensive Meta Analysis* software (Borenstein et al., 2005). A fixed-effect model assumes the variability in study effect sizes is no greater than would be expected due to sampling error (Lipsey & Wilson, 2001). Under this fixed-effects model, the excess variability beyond the sampling error is not random and is explained either with a mean or through the addition of predictor variables to the model. In a random-effects model, variability in the effect sizes is larger than would be expected given sampling error; therefore, each effect size does not estimate a common population parameter. The source of the between-study variability is assumed to be randomly distributed and cannot be systematically explained using moderating (i.e., study descriptor) variables (Lipsey & Wilson, 2001). Because of the addition of the between-study variance, new weights and confidence levels must be calculated using a weight that incorporates this additional between-study variance estimate (Shadish & Haddock, 1994).

To examine whether all effect sizes are estimates of the same population effect size or come from different populations, a homogeneity test statistic (Q) was calculated. Under the null hypothesis (of homogeneous effects), the Q-statistic is assumed to follow a chi-square distribution with k-1 degrees of freedom (Shaddish & Haddock, 1994). The Q statistic provides a usefulness statistical test to determine whether to assume a fixed or random-effects model. Therefore, this systematic review used the statistical justification of the Q-statistic to determine whether a fixed- or random- effects model was more appropriate.

Results

Description of Studies

The research team identified 40 studies using the search strategy previously described. Following a thorough review, we determined that 24 of the 40 identified studies met inclusion criteria for the meta-analytic review (See Table 1). Six studies addressed the risk-reduction model and 20 studies addressed the enhancement model; two studies had outcomes that overlapped the two models (Hall et al., 2004; Sacks et al., 2008). Among the enhancement model studies, 16 addressed psychological well-being outcomes, two addressed HIV prevention outcomes, and three studies addressed parenting skills outcomes. With one exception, the studies reviewed were peer-reviewed articles published in scientific journals; the one exception (Perkins, 1997) was an unpublished doctoral dissertation. The researchers excluded 16 studies that initially appeared to meet study criteria. See Table 2 for a list of studies excluded from this systematic review and the rationale for these exclusions.

Studies included in this review used a variety of research designs: eight were experimental studies, seven were quasi-experimental studies, and nine used a one-group pretest-posttest design (See Table 1). As shown in Table 1, the majority (81%) of the experimental and quasi-experimental studies did not include a no-treatment or wait-list comparison group. The comparison groups included in the remaining 19% of these studies received standard care or an alternative program.

As indicated in the inclusion criteria, all 24 studies took place in the United States; 11 in the South, eight in the West, and three in the Northeast. Two studies did not report the geographic location. The interventions examined in 7 of the 24 studies took place when the participants were within one year of being released from prison as a means to help inmates prepare to reenter their communities. The mean age of the entire offender sample was 32.2 years. The average sample size for the treatment groups was 72 offenders and the average sample size

for the comparison groups was 86 offenders. African Americans constituted 45% of the treatment groups and 44% of the comparison groups, Whites constituted 40% of the treatment groups and 27% of the comparison groups, and Hispanics constituted 15% of the treatment groups and 22% of the comparison groups.

All interventions took place in a women's jail or prison and targeted recidivism, psychological well-being, parenting skills, or HIV prevention. The format varied among interventions: 17 interventions were small groups only, 3 were prison-wide substance abuse programs, 1 provided individual counseling only, and 3 programs provided a combination of intervention formats (prison-wide, small group, and individual). The majority of the small group interventions were psychoeducational groups (65%), with other small group interventions categorized as cognitive-behavioral, mindfulness training, group trauma therapy, and group interpersonal psychotherapy. With one exception, all interventions in the risk-reduction model category were substance abuse programs that used a therapeutic community approach. The sole exception was a substance abuse program that used a cognitive-behavioral group approach. Table 1 reports descriptive information for the studies included in the analysis.

Risk-Reduction Model

Independent Groups Study Design

Recidivism outcomes. Table 2 presents results for six studies included in the systematic review that examined recidivism outcomes for female inmates. Odds ratio effect sizes were calculated for these studies, which used dichotomous outcomes with an odds ratio of 1.00 representing no treatment effect; odds ratio effect sizes ranged from 0.34 to 1.00. The overall weighted point estimate for the fixed-effects model was 0.56 and was statistically significant ($p <$ .01) with a 95% confidence interval of 0.43 to 0.73. This pooled odds ratio point estimate falls

below 1.00, which indicates female inmates in the treatment group were less likely to recidivate. The estimated between-study variance was not statistically significant as evidenced by the Q-statistic value of 7.33 (p = 0.197). However, the Q-statistic has low statistical power for rejecting homogeneity when the analysis includes a low number of studies (Lipsey, & Wilson, 2001); therefore, given the few studies that examined recidivism included in our analysis (N =6), a random-effects model was also calculated. The pooled odds ratio under the random-effects model showed an overall point estimate of 0.55, which also indicated that women in the treatment group were 45% less likely to recidivate. This estimate was also statistically significant (p <.01) with a 95% confidence interval of 0.39 to 0.77.

Enhancement Model

Independent Groups Study Design

Psychological well-being outcomes. Table 3 presents results for nine studies that examined psychological well-being outcomes of female inmates. Standardized mean differences effect sizes (Hedges' g) were used for these continuous type outcome measures, with an effect size of zero indicating no effect. Effect sizes across all psychological outcome measures ranged from 0.04 to 1.66, whereas effect size estimates ranged from 0.10 to 1.18 when combining (mean effect size estimates) multiple measures within a single study. Between-study variance was statistically significant with a Q-statistic value of 26.13 (p=.001), which suggests a random-effects model is more appropriate. Thus, the variability between studies in the effect sizes is larger than would be expected given only sampling error; therefore, each effect size does not estimate a common population parameter. Results show a random effects weighted mean effect size estimate of 0.47, which indicates that female inmates in the intervention groups scored .47 standard deviations above those in the control or comparison groups. According to Cohen

(1988), this effect size is considered moderate. The magnitude of the overall weighted mean effect size is positive and statistically significant ($p<.01$), with a 95% confidence interval of 0.21 to 0.74. Overall, our systematic review showed that women who participate in correctional-based interventions tend to improve their psychological well-being as compared to women who do not participate in such programs.

Substance use. Two studies (Hall et al., 2004; Sacks et al., 2008) examined substance use based on dichotomous outcome measures; therefore, these studies were pooled separately from the other studies that used continuous measures of psychological well-being as a primary outcome. Table 3 shows that odds ratio ranged from 0.31 to 1.42, with only the Hall et al. (2004) study showing statistical significance ($p< .001$) for reducing substance abuse. The calculated odds ratio of 0.31 indicates female prisoners in the substance abuse program emphasizing cognitive-behavior therapy were 69% less likely to use drugs in the year following release from prison. Sacks et al. (2008) examined both alcohol and drug use outcomes from a therapeutic community substance abuse program compared to a wait-list control group, but neither outcome was statistically significant ($p= 0.20$ and $p= 0.41$, respectively).

HIV prevention outcome. El-Bassel et al. (1995) and Sacks et al. (2008) examined HIV prevention using dichotomous outcome measures, whereas St. Lawrence et al. (1997) used continuous outcome measures. The El-Bassel et al. and St. Lawrence et al. studies used psychoeducational interventions, whereas Sacks and colleagues (2008) used a substance abuse program to help prevent and reduce HIV and AIDS with female prisoners. Overall results from these studies did not show any statistical difference between intervention and comparison groups for HIV prevention outcomes. Only one measure (improved emotional support) from the El-Bassel et al. (1995) study was found statistically significant ($p< 0.05$).

Parenting skills outcomes. Only one study that met the inclusion criteria looked at parenting skills outcomes with female prisoners (Moore & Clement, 1998). Results across the five measures showed an effect size estimate that ranged from 0.04 to 0.35, which is considered small. None of the measures were statistically significant at the $p< 0.05$ level, thereby indicating no difference in the treatment effect between the experimental and comparison group.

One Group Repeated Measures Design

Psychological well-being outcomes. Table 3 presents results for eight studies that used a one group pretest-posttest design to examine psychological well-being outcomes of female prisoners. Standardized mean gain effect size estimates for each individual study (Hedges' *g*) ranged from 0.27 to 1.05, with a random effects weighted mean effect size estimate of 0.55. According to Cohen (1988), this effect size is considered moderate. The magnitude of the overall weighted mean effect size is statistically significant ($p<.01$) with a 95% confidence interval of 0.32 to 0.77. Between-study variance was statistically significant with a *Q*-statistic value of 29.39 (p=.001), which suggests a random-effects models is more appropriate. We can conclude that variability between studies in the effect sizes is larger than would be expected given sampling error only; therefore, each effect size does not estimate a common population parameter.

Substance use outcomes. One study (Zlotnick, Najavits, Rohsenow, & Johnson, 2003) examined substance abuse using the Addiction Severity Index (ASI) measure for female prisoners. Although the sample size was small (n=15), results showed a large standardized mean gain effect size estimate (0.70) that was statistically significant ($p < 0.01$). Female prisoners who participated in the substance abuse program that incorporated cognitive-behavior therapy

improved significantly as measured by the severity of substance abuse score of the ASI at posttest.

Parenting skills outcomes. Two studies (Gonzalez et al., 2007; Harm & Thompson, 1997) examined various parenting skills outcomes with female prisoners. Both studies used a psychoeducational intervention. Standardized mean gain effect size estimates (Hedges' *g*) ranged from 0.11 to 0.45. The more recent study by Gonzalez et al. (2007) included a substantially larger sample (n=191) than the Harm and Thompson (1997) study (n=44). Results from the Gonzalez et al. (2007) study did not show any gain on the measures of parenting skills except for the measure of parental confidence, which had an effect size estimate of 0.29 (p<0.01). Results from the Harm and Thompson (1997) study reported significant improvements on parenting skills on four measures and moderate effect sizes that ranged from 0.32 to 0.49.

Discussion and Application to Social Work

This systematic review was conducted to quantitatively assess the effectiveness of adult correctional-based interventions for women according to existing intervention literature. This review expands on a previous meta-analysis assessing the effectiveness of interventions for female offenders (Dowden & Andrews, 1999) by including studies through 2008; focusing solely on interventions in adult correctional facilities; focusing on interventions that took place in the United States; and assessing dependent variables other than recidivism. To include variables beyond recidivism, this systematic review was organized using a two-model system: the risk-reduction model included criminal recidivism studies, and the enhancement model included studies investigating interventions designed to improve female offenders' psychological and physical well-being.

Results of pooled analyses of studies in the risk-reduction model, and across experimental and quasi-experimental designs, indicated that incarcerated women who participate in these substance abuse interventions have better recidivism outcomes than incarcerated women who do not receive substance abuse treatment. Specifically, as compared to female offenders who did not receive treatment, female offenders who participated in substance abuse programs were 45% less likely to reoffend after their release from prison.

Longitudinal post-release research of female inmates across 15 states has shown that approximately 58% were rearrested, 40% were reconvicted, and 17% were resentenced to prison within 3 years of release (Deschenes, Owen, & Crow, 2007; Langan & Levin, 2002). Even though these recidivism rates are somewhat lower than the rates for male offenders (Heilbrun et al., 2008), a 45% reduction in recidivism, as indicated by this review, suggests substance abuse interventions have a considerable impact on women's successful transition from prison to the community. In fact, a 45% reduction in recidivism associated with substance abuse treatment exceeds the 33% reduction associated with educational programs recognized as a leading intervention for preventing re-offending (Steurer & Smith, 2003).

The three studies with the largest demonstrated reduction in recidivism were all evaluations of prison-wide, therapeutic community programs designed to reduce substance abuse. Prison-based therapeutic communities entail a holistic approach that emphasizes accountability, leadership, and responsibility. These results indicate it would behoove corrections officials interested in reducing recidivism to make substance abuse programs available for more women offenders. Given the burden that high recidivism rates place on tax payers, it appears therapeutic communities may be especially relevant additions during times of economic stress; however, future research should include a cost-benefit analysis. Departments of Corrections are

frequent targets for budget reductions, and, therefore, instituting therapeutic communities may offer a method for reducing recidivism and consequently decreasing system-wide costs.

Although reducing recidivism rates is a primary goal among federal and state law enforcement authorities, departments of corrections, and incarcerated women, it is not the only important indicator of success for correctional-based interventions. Rehabilitative interventions offered in correctional settings provide an opportunity for women to improve their psychological, physical, and social well-being as well as to build skills that will help them to be successful in the community. These concerns are addressed in enhancement model interventions.

Studies reviewed under the enhancement model reported mixed results in improving women's well-being. The reviewed correctional-based interventions that measured psychological outcomes demonstrated moderate sized effects, indicating that women who participated in psychological-oriented interventions generally improved their mental health symptoms compared with women in the comparison groups.

The interventions that contained large effect sizes according to Cohen's heuristics were cognitive-behavioral therapy (Bradley & Follingstad, 2003), group trauma therapy (Cole, Sarlund-Heinrich, & Brown, 2007), and psychoeducation (Pomeroy et al., 1999). Specifically, participating in cognitive-behavioral therapy was associated with improved self-reference (identity confusion), which is a common symptom of trauma (Hedges' g = 1.00); reduced depression (Hedges' g = .72); and decreased dissociation episodes (Hedges' g = .73). Group trauma therapy greatly reduced participants' hostility (Hedges' g = 1.53); paranoid ideation (Hedges' g = 1.51); and phobic anxiety (Hedges' g = 1.38). Finally, psychoeducational groups greatly reduced women's depression (Hedges' g = 1.66); anxiety (Hedges' g = 1.01); and trauma symptoms (Hedges' g = .87). These positive outcomes of psychological interventions are

especially encouraging in light of recent research documenting elevated levels of mental illnesses among incarcerated females (73%) compared with incarcerated males (55%; James & Glaze, 2006). Not only are the women participating in these programs more likely to improve their psychological well-being, but research documenting mental health problems as a significant pathway to re-incarceration suggests establishing psychological stability may reduce risk for further criminality (Salisbury & Van Voorhis, 2009).

Substance abuse programs, offered through interventions included in both the enhancement model and the risk-reduction model depending on the outcome of interest, appears particularly beneficial to female inmates. Substance abuse interventions in the enhancement model that emphasize cognitive-behavioral therapy significantly reduced women's chances of relapse. Using an independent groups design, Hall et al. (2004) found that women offenders who participated in a cognitive-behavioral substance abuse program were 69% less likely than those uninvolved in treatment to use drugs after release from prison. This substantial decrease in substance use is likely to have an impact on criminality given that 81% of female offenders reported that substance abuse played a critical role in the initiation and continuation of their criminal behaviors (Peugh & Belenko, 1999).

Despite these positive findings, other enhancement model programs were not as promising. Independent group designs that tested interventions aiming to prevent HIV infection demonstrated only one outcome (emotional support) with a statistically significant effect size. Further, psychoeducational groups to improve parenting skills (measured across five parenting outcomes) showed no statistically significant effects. Thus, although psychological and substance abuse related interventions appear valuable in improving well-being of incarcerated

women, the findings on this limited number of studies are inconclusive and prevent assertions on the effectiveness of enhancement model interventions.

Limitations

Certain limitations should be considered when reviewing the findings of this systematic review. The examination of various outcome measures in the enhancement model, particularly within the broad category of psychological well-being, increases the chance of construct validity invariance (Nugent, 2009). Some meta-analysts disagree with the notion that effect sizes are comparable when framed within a common metric and hold that meta-analyses should be limited to evaluations that use the same measure to assess the construct under study (Nugent, 2006, 2009). The authors of this study understand the limitations of using meta-analytic techniques with broad categories of outcomes, and do not encourage inappropriate generalization of these results; however, we posit that this study helps determine whether correctional-based interventions for women are useful in decreasing recidivism rates, improving psychological well-being, increasing HIV prevention awareness, and improving parenting skill/knowledge.

Another potential limitation is that a methodological rating scale was not used to rate the rigor of each study. Critics may argue that such rating scales are useful when pooling experimental and quasi-experimental studies so that poor quality studies do not bias the overall effect size results. We decided against using a methodological rating scale because there is little agreement on how to assess methodological quality, resulting in ambiguous and error-laden attempts to rate methodological quality in social science studies (Lipsey & Wilson, 2001; McLeod & Weisz, 2004; Wells & Littrell, 2005). A common substitute to using a methodological rating scale is to weight studies based on sample size because sampling error is smaller for effect size estimates based on larger samples (Lipsey & Wilson, 2001). Thus, the

researchers chose that approach, in which studies with larger sample sizes were given more weight when pooling studies to calculate overall effect size estimates.

A final methodological consideration is related to our decision to include one-group repeated measures studies in the systematic review. Such studies were included (pooled separately from independent group designs) to not only provide an all-encompassing quantitative review of the empirical literature, but to also assess the influence that research design has on outcomes. Only three outcomes in the one-group repeated design studies did not contain significant results, and seven of the outcomes contained large effect sizes according to Cohen's heuristics. Despite the lack of capacity for one-group repeated measures designs to decipher the intervention effects on desired outcomes, this approach is used more often than any other rigorous research design by researchers attempting to determine the effectiveness of correctional-based interventions for women; a fact that supports the inclusion of one-group designs in reviews until the field progresses. However, the higher effect sizes that result from a one-group design may create a false sense of program effectiveness. Therefore, the knowledge base should be advanced by future research that uses control or matched comparison groups to evaluate correctional-based programs.

Social Work Implications

Robert Martinson's (1974) article "What Works? Questions and Answers about Prison Reform," examined 231 rehabilitation programs, and questioned whether rehabilitating offenders was possible. The popular slogan "nothing works" emerged from Martinson's work that was published just as the U. S. populace and politicians' perspectives on criminal justice were becoming more punitive and treatment of offenders devalued. Martinson's study was used to advocate for longer prison sentences and fewer dollars spent on rehabilitative programs.

However, subsequent reviews of Martinson's analysis revealed that only 71 of 231 programs he analyzed were treatment programs, and, in fact, many of those programs had produced promising results (Cullen & Gendreau, 2001; Gendreau, 1981). Researchers in the three decades since Martinson's work have begun to dispel the notion that "nothing works" in rehabilitating criminal offenders. These researchers have implemented and tested interventions for prisoners, particularly programs that aim to reduce recidivism rates. What remains unclear in the literature is what works for female offenders. With the recent influx of female offenders into prisons and jails, and women constituting the fastest growing prison population, social work researchers and practitioners need to understand how correctional-based interventions influence recidivism and psychological well-being for female offenders.

Social work will benefit from continuing to move the field of forensic social work with women forward. Social work researchers and service providers need to rigorously evaluate the needs of women prisoners, implement and evaluate programs based on gender-specific needs, and adjust interventions based on program evaluations. Although conducting rigorously designed experimental studies is the gold standard, such designs are often difficult to conduct in correctional settings; this difficulty can be inferred from the limited number of experimental studies found for this review. For settings where it is not feasible to conduct a study using a true experimental design, researchers should consider a quasi-experimental design with a matched comparison group to account for as many threats to internal validity as possible. Because motivation is a key factor in evaluating interventions for offenders, researchers must ensure that selection bias due to motivation is adequately addressed. Thus, studies using a matched comparison group design should use wait-list comparison groups whenever possible. The field of forensic social work would also benefit greatly from standardization of outcome measures across

intervention studies. As the field develops and evaluations proliferate, meta-analyses can be conducted that synthesize the effects of specific correctional-based interventions, such as the effects of therapeutic communities on recidivism or the effects of cognitive-behavioral therapy groups on depressive symptoms for women inmates. Such knowledge development will ultimately enable social workers to create and implement empirically supported service packages that include multiple components to address women's needs.

A specific focus for social work research and practice development is correctional-based substance abuse programs. This study found that substance abuse programs are a promising approach to reducing recidivism and improving women's well-being. As such, the authors recommend thorough, standardized substance abuse assessments for all women incarcerated in criminal justice facilities, and the inclusion of substance abuse treatment within secure facilities for women with identified needs. To accomplish this lofty goal, many prisons will need to introduce or expand availability of substance abuse programs given the large proportion of female inmates with substance abuse problems that are likely to be indentified and require intervention. Many in-prison interventions, such as cognitive-behavioral therapy, assuage hardships associated with mental illness and substance abuse, which the literature has indicated is associated with reduced recidivism. We encourage each state's Department of Corrections, or its equivalent, to allocate resources toward development and testing of more correctional-based interventions, which will entail a fundamental shift from "getting tough on crime" to "getting smart on crime."

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Table 1: Characteristics of Studies

Author(s)	Treatment problem	Research Design	Control	Level of Intervention	Type of Intervention	Timing of intervention	Jail/Prison type
Bradley & Follingstad (2003)	Trauma/victims of violence	Experimental	No treatment	Group	Cognitive Behavioral Therapy (CBT)	In-prison	Medium
Cole et al. (2007)	Sexual abuse Trauma	Experimental	No treatment	Group	Group trauma therapy	In-prison	*
El-Bassel et al. (1995)	HIV prevention Substance abuse	Experimental	Alternative Program	Group	Psycho-educational and CBT	In-prison/ Pre-release	Jail
Gonzalez et al. (2007)	Parenting knowledge	One group pre-post	No control	Group	Psycho-educational	In-prison/pre-release	*
Hall et al. (2004)	Substance abuse	Quasi-experimental	Alternative program	Group and Individual	CBT	In prison/Pre-release	*
Harm & Thompson (1997)	Parenting Domestic Violence Abuse	One group pre-post	No control	Group	Psycho-educational	In Prison/Pre release	*
Johnson & Zlotnick (2008)	Depression Substance abuse	One group pre-post	No control	Group	Group interpersonal psychotherapy	In-prison	Minimum Medium
Messina et al. (2006a)	Substance abuse	Quasi-experimental	No treatment	Group and Prison wide	Therapeutic community	In Prison/Pre-release	Minimum Medium Maximum
Messina et al. (2006b)	Substance abuse	Quasi-experimental	Standard care & no treatment	Group and Prison wide	Therapeutic community and aftercare	In-prison/ Pre-release & aftercare	Minimum Medium Maximum
Moore & Clement (1998)	Parenting skills	Quasi-experimental	No treatment	Group	Psycho-educational	In-prison	*
Mosher & Phillips (2006)	Substance abuse	Quasi-experimental	No treatment	Prison wide	Therapeutic community	In-prison-release	Minimum

Perkins (1997)	Stress and anger management	Experimental	No treatment	Group	Mindfulness training	In-prison	Minimum
Peyrot et al. (1994)	Substance abuse	One group pre-post	No control	Group	CBT	In-jail	Jail
Pomeroy et al. (1999)	HIV Depression Anxiety Trauma	Quasi-experimental	No treatment	Group	Psycho-educational and DBT/CBT	In-jail	Jail
Pomeroy et al. (2001)	Depression Anxiety Trauma	One group pre-post	No control	Group	Psycho-educational	In-jail	*
Prendergast et al. (1996)	Substance Abuse	Quasi-experimental	No treatment	Prison wide	Substance abuse program	In-prison/Pre-release & aftercare services	*
Sacks et al. (2008)	Mental health Trauma HIV Risk	Experimental	Alternative Treatment	Prison wide	Substance abuse program	In prison/pre release	Minimum Medium
Samuelson et al. (2007)	Stress management	Quasi-experimental (but results are portrayed considered 1 group pre-post)	No treatment	Group	Mindfulness Training	In-prison	*
Spiropoulos et al. (2005)	Depression	Experimental	No treatment	Group	CBT	In-prison	*
St. Lawrence et al. (1997)	HIV risk reduction and self-esteem	Experimental	Alternative program	Group	Psychoeducational (based on Social Cognitive Theory)	In-prison	*
Sultan & Long (1988)	Physical and sexual abuse	One group pre-post	No control	Group	Psychodidactic-support model	In-prison	*

Thompson & Harm (2000)	Parenting skills and self-esteem	One group pre-post	No control	Group	Psychoeducational	In-prison	*
Valentine & Smith (2001)	Trauma, depression, anxiety, and low expectancy of success	Experimental	No treatment	Individual	Trauma Incident Reduction (TIR)	In-prison	Minimum to medium
Zlotnick et al. (2003)	Substance abuse and trauma	one group pre-post	No control	Group	Substance abuse program and CBT	In-Prison/Pre-release	Minimum

*information not provided in study

Table 2: Table of Excluded Studies

Study	Reason for Exclusion
Bedard et al. (2003)	Insufficient data to calculate effect size
Dowden & Blanchette (2002)	Sample of offenders in Canadian prison
Eamon et al. (2001)	Sample of offenders in Canadian prison
Harm et al. (1998)	Insufficient data to calculate effect sizes
Hillman (2006)	Qualitative Study
Klein & Bahr (1996)	Insufficient statistical analyses to calculate effect size
Messina et al. (1996)	No odds ratio for women offenders apart from men
Palusci et al. (2008)	Insufficient data to calculate effect sizes
Pelissier et al. (2003)	Insufficient data to calculate effect sizes
Pelissier et al. (2005)	Statistical analyses that prohibit us from using this study
Schram & Morash (2002)	Attrition rate higher than 30 percent
Siegal et al. (1999)	Insufficient data to calculate effect sizes specifically for women
Wallace (2007)	Insufficient data to calculate effect sizes
Wexler et al. (1990)	Data collected in 1978
Young & Mattucci	Outcome unrelated to systematic review
Young et al. (1995)	Data collected between 1975 and 1979

Table 2: Results Risk-Reduction Model Studies

Independent Groups Recidivism Outcome Measures

Author	Type of Intervention	Sample Size Total	Outcome Measures	odds ratio effect size (CI)	*p*-Value
Hall et al. (2004)	Substance Abuse Program emphasizing cognitive-behavioral therapy	180	Convicted since release	0.42 (0.22, 0.78)	0.01
			Incarcerated since release	0.60 (0.33, 1.09)	0.10
Messina et al. (2006a)	Substance Abuse Program	316	Return to Custody	1.00 (0.55, 1.83)	1.00
Messina et al. (2006b)	Substance Abuse Program	179	Return to Custody	0.34 (0.10, 1.14)	0.08
Mosher & Phillips (2006)	Substance Abuse Program	558	Recidivism	0.53 (0.36, 0.79)	0.001
Prendergast et al. (1996)	Substance Abuse Program	41	Return to Custody	0.17 (0.05, 0.67)	0.01
Sacks et al. (2008)	Substance Abuse Program	314	Arrested (any)	0.65 (0.40, 1.06)	0.08
			Arrested (not parole violation)	0.37 (0.19, 0.72)	0.001
			Criminal Activity	0.67 (0.43, 1.04)	0.08
			Drug Related Crime	0.91 (0.56, 1.47)	0.70
			Sex Crime	0.39 (0.10, 1.45)	0.16

*Note- CI= 95% Confidence interval

Table 3: Results Enhancement Model Studies

Independent Groups Design

Author (date, ID)	Type of Intervention	Sample Size Total	Outcome Measures	Hedges' *g* (CI)	*p*-Value
			Psychological Well-Being		
Bradley & Follingstad (2003)	Cognitive-behavior therapy	31	Beck Depression Inventory	0.63 (-0.08, 1.34)	0.08
			Inventory of Interpersonal Problems	0.51 (-0.20, 1.21)	0.16
			Trauma Symptom Inventory: Anger/Irritability	0.59 (-0.12, 1.30)	0.11
			Anxious Arousal	0.57 (-0.14, 1.28)	0.12
			Defensive Avoidance	0.40 (-0.30, 1.11)	0.26
			Depression	0.72 (-0.00, 1.43)	0.05
			Dissociation	0.73 (0.01, 1.45)	0.05
			Impaired Self-Reference	1.00 (0.26, 1.73)	0.01
			Intrusive Experience	1.01 (0.27, 1.75)	0.01
Cole et al. (2007)	Group trauma therapy	9	Symptom Checklist 90-R: Anxiety	0.46 (-0.72, 1.65)	0.44
			Depression	0.36 (-0.82, 1.54)	0.55
			Global Severity	0.49 (-0.70, 1.68)	0.42
			Hostility	1.53 (0.16, 2.90)	0.03
			Interpersonal Sensitivity	0.34 (-0.84, 1.52)	0.57
			Obsessive-Compulsive	0.55 (-0.65, 1.75)	0.37
			Paranoid Ideation	1.51 (0.15, 2.88)	0.03

			Phobic Anxiety	1.38 (0.05, 2.71)	0.04
			Positive Symptom Distress Index	0.46 (-0.73, 1.65)	0.45
			Positive Symptom Total	0.35 (-0.83, 1.53)	0.56
			Psychoticism	0.88 (-0.36, 2.11)	0.16
			Somatization	1.05 (-0.22, 2.31)	0.10
Moore & Clement (1998)	Psychoeducational	40	Index of Self-Esteem	0.10 (-0.51, 0.70)	0.76
Perkins (1997)	Mindfulness training	57	Coping Resource Effectiveness Overall Score	0.71 (0.30, 1.11)	0.001
			STAXI- Anger expression	0.23 (-0.17, 0.62)	0.26
Pomeroy et al. (1999)	Psychoeducational	139	Beck Depression Inventory	1.66 (1.27, 2.05)	0.001
			State-Trait Anxiety Inventory	1.01 (0.68, 1.34)	0.001
			Trauma Symptom Checklist	0.87 (0.53, 1.21)	0.001
Sacks et al. (2008)	Substance abuse program	314	Beck Depression Inventory	0.19 (-0.03, 0.42)	0.09
			Brief Symptom Inventory	0.14 (-0.08, 0.36)	0.22
			Posttraumatic Symptom Severity Scale	0.22 (-0.00, 0.44)	0.05
St. Lawrence et al. (1997)	Psychoeducational	90	Rosenberg Self-Esteem Scale	0.04 (-0.37, 0.45)	0.84
			Self Efficacy	0.60 (0.18, 1.01)	0.01
Spiropoulos et al. (2005)	Cognitive-behavior Therapy	52	Center for Epidemiological Studies Depression Scale	0.14 (-0.40, 0.68)	0.62
Valentine & Smith (2001)	Traumatic Incident Reduction	123	Beck Depression Inventory	0.45 (0.10, 0.81)	0.01
			Clinical Anxiety Scale	0.54 (0.18, 0.90)	0.001

			Generalized Expectancy of Success Scale	0.52 (0.16, 0.88)	0.001
			Post Traumatic Stress Disorder Symptom Scale- Global	0.75 (0.38, 1.11)	0.001
			Substance Abuse Outcome Measures		
Hall et al. (2004)	Substance abuse program emphasizing cognitive-behavioral therapy	180	Substance Abuse	0.31 (0.16, 0.60)	0.001
Sacks et al. (2008)	Substance abuse program	314	Alcohol Use	1.42 (0.83, 2.44)	0.20
			Drug Use	0.80 (0.48, 1.35)	0.41
			HIV Prevention Outcome Measures		
El-Bassel et al. (1995)	Psychoeducational	100	Improve Coping Skills	2.14 (0.88, 5.23)	0.09
			Improve Emotional Support	2.31 (1.00, 5.33)	0.05
			Improve Safer Sex Practice	1.44 (0.62, 3.34)	0.39
Sacks et al. (2008)	Substance abuse program	314	Any Above Sex Behavior	0.67 (0.35, 1.26)	0.21
			Injection	1.35 (0.40, 4.56)	0.63
			Sex for Money/Drugs	0.36 (0.12, 1.04)	0.06
			Sex with a Needle User	0.65 (0.23, 1.83)	0.42
			Unprotected Sex (2+ men)	0.87 (0.37, 2.01)	0.74
			HIV Prevention Outcome Measures		
St. Lawrence et al. (1997)	Psychoeducational	90	Attitude Towards Prevention	0.08 (-0.33, 0.49)	0.71
			Perceived Vulnerability to HIV	0.39 (-0.03, 0.80)	0.07

Parenting Skills Outcome Measures

Moore & Clement (1998)	Psychoeducational	40	Inappropriate Expectations	0.23 (-0.38, 0.84)	0.47
			Lack of empathy	0.35 (-0.27, 0.96)	0.27
			Nurturing Quiz	0.10 (-0.51, 0.70)	0.76
			Physical Punishment	0.04 (-0.57, 0.64)	0.90
			Role Reversal	0.11 (-0.49, 0.72)	0.71

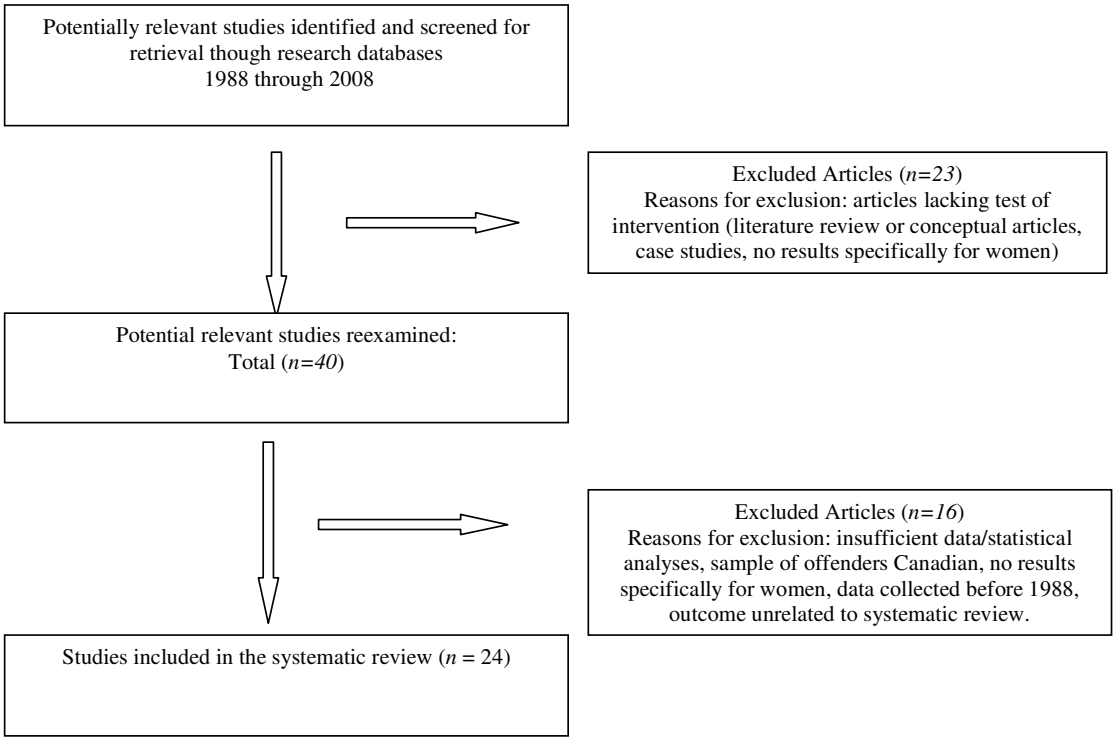
One Group Pretest-Posttest Design

Author (date, ID)	Type of Intervention	Sample Size Total	Outcome Measures	Hedges' *g* (CI)	*p*-Value
			Psychological Well-Being		
Harm & Thompson (1997)	Psychoeducational	44	Index of Self-Esteem	0.41 (0.11, 0.71)	0.01
Johnson & Zlotnick (2008)	Group Interpersonal Psychotherapy	25	Beck Depression Inventory	0.95 (0.49, 1.41)	0.001
			Hamilton Rating Scale for Depression	1.14 (0.65, 1.64)	0.001
Peyrot et al. (1994)	Cognitive behavior Therapy	93	Alcohol information	1.55 (1.25, 1.85)	0.001
			Anger management	0.65 (0.43, 0.87)	0.001
			Consequential thinking	0.42 (0.21, 0.63)	0.001
			Drug information	1.10 (0.84, 1.36)	0.001
			Stress management	0.94 (0.70, 1.19)	0.001
			Treatment information	0.93 (0.69, 1.17)	0.001
Pomeroy et al. (2001)	Psychoeducational	15	Beck Depression Inventory	0.42 (-0.29, 1.13)	0.24

			State-Trait Anxiety Inventory	0.17 (-0.51, 0.85)	0.63
			Trauma Symptom Checklist	0.20 (-0.48, 0.89)	0.56
Samuelson et al. (2007)	Mindfulness training	202	Cooke and Medley Hostility Scale	0.27 (0.13, 0.41)	0.001
			Profile of Mood States	0.27 (0.13, 0.41)	0.001
			Rosenberg Self-Esteem Scale	0.27 (0.13, 0.41)	0.001
Sultan & Long (1988)	Psycho-didactic Support Model	15	Alienation Scale	0.64 (0.11, 1.17)	0.02
			Rotter's Internal –External Locus of Control Scale	0.37 (-0.12, 0.87)	0.14
			Self-Esteem Scale	0.92 (0.34, 1.51)	0.001
			Trust in People Scale	0.45 (-0.05, 0.96)	0.08
Thompson & Harm (2000)	Psychoeducational	104	Index of Self-Esteem	0.34 (0.14, 0.53)	0.001
Zlotnick et al. (2003)	Substance abuse program emphasizing cognitive-behavioral therapy	15	CAPS-I (PTSD measure)	0.55 (0.03, 1.07)	0.04
			Substance Use		
Zlotnick et al. (2003)	Substance abuse program emphasizing cognitive-behavior therapy	15	Addiction Severity Index	0.70 (0.16, 1.24)	0.01
			Parenting Skills Outcome Measures		
Gonzalez et al. (2007)	Psychoeducational	191	Child Independence	0.08 (-0.06, 0.22)	0.27
			Child's Role Parenting	0.04 (-0.10, 0.18)	0.58
			Parent Attitude About Alcohol and Drugs	0.11 (-0.03, 0.25)	0.13

			Parental Confidence	0.29 (0.14, 0.43)	0.001
			Parental Discipline	0.05 (-0.09, 0.19)	0.47
			Parenting Attitudes About Children's Capacity	0.12 (-0.03, 0.26)	0.11
Harm & Thompson (1997)	Psycho-educational	44	Adult-Adolescent Parenting Inventory: Corporal Punishment	0.49 (0.18, 0.80)	0.001
			Inappropriate Expectations	0.49 (0.18, 0.80)	0.001
			Lack of Empathy	0.49 (0.18, 0.80)	0.001
			Role Reversal	0.32 (0.03, 0.62)	0.03

Figure 1. Study Selection Flowchart


Potentially relevant studies identified and screened for retrieval though research databases 1988 through 2008
Excluded Articles (n=23) Reasons for exclusion: articles lacking test of intervention (literature review or conceptual articles, case studies, no results specifically for women)
Potential relevant studies reexamined: Total (n=40)
Excluded Articles (n=16) Reasons for exclusion: insufficient data/statistical analyses, sample of offenders Canadian, no results specifically for women, data collected before 1988, outcome unrelated to systematic review.
Studies included in the systematic review (n = 24)