

5-2015

Evaluating a Brief Sexual Violence Therapy Group for Incarcerated Women

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Evaluating a Brief Sexual Violence Therapy Group for Incarcerated Women

Evaluating a Brief Sexual Violence Therapy Group for Incarcerated Women

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Psychology

by

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ABSTRACT

Incarcerated women report higher rates of sexual victimization and mental illness than the average woman and incarcerated men. Researchers have argued that sexual victimization is a pathway to prison for women, and that there is a lack of trauma-focused treatments in prisons. Some researchers have evaluated trauma-focused group treatments for incarcerated women (Bradley & Follingstad, 2003; Cole et al., 2007; Ford, Chang, Levine, & Zhang, 2013; Kubiak, Kim, Fedock, & Bybee, 2012; Paquin, Kivlighan, & Drogosz, 2013; Roe-Sepowitz, Bedard, Pate, & Hedberg, 2014; Zlotnick, Johnson, & Najavits, 2009), with mixed results and several limitations. Most of these treatments are lengthy and resource intensive (cf. Ford et al., 2013) and they provide few, if any, additional benefits compared to treatment as usual or support groups. They also do not include exposure therapy, despite research supporting exposure's efficacy (Foa, Hembree, & Rothbaum, 2007). Future studies could benefit from evaluating briefer treatments that target specific mechanism known to maintain posttraumatic stress disorder (PTSD) and other common trauma outcomes. Although there are empirically-supported treatments (ESTs) for PTSD that would fit these criteria, the prison context might provide several unique contextual factors that are likely to make it difficult to implement and/or may impact the efficacy of these treatments. The current group treatment for incarcerated women was designed to overcome concerns with implementing ESTs in this population as well as limitations with previous studies evaluating trauma treatments among female prisoners. Results from 58 incarcerated women showed significant reductions in PTSD, depression, and anxiety/worry symptoms as well as trauma-related cognitions from pre-to post-treatment. Approximately 40-50% of participants who were above the clinical cutoff for possible PTSD (n = 30), depression (n = 25), and generalized anxiety disorder (GAD; n = 26) at pre-treatment were below at post-

treatment (PTSD: n = 14; depression: n = 18; GAD: n = 18). Additionally, 40-60% reported a clinically significant improvement (reliable change index > 1.96; Jacobsen & Truax, 1991) in depression (n = 21) and GAD symptom severity (n = 13). Results suggest that it is feasible to implement a brief exposure-based group treatment with incarcerated women.

ACKNOWLEDGEMENTS

This project would not have been possible without the help of several people. I wish to thank the Northwest Arkansas Community Corrections Center and the Arkansas Community Correction for their involvement in this project. Many thanks to the staff, especially to Maggie Capel and Kenitra Brown for their support and assistance. Special thanks to all the brave women who participated in the group treatment and the research project. Thanks for sharing your life stories and allowing the group leaders to be part of your therapeutic journey.

Gratitude also goes to the staff at Peace at Home Family Shelter Inc., especially to Teresa Mills, Aurora Vicari, and Jessica Bell. Thanks for being part of developing this project and committing to a continuous sponsorship.

The dedicated mentorship of Dr. Ana J. Bridges has been instrumental in shaping this project. I wish to thank her for the countless hours spent in supervision and guidance.

My appreciation also goes to Jessica Bell and Lauren Milner who agreed to serve as the co-leaders of the group treatment.

Thanks to the advisor and chair of my dissertation committee, Dr. Patricia A. Petretic, and to the dissertation committee members: Drs. Jeffrey M. Lohr and Ellen W. Leen-Feldner.

The final acknowledgement is for my uncle, Ole Bredberg, who has been one of my greatest supporters during my educational journey.

DEDICATION

This dissertation is first and foremost dedicated to my parents. Your love and support has been crucial in this process and throughout my life. This dissertation is also dedicated to my life companion and best friend, Claudio.

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I. INTRODUCTION

Sexual victimization is disproportionately a women's issue. Compared to men, women are more likely to report being victims of sexual violence as children (child sexual assault; CSA; Pereda, Guilera, Forns, & Gomez-Benito, 2011) and as adults (adult sexual assault; ASA; Black et al., 2011; Elliott, Mok, & Briere, 2004) and they are more likely to report being revictimized as teenagers and/or adults (Black et al., 2011; Cloitre, 1998; Messman-Moore, Brown, & Koelsch, 2005; Roodman & Clum, 2001; Ullman, Najdowski, & Filipas, 2009). Women are also more likely to report symptoms of posttraumatic stress disorder (PTSD) and depression (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012), which are the two most common mental health problems associated with interpersonal trauma. This paper will review research on sexual trauma, including mental health outcomes and trauma treatments. Sexual victimization and related issues will first be described in the general population followed by a focus specifically on female prisoners. This paper also includes findings from a brief exposure based group treatment implemented in a sample of incarcerated women with sexual victimization histories.

A. SEXUAL VICTIMIZATION

Definitions of Sexual Victimization

Sexual victimization is a type of trauma. According to the Diagnostic and Statistical Manual of Mental Disorders 4th Edition (DSM-IV; American Psychiatric Association, APA, 2000) a traumatic event is "involves actual or threatened death or serious injury, or other threat to one's physical integrity" (p. 463). The event can be experienced personally, by witnessing someone else experience it, or by learning that the event happened to "a family member or other close associate" (p. 463). Victimization implies that a person has experienced interpersonal trauma (e.g., one person perpetrated violence onto the victim). This paper focuses on sexual

victimization, which are sexual acts of violence perpetrated by one or more individuals onto someone else.

Sexual victimization can be defined in many different ways and researchers have implemented a variety of methods for measuring it. Although the definitions vary, most researchers use behaviorally specific terms to describe acts of sexual violence perpetrated by one or more individuals onto another person. Age and developmental periods can further impact the various definitions of sexual victimization, with the below definitions focusing on CSA.

Neumann, Houskamp, Pollock, and Briere (1996) stated that “most studies examined in [their] meta-analysis defined CSA as involving physical contact of a sexual nature, ranging from fondling to intercourse” (p. 8). Hillberg, Hamilton-Giachritsis, & Dixon (2011) defined CSA “as an act in which the child/children are used to provide sexual gratification for the perpetrator/perpetrators including inappropriate sexual touching, invitations, and/or exhibitionism, inappropriate non-penetrative sexual interaction (digital penetration, fondling, and/or masturbation), attempted or actual anal and/or vaginal penetration, incest, coerced or forced penetration” (p. 39).

Sexual Victimization Rates

Although sexual victimization rates vary across studies and settings, research findings suggest that a large number of women are at risk for being sexually assaulted in their lifetime. Rates below are reported separately for CSA and ASA. Rates are also reported for revictimization, which are women who report ASA in addition to CSA.

Childhood Sexual Victimization

Pereda and colleagues’ (2011) meta-analysis, which included data from 65 articles and 22 different countries (N = 37,904), found that 19.7% of women have been victims of CSA (95%

CI: 16.7-23.0%). In the U.S. 25.3% of women endorsed CSA (95% CI: 19.7-31.8%). CSA rates were in general higher in local compared to national samples as well as in clinical compared to non-clinical samples. Women were more likely to report CSA experiences than men (7.9% worldwide and 7.5% in the U.S.). Overall, the researchers concluded that women are 2.5 times more likely to be sexually victimized as children compared to men.

Adult Sexual Victimization

Studies have found high rates of sexual victimization among women. In a stratified random national sample (N = 941) including 472 women, 22% of the women reported being sexually assaulted since age 18 (Elliott et al., 2004). Another more recent national study found that 18% of women report being raped at some point in their life, with 45% reporting being victims of sexual assault other than rape (Black et al., 2011). Unfortunately in the Black et al. (2011) the researchers did not specify at what age the sexual assault happened, and, it is therefore unclear how many of these women were sexually victimized as children. The 12-month prevalence rate for sexual assault other than rape was similar for women and men (5.6% and 5.3% respectively). One percent of the women reported being raped in the past 12-months; there were no rates reported for men.

As with CSA rates, several studies have shown that women are more likely to report being victims of sexual violence as adults than men. For instance, Black and colleagues (2011) found that approximately 1% of men report being raped in their lifetime while 22% report being victims of some sexual assault other than rape. These rates are substantially lower than the ones reported by the female participants (18% and 45% respectively). Even when comparing rates of ASA, Elliott and colleagues (2004) found significant differences between men and women. Four percent of the men had been sexually assaulted since age 18 compared to 22% of women.

Sexual Revictimization

Women are also at increased risk for being revictimized. Several researchers have found a link between CSA and ASA among women (Cloitre, 1998; Messman-Moore et al., 2005; Roodman & Clum, 2001; Ullman et al., 2009). Additionally, women who report ASA without CSA are also at heightened risk for revictimization (Messman-Moore et al., 2005; Ullman et al., 2009). In Black and colleagues' recent national study 35% of the women who had been raped as children were revictimized as adults compared to 14% who were raped as adults but not as children. Roodman and Clum's (2001) meta-analysis found a medium effect size between CSA and ASA rape with 15-79% of women with CSA experiences being revictimized as adults.

Altogether, research on sexual victimization suggests that women are at heightened risk. Research findings suggest that approximately 1 in 5 women report being sexually assaulted as children and/or as adults (Black et al., 2011; Elliott et al., 2004; Pereda et al., 2011), with even higher rates in some studies. Women are also more likely to be sexually assaulted as children and as adults compared to men (Black et al., 2011; Elliott et al., 2004; Pereda et al., 2011). Many of these women will be revictimized (Black et al., 2011; Cloitre, 1998; Messman-Moore et al., 2005; Roodman & Clum, 2001; Ullman et al., 2009). These rates are troubling, especially when studies show the great negative impact that is oftentimes associated with sexual victimization.

B. HEALTH OUTCOMES ASSOCIATED WITH SEXUAL VICTIMIZATION

Studies have linked sexual victimization to a range of health issues and psychological symptoms. The term sequelae is being used to indicate the broad cluster of problems associated with sexual victimization, which include physical and mental health issues. Most studies have focused on the CSA sequelae. Studies specifically focusing on physical health will be discussed first followed by mental health and the sexual violence sequelae.

Physical Health

One recent meta-analysis specifically investigated the association between CSA and physical health issues (Irish, Kobayashi, & Delahanty, 2010). The researchers included results for 31 studies and assessed 6 different health categories: gastrointestinal (GI), pain, obesity, gynecological, cardiopulmonary, and general health. Overall, they found small to medium effect sizes. People with CSA experiences were 1.35-2.12 times more likely to report physical health issues compared to those without these experiences. However, the researchers did not find a significant association between CSA and GI and obesity when using continuous variables; although results were significant when using dichotomous variables.

Mental and Psychological Health

Neumann and colleagues (1996) grouped health outcomes into five domains. The affective domain included anger, anxiety, and depression, and the behavioral domain included “revictimization, self-mutilation, sexual problems, substance use, and suicidality” (p. 9). The third domain included identity and relational issues and included “interpersonal problems and self-concept impairment” (p. 9). The fourth domain was labeled “other psychiatric sequelae” and included dissociation, obsessions/compulsions, somatization, and traumatic stress symptoms (p. 9). The last domain was general symptomatology and included broad measures of psychological distress and symptomatology. The researchers included 38 studies and 11,162 subjects in their meta-analysis. Overall, they found a significant association between CSA and long-term negative consequences, and the effect size was small to medium. The largest effect size was found for the association between CSA and revictimization ($d = +.67$; 95% CI: $+.50$ - $+.84$).

Chen and colleagues (2010) conducted a meta-analysis of 37 longitudinal studies (17 case-control and 20 cohort studies; $N = 3,162,318$) investigating the link between CSA and

subsequent mental health issues. They found a significant link between CSA and anxiety disorders, PTSD, depression, eating disorders, sleep disorders, and suicide attempts. Victims of CSA were 2.34 (PTSD) to 16.17 (sleep disorders) times more likely to develop mental health issues compared to those without CSA experiences. The relation was stronger for CSA victims who had been raped and the likelihood of developing depression, eating disorders, and PTSD. CSA was not significantly related to schizophrenia and somatoform disorders.

Hillberg and colleagues (2011) did a systematic review of seven meta-analyses, including 248 published and unpublished articles that have investigated the association between CSA and subsequent mental health problems as adults. Neumann and colleagues' (1996) meta-analysis was included among the seven studies. Hillberg and colleagues (2011) included a broad range of mental health issues, such as emotional difficulties (e.g., anger, hostility), anxiety symptoms and disorders (e.g., obsessive compulsive disorder, OCD; phobia, PTSD), depressive symptoms, somatization and eating disorders, substance use, dissociation, paranoia and psychotic symptoms, suicidality and self-harm, personality characteristics and disorders (borderline personality disorder, BPD; interpersonal sensitivity), and broad assessments of functioning (e.g., interpersonally, socially, sexually). The effect sizes varied between .04 (.10 is cutoff for small effect) and .28 (.30 cutoff for medium effect).

Another systematic review of meta-analyses (Maniglio, 2009) included the seven meta-analyses that were in Hillberg and colleagues' (2011) review in addition to another seven. Maniglio included meta-analyses investigating "medical, neurobiological, psychological, behavioral, sexual, [and] other health problems following [CSA]" (p. 648). Maniglio also concluded that the association between CSA and its sequelae is small to medium in magnitude with weak effects for sexually transmitted diseases (STDs; e.g., genital herpes). The researcher

concluded that CSA “should be considered as a general, nonspecific risk factor for psychopathology (including psychologically, behaviorally, and sexually related problems and later revictimization as well as certain medical problems which are psychological in origin)” (p. 654).

Several researchers have investigated possible moderating factors between CSA and subsequent health issues. A common finding is larger effect sizes in studies with larger samples and/or clinical samples (Hillberg et al., 2011; Irish et al., 2010; Maniglio, 2009; Neumann et al., 1996). Hillberg and colleagues (2011) found great variability between the different meta-analyses in terms of moderators. They stated that women consistently perceive that they are more affected by the CSA than men, although both groups report heightened levels of mental health issues. Other researchers have found little support for moderators included in their study. Neumann and colleagues (1996) did not find any significant differences for a range of moderators (e.g., publication year, publication type, statistical method, assessment method, age of subject). Likewise, Irish and colleagues (2010) did not find any significant moderating effects (e.g., sex, CSA definition and assessment, and type of comparison group) in the association between CSA and physical health issues. Chen and colleagues (2010) did not find any significant differences based on subjects’ sex and age as victims.

Several researchers suggest that the association between CSA and its sequelae is likely affected by a range of additional factors such as family dysfunction/environment and other types of maltreatment and trauma. This implies that CSA can be seen as one risk factor out of several (Hillberg et al., 2011; Maniglio, 2009). However, results from a study with 1,411 female adult twins suggest that the association between CSA and subsequent health issues cannot be accounted for by family context and parents’ psychopathology (Kendler et al., 2000). The

researchers found that the female twin who reported CSA experiences had an increased risk for developing mental health issues compared to her twin who had not been sexually victimized as a child. This suggests that CSA experiences as well as other types of childhood traumas and the general environment are all important factors that increases risk for a range of health issues.

The high rates of sexual victimization and the negative consequences of the CSA sequelae are fairly well established in the research literature, but there has been less focus on these factors among a specific subgroup, incarcerated women. Indeed Cole, Sarlund-Heinrich, & Brown (2007) among others, have described incarcerated women as a neglected population. This is troubling, as research suggests that incarcerated women are at a heightened risk for sexual victimization and mental health issues. Researchers have also suggested that sexual victimization is a pathway to prison for women (Belknap, 2007; Bloom, Owen, & Covington, 2004; Browne, Miller, & Maguin, 1999; Cole et al., 2007; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006). Below follows a review and discussion of the research literature on incarcerated women, with a focus on sexual victimization, mental health issues, and treatment needs. First, statistics will be presented about the female prison population in the United States.

C. THE U.S. CORRECTIONAL SYSTEM AND THE FEMALE PRISONER

According to the ninth edition of the World Prison Population List published by the International Centre for Prison Studies, approximately 10 million people are incarcerated around the world with the largest prison population being in the United States (743 out of 100,000 U.S. adults; Walmsley, n.d.). Walmsley's report is based on available prison statistics from 218 different countries and territories in May of 2011. The most recent Bureau of Justice (BJS) statistics (Glaze & Herberman, 2013) show that 6.9 million people were under the supervision of the U.S. correctional system at the end of 2012. These numbers include people incarcerated in

state or federal prisons (n = 1,483,900) and local jails (n = 744,500) as well as those under probation or parole (also includes minors prosecuted as adults; n = 4,781,300). Overall this means that 2.9% of the United States adult population was involved with the correctional system at the end of 2012. This translates to 1 in 108 adults in prison or jail (920 inmates per 100,000 adults) and 1 in 50 adults on probation or parole (1,980 per 100,000 adults). These rates have been fairly consistent since 2000, with a slight decrease observed from year to year (40,900 fewer in 2012 compared to 2011). Separating out the prison population from those in jails, 626 in 100,000 U.S. adults were imprisoned by the end of 2012 (Carson & Golinelli, 2013). Men were more likely to be imprisoned compared to women (910 per 100,000 compared to 63 per 100,000). This resulted in 108,866 women and 1,462,147 men being imprisoned by the end of 2012.

Lower rates of female prisoners are supported by Walmsley's (2006) prison statistics. Worldwide, female prisoners comprise of between 2 and 9% of the world prison population (Walmsley, 2006). Again, the United States has the highest number of incarcerated women in the world (Walmsley, 2006). Recent studies in the United States have also shown that the rate of female detainees is growing at a faster pace than the rate of male detainees. In 1977, 10 in 100,000 women were incarcerated in the United States, but, in 2004, that number had increased to 64 in 100,000 (Frost, Greene, & Pranis, 2006). As described by Frost and colleagues (2006) "[t]he number of women serving sentences of more than a year grew by 757 percent between 1977 and 2004 – nearly twice the 388 percent increase in the male prison population" (p. 9).

Increase in female detainees in the state of Arkansas follows the same trend as what has been report on the United States female prison population (Frost et al., 2006). Eight in 100,000 women were incarcerated in Arkansas in 1977 while 65 out of 100,000 were incarcerated in

2004. This was an increase of 900% with a 9.5% annual increase since 1977 and a 17% increase since 1999. In 2004, Arkansas had the 19th highest female prison rate in the United States. At the end of 2012, of the 14,615 adults imprisoned in the state of Arkansas, 1,048 of those were women (Carson & Golinelli, 2013).

According to Frost and colleagues (2006), the greater rate of increase of female detainees has been consistent since the 1980s, with somewhat equal rates in the beginning of the 1990s. Researchers have argued that this increase in female detainees can partially be explained by the war on drugs (e.g., Bloom et al., 2004; Frost et al., 2006), and some researchers have argued that women are more likely than men to be incarcerated due to drug charges (e.g., Haywood, Kravitz, Goldman, & Freeman, 2000; Jordan et al., 2002). BJS statistics show that, at the end of 2011, female prisoners were fairly equally likely to be convicted for violent crimes (36.8%), property crimes (27.8%), and drug crimes (25.1%; Carson & Golinelli, 2013). Comparably, more than half of the male prison population was convicted for violent crimes (54.3%) with fairly equal rates of property (18.3%) and drug crimes (16.8%). These statistics would potentially support a disproportional rate of women being incarcerated for drug charges (25.1% compared to 16.8%).

Numerous researchers have provided descriptions of incarcerated women in the U.S. In Haywood and colleagues' (2000) review article describing characteristics of women in jails, they stated that "female detainees are often young, single minorities who have children and are unemployed and undereducated" (p. 309). They also described female detainees as "hav[ing] experienced prolonged social disadvantage, suffer[ing] from drug and alcohol addiction, and hav[ing] *unmet needs for mental health treatment* [italics added]" as well as "*victims of abuse* [italics added],...hav[ing] experienced family fragmentation, economic instability, and social isolation" (p. 321). Others have made similar comments. Bloom and colleagues (2004) describes

female prisoners as “disproportionately women of color...in their early-to-mid-thirties...most likely to have been convicted of a drug or drug-related offense...fragmented family histories ...*survivors of physical or sexual abuse as children and adults* [italics added]...significant substance abuse problems...*multiple physical and mental health problems* [italics added] ...unmarried mothers of minor children...limited vocational training and sporadic work histories” (p. 36). Lewis (2006) described the incarcerated woman as “a polysubstance-dependent minority single mother in her childbearing years with a *history of psychiatric treatment, physical or sexual abuse often dating to childhood* [italics added], and socioeconomic hardship” (p. 782).

In sum, female prisoners constitute a small but growing segment of the U.S. prison population. They tend to be a disadvantaged group with numerous health issues, and they tend to be the primary caregiver of children below the age of 18. While researchers have argued that this increase in female detainees can partially be explained by the war on drugs (e.g., Bloom et al., 2004; Frost et al., 2006), other factors also play a role. One of those factors for women is sexual victimization. Several researchers have described sexual victimization as a pathway to prison for women (Belknap, 2007; Bloom et al., 2004; Browne et al., 1999, Cole et al., 2007; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006). Below follows research on sexual victimization among incarcerated women.

D. SEXUAL VICTIMIZATION AMONG INCARCERATED WOMEN

Incarcerated women are disproportionally at risk for being sexually victimized at some point in their life. Overall, they report high rates of trauma, especially interpersonal trauma. More specifically, they are at heightened risk for sexual victimization compared to the general

female population and compared to incarcerated men. This includes higher rates of sexual revictimization both inside and outside of prison.

Interpersonal Trauma

Studies have overall found high rates of trauma, especially interpersonal victimization, among female prisoners. Cook, Smith, Tusher, and Raiford (2005) found that 99% of a sample of incarcerated women had experienced at least one traumatic event (N = 403). On average, the women reported that they had experienced 8.43 traumatic events out of 21. The highest rates were found for unexpected death of loved one (84%), physical abuse by partner (78%), threat to kill (60%), family violence as child (57%), stalked (47%), motor vehicle accident (MVA; 46%), and CSA (43%).

Similarly, Green, Miranda, Daroowalla, and Siddique (2005) found that 98% of the female prisoners in their study (N = 100) had experienced at least one traumatic event. The rates varied by type of trauma, with the highest rates for domestic violence (71%), witnessed someone injured or killed (58%), family member killed (58%), and raped as an adult (58%). Forty-eight percent reported CSA experiences. In another randomized sample of 85 incarcerated women, 87% reported experiencing at least one traumatic event in their lifetime (Zlotnick, 1997). Most of the women had experienced multiple traumas, with the highest rates for being physically assaulted as an adult (63%), physically abused as a child (55%), raped as an adult (53%), witnessing violence as an adult (48%), and CSA (40%). Forty-one percent fell in the category of “other trauma.” In Wolff and colleagues’ (2011) sample of trauma exposed female felons, they found that women had experienced on average 14 traumatic events in their lives. Ninety-nine percent of the women had experienced a general disaster, 87% physical and/or sexual abuse, and 58% crime-related trauma (measured by the Trauma History Questionnaire, THQ; Green, 1996).

In general, these studies suggest that female prisoners have been exposed to a high number of traumas and that most of them have been exposed to interpersonal trauma.

Sexual Victimization

Incarcerated women represent a high-risk group for sexual victimization, with high rates of CSA. In a sample of 436 incarcerated women, 68% reported being sexually assaulted during their lifetime (Blackburn, Mullings, & Marquart, 2008). Similar rates were found in a study of 214 female prisoners (Abrams, Etkind, Burke, & Cram, 2008). Fifty-five percent had been sexually assaulted and most of the women had been sexually victimized before age 16 (65% of those sexually assaulted). In another study, more than one-third of 150 female detainees reported being victims of sexual assault by their partner and almost 60% were sexually abused before age 18 (Browne et al., 1999).

Additional studies have reported high rates of CSA among female detainees. In a large sample of 1,198 incarcerated women, 33% reported being victims of CSA (Mullings, Marquart, & Hartley, 2003). Two other studies found rates of CSA between 26% (N = 500; Mullings, Marquart, & Brewer, 2000) and 50% in samples of incarcerated women (N = 49; Martin & Hesselbrock, 2001). Moreover, McDaniels-Wilson and Belknap (2008) interviewed a sample of 391 female prisoners about their sexual violence experiences. They found that 70% of the women reported that they had experienced more severe sexual assault such as rape. They also found that half of the women had been sexually abused before age 18. Of those women, 10% were victimized before age 6 and 34% before age 12. Most perpetrators were family members and males. Most of the women reported having had more than one perpetrator.

Some studies divided the sexual abuse rates by additional age categories. In Cook and colleagues' (2005) sample (N = 403), more than 40% of the women reported being sexually

abused as children, 27% as teenagers, and 27% as adults. Half of the women in Raj and colleagues' (2008) sample of 484 women reported being victims of sexual assault; 35% as children, 14% as teenagers, and 22% as adults. Richie and Johnsen (1996) recruited 258 incarcerated women and found that 10% had been sexually abused as children, 9% as teenagers, and 21% as adults. In a treatment-seeking sample of female inmates with trauma histories (N = 97), 58% reported that they had sexually abused as children and 34% as adults (Wolff et al., 2010). These rates were similar when the researchers included a larger treatment-seeking sample of incarcerated women with a trauma history (N = 209; Wolff et al., 2011). Fifty-five percent reported CSA and 35% ASA.

Studies have found that incarcerated women are reporting higher rates of interpersonal trauma compared to the general female population. Tusher and Cook (2010) compared a sample of 188 incarcerated women to a sample of 171 non-incarcerated women. They found that the incarcerated sample had higher rates of sexual abuse as children (42.0-58.0% vs. 25.7-45.0%) but not as teenagers (22.9% vs. 20.5%). Logistic regression analyses determined that the incarcerated women were also at heightened risk for ASA compared to the non-incarcerated sample. Another study compared a sample of 157 incarcerated women with 109 women from the community (Severson, Postmus, & Berry, 2005). They found that the incarcerated women were more likely to report sexual assault as an adult (89% vs. 76%), rape as an adult (73% vs. 55%), and CSA (68% vs. 47%) compared to the community sample.

Sexual victimization rates of incarcerated women are also higher than those of incarcerated men, which mirrors the findings from national studies that have shown that women are at increased risk for sexual victimization compared to men (e.g., Black et al., 2011). One study utilizing a large prison sample (N = 19,422) found that white (26.5%) and African-

American (16.0%) women reported higher rates of sexual victimization compared to white and African American men (4.0% and 1.1% respectively; Clark et al., 2012). Another sample of 500 female prisoners and 1,030 male prisoners found that the women were more likely to report sexual victimization as children (26% vs. 4.5%) and as adults (30.8% vs. 1.1%) compared to men (McClellan, Farabee, & Crouch, 1997). Two other studies that focused on childhood abuse reported similar discrepancies between female and male prisoners. One sample of 6,964 male prisoners and 564 female prisoners found that approximately 1 in 2 women reported CSA experiences compared to approximately 1 in 10 men (Wolff, Shi, & Siegel, 2009). Another study with 318 female prisoners and 1,326 male prisoners who participated in a substance use program showed that the female prisoners were “nearly six times more likely to report that they had been physically or sexually abused as children” (Langan & Pelissier, 2001, p. 297).

Overall, these studies suggest that incarcerated women represent a high-risk group for sexual victimization. Although studies have reported sexual abuse rates by victims’ age and developmental period, it is unclear whether the same women are included in multiple categories. Some researchers have studied this in more detail and therefore clarified that many of the women are revictimized.

Revictimization

As with women in the general population, incarcerated women are also at heightened risk for revictimization. In Walsh, DiLillo, and Scalora’s (2011) sample of 160 female inmates, 50% of the women were victims of CSA and 57% reported sexual assault as teenagers and adults. CSA victims were in general at increased risk for subsequent sexual victimization compared to women without these experiences. Walsh and colleagues found that 36.9% of the women had been revictimized (CSA and rape since age 14) compared to 13.7% who were CSA victims only

and 18.8% who were rape victims as teenagers or adults. Another study found that 58% of female inmates had experienced both CSA and rape as adult (Severson et al., 2005).

Tusher and Cook (2010) compared female inmates to non-inmates in terms of their risk for revictimization. Overall, they found that the inmates were at heightened risk for sexual revictimization. Although all women who reported sexual abuse as children were at an increased risk for revictimization, female inmates were at an even greater risk for being revictimized as teenagers (90.7% vs. 71.4%) and adults (79.8-83.9% vs. 59.1-68.3%) compared to non-inmates. In their logistic regression analyses, Tusher and Cook found that CSA as well as incarceration status significantly predicted ASA, such that women with a history of CSA as well as women with a history of prior incarceration were at greater risk for sexual victimization as adults. However, the researchers did not find any significant interactions in their regression analyses between CSA and incarceration status, indicating that the strength of the relationship between CSA and ASA did not differ between the two groups of women.

Sexual Victimization in Prison

Not only do female prisoners report higher rates of sexual victimization than the general female population and than male prisoners prior to incarceration, they are also at heightened risk for being sexually victimized while in prison. In a BJS report (Beck & Johnson, 2012) with 18,526 former prisoners the researchers reported that close to 10% of prisoners have been sexually victimized while incarcerated. Female prisoners were three times more likely to report being sexually victimized by another inmate (13.7% vs. 4.3%) and they were more likely to report “unwilling” sexual activity with a staff member (2.5% vs. 1.1%) compared to men. Since many female prisoners have sexual abuse histories prior to their incarceration, this means that women may be sexually revictimized while in prison.

Wolff and colleagues have investigated prison sexual violence experiences of a large sample of male and female inmates (Wolff, Blitz, & Shi, 2007a; Wolff & Shi, 2011; Wolff, Shi, & Backman, 2008; Wolff et al., 2009). They recruited 7,785 inmates (564 women) in one state from 14 different prisons (12 adult prisons for men, 1 prison focusing on male sex offenders, and 1 adult prison for women). In one study 24.5% of the female detainees reported sexual victimization by an inmate and/or a staff member in the past 6 months (Wolff et al., 2007a). Close to 70% had been victimized by another inmate only, 13% by a staff member only, and the remaining percentage by both a staff member and another inmate. Wolff and colleagues (2008) found that female detainees were more likely to report being sexually victimized by other inmates and staff compared to male detainees (2.5-26.4% compared to 1.7-10.7%). For the female prisoners, the most commonly reported sexual victimization experiences perpetrated by another inmate were being touched or grabbed in sexually threatening ways and being touched on the genitals or sex organs (13.3-15.9%; Wolff & Shi, 2011). These types of sexual violence experiences were also most common among those who reported being victimized by staff, but the percentages were lower (approximately 5%). Interestingly, female prisoners reported equal rates of sexual and physical victimization while in prison (24%), while men were more likely to report physical victimization compared to sexual (35% vs. 10%; Wolff et al., 2009).

Other studies have also investigated sexual victimization rates in prisons. In one study 9.5% of the female inmates reported being victims of sexual coercion and 24.2% victims of forced sexual contact while incarcerated (Walsh, Gonsalves, Scalora, King, & Hardyman, 2012). In another study, 17.2% of the women had been sexually assaulted while incarcerated (Blackburn et al., 2008). Yet another study that included 263 female prisoners from three different facilities found that 14% of the women had been sexually victimized by someone while

in the current prison and 19% while incarcerated at some point in their life (Struckman-Johnson & Struckman-Johnson, 2002). In a later publication, the researchers reported, using the same sample, that 57% of the female prisoners who had been victimized while in prison had been victimized more than once, reporting an average of 3.9 times (Struckman-Johnson & Struckman-Johnson, 2006). Also, almost half of the women reported more than one perpetrator.

In conclusion, studies have found alarmingly high rates of sexual victimization in samples of incarcerated women. Female inmates report higher rates of sexual victimization than male inmates (Clark et al., 2012; Langan & Pelissier, 2001; McClellan et al., 1997; Wolff et al., 2009) as well as higher rates than community samples of women (Severson et al., 2005; Tusher & Cook, 2010). Many incarcerated women report CSA experiences (Abrams et al., 2008; Browne et al., 1999; Cook et al., 2005; Martin & Hesselbrock, 2001; McDaniels-Wilson & Belknap, 2008; Mullings et al., 2000, 2003; Raj et al., 2008; Wolff et al., 2010, 2011), and oftentimes perpetrators are family members (e.g., McDaniels-Wilson & Belknap, 2008). Female inmates are also at heightened risk for revictimization both inside (Beck & Johnson, 2012; Wolff et al., 2008) and outside of prison (Severson et al., 2005; Walsh et al., 2011). Furthermore, they are at increased risk for revictimization compared to the average woman (Tusher & Cook, 2010).

In addition to the high rates of interpersonal trauma both inside and outside of prison, some research findings suggest that incarcerated women with sexual abuse experiences are experiencing more difficulties compared to those without or with fewer sexual abuse experiences. Herbert, Rose, Rosengard, Clarke, and Stein (2007) recruited 149 incarcerated women for a randomized control study evaluating “a brief motivationally based intervention on post-release drinking and sexual risk behaviors” (p. 31). Women who had reported dangerous drinking levels in combination with engaging in risk behaviors related to contraction of human

immunodeficiency virus (HIV; e.g., unprotected vaginal sex and sharing needles) prior to incarceration were recruited for the study. Using latent cluster analysis on a range of variables, Herbert and colleagues identified two clusters of women. One group reported experiencing a larger number of traumas than the other group (12.9 vs. 5.4 types of traumas). In addition to experiencing more sexual trauma than the other group, this group of women also experienced more physical (e.g., attacked with a weapon, attacked without a weapon but with serious injury, hurt or beaten by a family member that caused injury), general (e.g., accident, disasters, death or serious injury to self or others, life-threatening illness, military combat), and crime-related trauma (e.g., used force to take something from them, robbed, burglary). They were also more likely to report that they had been raped by a stranger (35.2% vs. 13.7%). The group that had experienced more traumas, including sexual traumas, also reported more difficulties psychologically (e.g., mental health, drug issues). These findings suggest that although female inmates tend to have experienced more trauma than the general population, those with sexual trauma experiences report even higher numbers of traumas. Although Herbert and colleagues' study did not address the temporal order of the different traumas, these findings suggest that incarcerated women with sexual abuse histories may be experiencing more difficulties than those without these experiences. Numerous studies support the heightened rates of mental health issues among female prisoners, especially among those with sexual abuse histories.

E. HEALTH OUTCOMES IN INCARCERATED WOMEN

As with the sexual victimization rates, incarcerated women are reporting disproportionately high rates of physical and mental health problems. In general, they report higher rates of health problems than community samples, and they report higher rates of health problems compared to male prisoners. The majority of the studies have investigated mental

health problems, while the physical health studies are fewer and tend to focus on sexual health and risk behaviors. The term sexual victimization sequelae is not used as much among studies of incarcerated women, but there are a great deal of similarities between the sexual violence sequelae literature and health and psychological difficulties reported by female detainees.

Physical Health

Most of the physical health studies with incarcerated women have investigated sexual health behaviors and diseases. Abrams and colleagues (2008) found that 52% of the female inmates in their study had been diagnosed with an STD at least once. Similar results have been reported by other researchers. Richie and Johnsen (1996) included 258 incarcerated women in their study and found high rates of STDs and risky sexual behaviors. Fifty-six percent of the women who completed a STD test (n = 110) were diagnosed with at least one STD. In another study with 100 incarcerated women, 40% reported having had abnormal Pap smear tests (Nijhawan, Salloway, Nunn, Poshkus, & Clarke, 2010). Another sample of 30 female detainees completed a series of questionnaires in addition to a physical examination (Kane & DiBartolo, 2002). Close to half of the women reported a history of at least one STD. Twenty-two women underwent a gynecological examination and one third of them had either an abnormal pap smear or an STD.

Other researchers have found that female prisoners with sexual abuse histories are more likely to report sexual health issues compared to those without these experiences. Abrams and colleagues (2008) reported that incarcerated women with a history of sexual victimization were almost 3 times more likely to be diagnosed with an STD. Richie and Johnsen (1996) also found that women who had been sexually abused at some point in their life were more likely to be diagnosed with an STD.

Two of the studies that reported sexual health issues also investigated other physical health issues. In Nijhawan and colleagues' (2010) study, 37% tested positive for hepatitis C. In Kane and DiBartolo's study (2002) two of the women had HIV (7%), two seizure disorder, two diabetes, two delirium tremens, and 10 had asthma (33%).

Additional studies have focused specifically on risk behaviors that have been linked to contracting HIV. In Mullings and colleagues' (2000, 2003) two samples of incarcerated women, those with a CSA history were more likely to have been involved in risky behaviors that were linked to contracting HIV (e.g., prostitution, unprotected sex with 2 or more partners, unprotected sex for drugs or money, unprotected sex with crack user, intravenous drug use, and sharing dirty needles). Having a CSA history was a significant predictor for HIV risk factors related both to sexual and drug related risk behaviors (Mullings et al., 2000). Similarly, Herbert and colleagues' (2007) sample of female inmates could be divided into two groups based on the amount of traumas (sexual and other types of traumas) and psychological difficulties they were experiencing. The more traumatized group, with more sexual trauma as well, were more likely to engage in risky behaviors that could lead to HIV (e.g., unprotected vaginal intercourse and sharing needles). This group also reported more medical conditions than the less traumatized group.

Although these studies suggest that female inmates experience a range of physical health issues, the research has mostly been limited to small samples and sexual health. No systematic studies have been conducted with female inmates to determine prevalence of physical health issues. Furthermore, no studies have compared physical health rates between community and prison populations or between male and female detainees. Substantially more research has investigated mental health concerns among incarcerated women.

Mental and Psychological Health

Several studies have focused on mental health issues among female prisoners. Two larger studies with representative samples have been completed with incarcerated women; one focused on women in jail and one on women in prison. These studies have found high rates of mental health issues among incarcerated women, with rates higher than in community samples. Teplin, Abram, and McClelland's (1996) sample of 1,272 female jail detainees who had been arrested in Illinois over a 2-year period was selected and stratified by race/ethnicity and their legal charge. Teplin's team assessed for lifetime and current axis I disorders as well as antisocial personality disorder (ASPD). They found that 81% of the women met criteria for at least one lifetime psychological disorder and 70% of the women met criteria for a current psychological disorder (in the past 6 months). When comparing the rates to data from the Epidemiological Catchment Area program (ECA; U.S. Department of Health and Human Services), the incarcerated women reported higher rates for all disorders except for schizophrenia and schizophreniform disorder. Substance use/dependence disorder (SUD; lifetime: 70.2%; past 6 months: 60.1%) and PTSD (lifetime: 33.5%; past 6 months: 22.3%) were the most prevalent disorders.

Jordan, Schlenger, Fairbank, and Caddell's (1996) sample of 805 female inmates reported a lifetime rate of mental illness to be 64% with a current rate of 46%. The researchers included six Axis-I (major depressive disorder, MDD; dysthymia, generalized anxiety disorder, GAD; panic disorder, PD; alcohol abuse/dependence, and SUD) and two Axis-II disorders (ASPD and BPD). They found that alcohol (38.6% lifetime and 17.1% current) and substance related disorders (44.2% lifetime and 30.2% current) as well as BPD (28.0% current) were the most prevalent disorders. When dividing the sample by age (18-25 and 26-50) and ethnicity (White and African-American) and comparing the incarcerated women to the general population (i.e., ECA), Jordan and colleagues (1996) found that the incarcerated women reported higher

prevalence rates in 16 out of 20 comparisons. Some of the lowest odds ratios were reported for anxiety (white female inmates age 26-50 were 1.2 times more likely to meet criteria for PD or GAD) and mood disorders (female inmates between 1.7 - 3.0 times more likely to meet criteria for MDD and dysthymia) while some of the highest were found for alcohol abuse/dependence (female inmates 15.5 – 47.3 times more likely), SUD (female inmates 8.1 – 46.8 times more likely), and ASPD (females inmates 10.6 – 15.4 times more likely). It is important to note that the researchers did not include PTSD rates.

Other studies with incarcerated women have also found high rates of mental illness. Trestman, Ford, Zhang, and Wiesbrock (2007) recruited 201 female jail detainees. Seventy-seven percent of the women had at least one lifetime axis I or axis II disorder, with 74.1% meeting criteria for a lifetime axis I, 10.2% lifetime Cluster A personality disorder, 37.4% lifetime Cluster B, and 18.1% lifetime Cluster C. More than half of the women met criteria for a lifetime mood disorder, with the highest rate for MDD (49.3%). Close to half of the women also met lifetime criteria for an anxiety disorder (not including PTSD) and 41.8% met lifetime criteria for PTSD. The most common lifetime personality disorders were ASPD (27.0%) and BPD (23.2%). According to the researchers the patterns were the same for current diagnoses even though the rates were lower (32.2% mood disorder, 35.9% anxiety disorder excluding PTSD, and 21.5% PTSD). They did not report current rates for the other disorders. The researchers also did not report on substance use disorders, and it is unclear if they excluded those disorders or did not report on them. This is noteworthy since other researchers have reported high rates of substance use disorder among incarcerated women.

Several studies suggest high rates of SUDs, MDD, and PTSD among incarcerated women. Green and colleagues (2005) found that 74% of the women in their sample currently met

criteria for SUDs, 22% PTSD, and 25% MDD (N = 100). In a sample of 49 incarcerated women, 80% of the women reported a history of psychological disorders (Martin & Hesselbrock, 2001). Among Axis I disorders, substance dependence (69%), MDD (62%), and PTSD (45%) were the most common disorders. ASPD was the only axis II disorder assessed; 33% met criteria. In Vik's (2007) sample of 100 female felons, 45% met criteria for dependence on two or more drugs and 38% were dependent on one drug during their lifetime. The highest rates were found for methamphetamine (67%), alcohol (32%), cannabis (19%), and cocaine (15%). More than half of the sample met criteria for a mood disorder and close to half for an anxiety disorder. More specifically, 31% met criteria for MDD, 23% dysthymia, 19% bipolar disorders, 24% GAD, 23% PD, and 29% PTSD.

Furthermore, studies have found high rates of comorbidity among female inmates. Trestman and colleagues (2007) focused on lifetime comorbidity among incarcerated women. Approximately 56% of the women met criteria for more than one Axis I lifetime diagnosis, with the highest rates for comorbid PD and depression (24.3%). Twenty-seven percent met criteria for more than one lifetime axis II diagnosis, with the highest rates for BPD and ASPD (12.9%). Forty-two percent of the women met criteria for comorbid lifetime axis I and II diagnoses (highest rates for depression and BPD; 22.1%).

Other researchers have also found high rates of comorbidity. In Blitz, Wolff, Pan, and Pogorzelski's (2005) sample of 1,267 female detainees, 474 were classified as special need individuals due to psychological treatment needs. Three-thirds of the 474 women met criteria for an axis I or II disorder in addition to their primary axis I diagnosis. Fifty-seven percent of the women with a primary axis I disorder also met criteria for a SUD, 23% an additional axis I disorder, 11% axis II disorder. In Martin and Hesselbrock's (2001) sample of 49 incarcerated

women, 55% met criteria for at least two psychological disorders. Sixty-three percent had comorbid substance use problem and axis I or II (i.e., ASPD) disorder. Among the substance users, 51% met criteria for dependence on one drug while 18% were dependent on two or three drugs. Depression was highly related to alcoholism. PTSD was most likely to be comorbid with anxiety or depression.

Vik (2007) was specifically interested in the comorbidity rates between substance use (i.e., alcohol, cannabis, cocaine, and methamphetamine) and mood and anxiety disorders among incarcerated women. Participants were more likely to report cocaine dependence if they had a lifetime diagnosis of mood and/or anxiety disorder (MDD, dysthymia, bipolar disorders, GAD, PD, and PTSD). Thirteen percent of the women with a mood disorder also met criteria for cocaine dependence while 32% of women with both a mood and an anxiety disorder also met criteria for cocaine dependence.

Moreover, studies comparing female and male inmates generally indicate that female inmates report higher rates of mental health problems, but that the rates vary by the type of disorder. One study with 1,267 female inmates and 16,700 male inmates found that the women were more likely to be classified as “special needs,” indicating that they needed and/or received psychological treatment, compared to the men (37% vs. 16%; Blitz et al., 2005). Women were more likely to meet criteria for a depressive disorder (58% vs. 45%) while men were more likely to meet criteria for a psychotic disorder (28% vs. 12%). Other studies support these findings.

Trestman and colleagues (2007) compared 201 female detainees to 307 male detainees in terms of their lifetime prevalence rates of psychiatric disorders. Women were more likely to meet criteria for any mental illness during their lifetime compared to men (77.0% vs. 64.9%), including higher rates for mood (56.5% vs. 24.3%) and anxiety disorders (excluding PTSD;

49.7% vs. 37.6%). In terms of specific mood and anxiety disorders reported by the researchers, women reported higher rates of MDD (49.3% vs. 21.2%) and PTSD (41.8% vs. 20.0%). For personality disorders, women were more likely to be diagnosed with a Cluster C personality disorder compared to men (18.1% vs. 11.5%). As for specific personality disorders reported by the researchers, women were more likely to be diagnosed with BPD (23.2% vs. 12.9%) while men were more likely to be diagnosed with ASPD (39.5% vs. 27.0%). There were no gender differences for psychotic disorders. According to the researchers, women were more likely to meet criteria for lifetime, current, and comorbid diagnoses, but they did not report all of these statistics or specific rates.

Cloyes, Wong, Latimer, and Abarca (2010) included 2,112 male and female prisoners who met criteria for serious mental illness (SMI), which was defined as “a major thought disorder, mood disorder, or organic brain syndrome that fits well-established DSM-IV categories, substantially impairs functioning, and requires treatment” (p. 5). These incarcerated individuals who met criteria for SMI constituted 23% of the total number of prisoners in Utah during a 5-year period. The researchers found that women were more likely than men to meet criteria for an SMI. The most common diagnoses were MDD (72%) followed by bipolar I and II disorders (30%). The researchers concluded that incarcerated women were more likely to meet criteria for a mood disorder while incarcerated men were more likely to meet criteria for a thought disorder. Importantly, the researchers found that women with SMI returned to prison sooner than women without an SMI (on average 169 days sooner).

As suggested by Herbert and colleagues’ (2007) findings, there are certain subgroups within the larger population of incarcerated women that are at heightened risk for health issues. Using latent class analysis, Herbert and colleagues’ (2007) found support for two groups of

women. One group reported experiencing more sexual and other types of trauma and they also reported more mental health issues. More specifically, the more traumatized group reported more depressive symptoms and they were more likely to meet the cutoff for GAD (88.9% vs. 66.7%) and PTSD (90.3% vs. 48.0%). This group also reported more difficulties with alcohol and drugs as well as engaging in more risky behaviors related to sex and drugs. Other researchers have found that female inmates with a trauma history seem to be at increased risk for mental health issues, especially those with sexual abuse histories.

In Zlotnick's (1997) sample of 85 incarcerated women, those with current or prior PTSD diagnosis were more likely to meet criteria for current MDD, past substance use, and BPD. They also reported more affect dysregulation, dissociation, and somatization compared to those without PTSD diagnosis. Women with histories of sexual and/or physical child abuse were more likely to have been diagnosed with PTSD. Salgado, Quinlan, and Zlotnick (2007) recruited 69 female inmates who met criteria for current PTSD and substance abuse or dependence (1 month prior to their incarceration). Close to half of the sample also met criteria for lifetime polysubstance dependence. The polysubstance group reported a higher number of traumatic events (mean of 13.18 compared to mean of 10.72) and trauma symptoms (e.g., dissociation, anxiety, sexual difficulties).

Another sample of 81 female inmates with HIV diagnosis showed that two-thirds of the women met criteria for lifetime PTSD (Lewis, 2005). Comparing those with PTSD to those without, the PTSD group was more likely to report comorbid diagnosis (axis I and/or II). More specifically, the women with PTSD diagnosis were more likely to meet criteria for lifetime MDD, ASPD, and cannabis abuse or dependence. All women who met criteria for BPD also met criteria for PTSD, but this trend was not significant (only seven women met criteria for BPD).

The women who met criteria for PTSD and were HIV positive were more likely to report experiencing severe sexual abuse (e.g., penetration, multiple occurrences of sexual abuse, and multiple occurrences of rape) and to report that their perpetrator(s) were first- or second-degree relatives. The women who met criteria for PTSD were more likely to report prior suicide attempts, taking psychotropics in the past, and being treated in an outpatient mental health facility.

Wolff and colleagues (2010) found that more than half of the sample of 97 female inmates who had experienced at least one traumatic event in their life met criteria for more than one axis I disorder. When excluding SUDs, the most frequent combinations were PTSD and depression, or PTSD and another anxiety disorder. In Wolff and colleagues' (2011) larger sample, they found even higher rates of mental illness. Eighty-five percent met criteria for at least one axis I disorder, 88% full or threshold PTSD, and 87% a SUD.

Two-thirds of Wolff and colleagues' (2010) sample met criteria for severe mental illness (e.g., psychotic disorder, bipolar disorder, or MDD). Those who had been diagnosed with a severe mental illness reported even higher rates of sexual trauma than the total sample (61% compared to 52%). Sixty-four percent of the women with severe mental illness had a history of CSA compared to 55% of the total sample. Importantly, Wolff and colleagues (2010) found that the sexual victims were more distressed and were more likely to meet criteria for PTSD, MDD, and alcohol abuse/dependence compared to those reporting physical trauma. The rates for distress and PTSD were similar for victims of CSA, ASA, and those with revictimization experiences (i.e., sexual abuse both as children and as adults).

Other researchers have also reported results suggesting that sexual abuse victims are at increased risk for a range of health related concerns. Clark and colleagues (2012) found that

female and male felons who had experienced sexual abuse were significantly more likely to report “histories of suicide attempts or ideations, be unemployed or on disability, have lived in a shelter, received medication for a mental problem, traded sex for drugs, and met criteria for alcohol and cocaine dependence” (p. 1849). In Mullings and colleagues’ (2000) sample of 500 female inmates, those with CSA histories were more likely to have lived in “a marginal living context” (e.g., lacking adequate food, clothing, and shelter, been attacked with a weapon, and/or felt unsafe or in danger) than those without CSA histories (p. 681). Likewise, Richie and Johnsen (1996) found that incarcerated women who had been sexually abused were more likely to have a history of suicide attempts.

Wolff, Shi, Blitz, and Siegel (2007b) showed that mental health problems and CSA history were risk factors for female inmates to be revictimized while in prison. Prisoners (N = 7,785; 564 women) were 1.8-2.6 times more likely to report that they had been sexually victimized by another inmate while in prison if they also reported prior treatment for depression, anxiety, and/or PTSD. Prior treatment for mental health issues was also a risk factor for being sexually victimized by a staff member while in prison. Moreover, the inmates were 3-5 times more likely to report sexual victimization while in prison if they had a history of CSA (either by an inmate or by a staff member).

Altogether, research studies investigating health issues among incarcerated women have found disproportionately high rates of health problems in this population. Several researchers have found high rates of STDs and other sexual health issues (Abrams et al., 2008; Kane & DiBartolo, 2002; Nijhawan et al., 2010; Richie & Johnsen, 1996), with even higher rates among female inmates with a sexual abuse history (Abrams et al., 2008; Richie & Johnsen, 1996). Most studies have focused on mental health issues. Again, incarcerated women appear to be at

heightened risk compared to the average woman (Jordan et al., 1996; Teplin et al., 1996) and compared to incarcerated men (Blitz et al., 2005; Cloyes et al., 2010; Trestman et al., 2007). Some of the most common axis I disorders reported by female inmates are SUD, PTSD, and MDD (Jordan et al., 1996; Martin & Hesselbrock, 2001; Teplin et al., 1996). Incarcerated women also report high rates of comorbidity (Blitz et al., 2005; Martin & Hesselbrock, 2001; Trestman et al., 2007; Vik, 2007). Researchers have found that incarcerated women with sexual abuse histories are more likely to report mental health issues compared to those without these experiences (Herbert et al., 2007; Lewis, 2005; Wolff et al., 2010, 2011).

While female inmates with sexual victimization histories are at increased risk for debilitating mental health problems such as SUD, PTSD, and MDD, common sequelae among victims of sexual abuse (Chen et al., 2010; Hillberg et al., 2011), more importantly, sexual victimization may be a causal factor linked to women's subsequent imprisonment. Indeed, many researchers have argued that sexual victimization is a pathway to prison for women (Belknap, 2007; Bloom et al., 2004; Browne et al., 1999, Cole et al., 2007; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006), with many possible combinations and interactions between variables. Next, research specifically investigating sexual victimization as a pathway to prison for women will be discussed as, well as gender specific, trauma focused treatment needs among incarcerated women.

F. FACTORS ASSOCIATED WITH HIGH RATES OF SEXUAL VICTIMIZATION AMONG INCARCERATED WOMEN

Several researchers have proposed mechanisms that could explain women's pathway to prison and the link between sexual victimization and incarceration (Belknap, 2007; Bloom et al., 2004; Browne et al., 1999, Cole et al., 2007; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006). Belknap (2007) described these as "feminist pathways" (p. 70) and van Wormer

and Kaplan (2006) stated that women's pathway to prison include "physical health, mental health, and social components" (p. 135). Bloom and colleagues (2004) suggested that "women's most common pathways to crime are based on survival of abuse, poverty, and substance abuse" (p. 34). They also stated that "pathway research has identified such key issues in producing and sustaining female criminality as histories of *personal abuse* [italics added], mental illness tied to early life experiences, substance abuse and addiction, economic and social marginality, homelessness, and *destructive relationships* [italics added]" (p. 37). Browne and colleagues (1999) proposed a rather complex interaction among several factors when discussing links between sexual victimization and imprisonment for women.

According to Browne and colleagues (1999), substance use, prostitution, and violent relationships are common experience of incarcerated women and can have potential legal consequences. In general, studies have shown that sexual abuse victims are more likely to use alcohol and drugs (e.g., Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997). Studies with female inmates have shown that female prisoners with sexual abuse histories were more likely to report a substance use history (Richie & Johnsen, 1996). One study with incarcerated women showed that female inmates with sexual victimization histories were four times more likely to report a history of drug use compared to female inmates without those experiences (Abrams et al., 2008). Women with CSA histories were more than eight times as likely to report that they had used drugs at some point. In a series of studies, Mullings and colleagues (2000, 2003, 2004) have found evidence for a link between CSA and drug issues. In their sample of 500 female inmates, those with CSA histories reported higher likelihood of smoking crack cocaine and injecting drugs in the past compared to those without CSA histories. In their larger sample of 1,198 female inmates, those with a CSA history were more likely to report that they started using

a gateway drug (i.e., alcohol, marijuana, or inhalants) before age 16 compared to those without a CSA history (Mulling et al., 2003). Using the same sample, Mullings, Hartley, and Marquart (2004) found positive associations between alcohol dependence and CSA; however, CSA was not a significant predictor of alcohol dependence. Childhood neglect and father's alcohol and drug use behaviors were significant predictors.

As for substance use, research has shown that victims of sexual abuse are more likely to exchange sex for money or drugs (Kramer & Berg, 2003; Widom & Kuhns, 1996). Similar findings have been reported in samples of female inmates. Richie and Johnsen (1996) found that female inmates who had been sexually abused were more likely to report that they had exchanged sex for money. Another study found that incarcerated women with sexual victimization histories were almost seven times more likely to report exchanging sex for money or drugs compared to those without sexual victimization histories (Abrams et al., 2008). Using two different samples of female inmates, Mullings and colleagues (2000, 2003) found that those with a CSA history were more likely to have been involved in prostitution and to have traded sex for drugs or money than those without a CSA history. In Herbert and colleagues' (2007) sample of female inmates, the more traumatized group also reported being more likely to exchange sex for drugs or money than those who reported fewer traumas. In a sample of HIV positive female inmates, those with a PTSD lifetime diagnosis were more likely to report a history of prostitution than those without PTSD diagnosis (Lewis, 2005).

Moreover, sexual victims are more likely to report experiencing intimate partner violence (IPV; e.g., McCartan & Gunnison, 2010). Again, similar results have been reported from studies with incarcerated women. Close to 90% of a sample of 57 incarcerated women had been abused by their intimate partners at some point (49% sexually abused and 70% physically abused; Fogel

& Belyea, 1999). Another study found that 55% of 500 incarcerated women had been physically abused by their partners (McClellan et al., 1997). In Severson and colleagues' (2005) study with 157 incarcerated women, 97% had experienced IPV. Twenty-five percent of the women had experienced physical IPV only, 2% rape only, and 71% both physical IPV and rape. These rates are much higher than IPV rates reported by community women (approximately 33%; Black et al., 2011).

Even though several studies support the relation between substance use, prostitution, violent relationships, and incarceration among women, the direction of the relations are unclear. The possibility for bi-directional or circular relations is part of what makes the associations complex (Browne et al., 1999). Not only are sexual abuse victims at heightened risk for substance use, prostitution, and involvement in violent relationships, women who are involved with drugs and prostitution are also at heightened risk for being sexually assaulted (e.g., Browne et al., 2008; Mulling et al., 2003). Similarly, women abusing drugs are at risk for being abused by their partners (e.g., Chermack, Walton, Fuller, & Blow, 2001), including sexual victimization. Furthermore, even though researchers have found a link between sexual abuse and substance use issues, there could be other explanations for why incarcerated women with sexual abuse histories are more likely to be substance users. For instance, studies have shown that incarcerated women with substance use problems are more likely to have family members and current partners with substance use issues compared to incarcerated men (see Lewis, 2006 for a review). Langan and Pelissier's (2001) study with 318 female prisoners and 1,326 male prisoners who participated in a substance use program showed that female prisoners "were nearly seven times more likely than men to report being married to a drug user" and they were more likely to report growing up in a home with drug use (p. 297).

Despite these complex relations among variables, several researchers have suggested that it is likely that women's sexual abuse histories preceded their involvement with substance use, prostitution, violent relationships, and the legal system. Since many incarcerated women report being sexually abused as children (Abrams et al., 2008; Browne et al., 1999; Cook et al., 2005; Martin & Hesselbrock, 2001; McDaniels-Wilson & Belknap, 2008; Mullings et al., 2000, 2003; Raj et al., 2008; Wolff et al., 2010, 2011), this would suggest that victimization often precedes issues with the legal system (e.g., Browne et al., 1999). Researchers have also suggested that CSA experiences increase the likelihood of engagement in risky sexual experiences (Mullings et al., 2003), which can lead to further sexual victimization and problems with the legal system. It is possible that women who have been sexually abused as children are more likely to cope with these experiencing using drugs, which heighten their risk for prostitution and violent relationships as well as imprisonment. Multiple studies have shown that people sometimes self-medicate their PTSD symptoms by engaging in behaviors such as taking different substances (Dansky, Saladin, Brady, Kilpatrick, & Resnick, 1995; Epstein, Saunders, Kilpatrick, & Resnick, 1998; McFarlane, 1998). Langan and Pelissier (2001) also found that female prisoners were more likely to report using drugs "to alleviate physical or emotional pain" (p. 295).

Findings from some studies support the hypothesis that sexual victimization and/or substance use precede imprisonment. McGee and colleagues (2012) found that 75% of their sample of incarcerated women (N = 200) reported a history of drug and alcohol abuse, 52% were under the influence from drugs during their arrest, and 60% had committed the crime because they wanted money for buying drugs. McClellan and colleagues (1997) reported that incarcerated women were more likely than incarcerated men to have been dependent on substances prior to incarceration. The female participants were also more likely to have started

using drugs before any other criminal activity, and substance use was a better predictor for property crimes for women than for men.

Moreover, Grella, Stein, and Greenwell (2005) recruited 440 female inmates to investigate potential links between childhood trauma (physical and sexual child abuse, witnessing family violence, and witnessing or experiencing different types of traumatic events; serious accident, sudden death, robbery, mugging, or physical assault), adolescence risk behaviors (e.g., substance use and conduct disorder), and adulthood functioning (e.g., psychological distress and criminal behaviors). Victims of childhood abuse were more likely to report abusing substances as teenagers, which further increased the risk for psychological distress and criminal behaviors as an adult. Most of the criminal behavior was related to drugs and property crimes. Grella and colleagues also found a direct relationship between childhood sexual abuse and engaging in crimes related to drugs, property, sex work, and violence as an adult.

Another possible explanation for the link between sexual victimization and imprisonment for women is mental health. This has been discussed less among researchers who suggest that sexual victimization is a pathway to prison for women. Women with mental health issues might in general be at risk for being sexually victimized. This would be supported by Teplin and colleagues' (Teplin, McClelland, Abram, & Weiner, 2005) study with 936 severely mentally ill individuals (diagnosed with "psychosis or major affective disorder," p. 913; 453 women) recruited from outpatient and inpatient mental health units. They found higher rates of criminal victimization among their sample of severely mentally ill patients compared to participants from the National Crime Victimization Survey (N = 32, 449). All comparisons were significant except for attempted motor vehicle theft. Sexual victimization rates were between 7.2 and 61.2 times

higher for the participants with a severe mental illness compared to the national sample. This suggests that women with mental health issues are at increased risk for being sexually victimized in addition to being a victim of a range of other crimes.

The link between mental illness, sexual victimization, and imprisonment can be multi-directional. Mental illness can increase the risk for imprisonment for several reasons. As Jordan and colleagues (1996) point out, several of the psychological disorders that are elevated among incarcerated women may lead to issues with the legal system (e.g., ASPD, BPD, SUD). Moreover, as previously discussed, psychological trauma can lead to the development of these and other disorders that are elevated among female detainees (e.g., BPD, ASPD, SUD, PTSD). Jordan and colleagues (1996) suggest that the differences in exposure to trauma between incarcerated women and women in the community seem to, at least partly, explain the temporal order of these variables. They suggest that incarcerated “women’s exposure to extreme events” (e.g., trauma) seem to precede their mental health issues and imprisonment (p. 518).

Basically, findings of current research studies support the hypothesis that sexual victimization increases women’s risk for developing health issues and related problems. Research findings also suggest that poor coping strategies increase their risk for substance use issues, prostitution, violent relationships, and sexual revictimization. The sexual victimization in combination with difficulties in coping ultimately put them at risk for imprisonment. Therefore, the temporal order appear to be that sexual victimization occurs first, which increases the risk for mental health complications, which ultimately increases the risk for imprisonment. Of course, the interactions among these variables can be bidirectional and even circular. Growing up in a chaotic family environment increases the risk for sexual victimization and other types of child maltreatment. Family members might suffer from mental illness, which increases the risk for

their children to develop psychological difficulties, both through genetic and environmental pathways. Their children are already at risk for developing mental health issues, and sexual victimization can trigger the onset of mental illness and/or exacerbate the symptoms. Following sexual victimization, a range of psychological problems can unfold such as PTSD and depression, but also a range of emotional difficulties like anger and disgust. These symptoms might increase the risk for developing maladaptive coping skills such as substance use. Over time substance use might increase the symptoms in addition to creating a dependence on the substance. This might lead to engagement in other risky behaviors such as selling drugs, spending time with drug addicts and drug dealers, stealing money to buy drugs, and exchanging sex for drugs. Any of these scenarios can lead to imprisonment.

Salisbury and Van Voorhis (2009) specifically tested pathways to prisons for women using path analyses to compare 3 models. They recruited 313 women on probation and tested three models, which might explain continuous offending among women. The first model, the childhood victimization model, tested the interplay among childhood victimization, history of mental illness, history of substance abuse, current depression and/or anxiety, dynamic substance abuse, and admission to prison. The researchers used both an interview as well as self-report measures. Most of the assessment tools were developed by the researchers. They included items that had a factor loading of .5 or higher for their final measures. The researchers used two interview questions in addition to a self-report measure to address childhood victimization. In the interview they asked if participants had ever been sexually or physically abused as children (score ranging from 0 - 2). The self-report measure consisted of 19 behaviorally specific questions. It is unclear if the researchers measured any child victimization besides physical abuse in the self-report. Mental illness was measured by asking in the interview about suicide attempts,

psychotic symptoms, psychological diagnoses, hospitalization for mental health issues, and experiences with psychological treatment (e.g., therapy and/or medication). Anxiety and depressive symptoms were addressed in the interview by asking six questions about “current mood swings, loss of appetite, trouble sleeping, fearing the future, trouble concentrating, and difficulty functioning as a result of worrying” (p. 552). History of substance abuse was addressed in the interview by asking 10 dichotomized items about substance and alcohol, including impairment as a result of using substances. The dynamic substance use was addressed in the interview, and it was supposed to reflect current substance use issues. This scale included six items asking about current/recent positive or diluted urinalysis (past 6 months), current/recent legal violations due to substance use (past 6 months), current/recent associations with other users, missed meetings (individual or group treatment), and absence of drugs in the home.

The second model, the relational model, tested the interplay among relationship dysfunction, adult victimization, self-efficacy, current depression/anxiety, dynamic substance abuse, and admission to prison. The relationship dysfunction self-report measure was supposed to assess for dysfunctional relationships that resulted in women’s “loss of personal power” (p. 533). The measure included six items about “loss of sense of self in relationships; getting into painful, unsatisfying, and unsupportive relationships; and a greater tendency to incur legal problems when in an intimate relationship than when not in one (p. 553). The researchers used the same two interview questions to address adult victimization as they used for childhood victimization (e.g., if they had ever been sexually or physically abused as adults). They also used three different self-report measures: physical (15 items), emotional (16 items), and harassment (e.g., stalking behaviors; 11 items). Self-efficacy was addressed using Sherer’s (1982) Self-Efficacy scale (17 items).

The third model, the social and human capital model, tested the associations among educational strengths, relationship dysfunction, family support, self-efficacy, employment and financial difficulties, and admission to prison. Educational strength was assessed by four interview questions inquiring about highest level of educational achievement (high school or GED, some college or post-high school training, job-related licenses or certificates, or obtained a college degree). Family support was measured by four interview questions addressing relationships with family members (e.g., level of conflict, amount of communication, assistance from family members with child care, finances etc.). Lastly, employment and financial difficulties was addressed by asking two questions about employment status and stability as well as five questions about socioeconomic status (e.g., owner of a car, owner of a checking/savings account, receiving financial aid, and homelessness).

Overall, Salisbury and Van Voorhis (2009) found support for all three models. Childhood victimization was indirectly linked to repeated offending through current and past psychological symptoms and substance use. This would suggest that victimization precedes mental health and substance use issues, which subsequently increase the likelihood for repeated offending. Of interest, evidence from the relational model suggested that women's dysfunctional intimate relationships were indirectly related to repeated offending "through adult victimization, reduced self-efficacy, depression and anxiety, and addiction" (p. 557). Unfortunately the researchers did not include adult sexual victimization. Taken together, these findings support the premise that there is a complex interplay among the variables of childhood trauma, mental health, abusive relationships, and legal issues as has been suggested by other researchers (e.g., Belknap, 2007; Bloom et al., 2004; Browne et al., 1999; Cole et al., 2007; Grella et al., 2005; Jordan et al., 1996; van Wormer & Kaplan, 2006). It is important to note, as the researchers pointed out, that the link

between childhood victimization and first or initial legal problems was not tested (Salisbury & Van Voorhis, 2009). Furthermore, separate models for sexual and physical childhood victimization were not tested. However, the researchers stated in their discussion that the findings did not vary by type of victimization.

In sum, research has shown that incarcerated women are more likely to report substance use problems (e.g., Abrams et al., 2008; Mullings et al., 2000, 2003, 2004), exchanging money for sex and drugs (Abrams et al., 2008; Mullings et al., 2000, 2003; Richie & Johnsen, 1996), and involvement in abusive relationships (Fogel & Belyea, 1999; McClellan et al., 1997; Severson et al., 2005), especially incarcerated women with sexual abuse histories. Less attention has focused on the association between mental health issues and imprisonment (cf. Jordan et al., 1996; Salisbury & Van Voorhis, 2009). In general, researchers have suggested a complex interplay among these variables and women's path to prison (Belknap, 2007; Bloom et al., 2004; Browne et al., 1999; Cole et al., 2007; Grella et al., 2005; Jordan et al., 1996; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006), with most suggesting that sexual victimization experiences precede the other issues. This pattern would suggest that female inmates could benefit from treatment targeting sexual trauma and its sequelae.

Incarcerated women could benefit from a range of psychological treatments targeting any one of their mental health diagnoses or comorbidities. However, sexual trauma-related difficulties might be especially important to treat in this population. One reason, which has been discussed, is the high rate of sexual trauma in this population and the many associated health concerns. Furthermore, sexual trauma is more likely to lead to PTSD than other types of traumas (Norris, 1992). Sexual trauma has also in general been associated with great distress and impairment (Chen et al., 2010; Hillberg et al., 2011; Irish et al., 2010; Maniglio, 2009; Neumann

et al., 1996). Additionally, sexual victimization has been linked to depression and substance use problems (Chen et al., 2010; Hillberg et al., 2011), which are common issues for female inmates and appear to be related to their incarceration (e.g., Salisbury & Van Voorhis, 2009). Thus, targeting the sexual sequelae in female felons might have the largest impact on their level of functioning, which could benefit these women as well as their families, especially their children.

G. SEXUAL VICTIMIZATION TREATMENTS

There are several trauma-focused treatments that have been shown to successfully reduce symptoms and maladaptive cognitions common to sexual victimization and other types of traumas. Most of these therapies have focused on treating PTSD symptoms. An important development for psychological treatments is the establishment of empirically-supported treatments (ESTs). These are treatments that have been shown to be efficacious in treating specific psychological disorders or problems. Next, ESTs for PTSD will be discussed as well as psychological treatments for incarcerated women.

Empirically-Supported Trauma Treatments

Several researchers and psychological organizations have developed criteria for ESTs for a range of psychological disorders and problems (e.g., Chambless & Ollendick, 2001). In terms of ESTs for PTSD, two cognitive-behavioral treatments are currently viewed as the “gold standard.” Foa and colleagues’ (Foa, Hembree, & Rothbaum, 2007; Foa & Rothbaum, 1998) prolonged exposure (PE) and Resick and colleagues’ (Resick & Schnicke, 1992, 1993) cognitive processing therapy (CPT) have been found to be efficacious and effective in treating PTSD, depression, and trauma-related cognitions in both individual and group settings.

Individual Versus Group Treatments

The ESTs for PTSD discussed above were originally implemented in individual therapy settings, but some of them have been implemented in group settings as well. In Sloan, Feinstein, Gallagher, Beck, and Keane's (2013) meta-analysis of PTSD group treatments with 17 randomized control trials (RCTs), they found a small between-group effect size and a small to large within-group effect size. These findings suggest that although PTSD group treatments are effective in reducing PTSD symptoms they are not as effective as individual treatments. Moreover, Sloan and colleagues did not find any treatment outcome differences between PTSD groups and supportive counseling groups suggesting that they are equally effective in reducing PTSD symptoms. Interestingly, the effect sizes were smaller for CSA and military trauma groups. Most of the treatments included in the meta-analysis were cognitive behavioral therapies (CBT) but not all of them (e.g., interpersonal treatment, anger management, and eye movement desensitization and processing therapy, EMDR). In general, Sloan and colleagues (2013) stated that more research is needed to determine the efficacy of PTSD group treatments.

Another meta-analysis of group treatments for PTSD compared treatments with and without in-group session exposure (e.g., imaginal exposure conducted in front of other group members; Barrera, Mott, Hofstein, & Teng, 2013). Barrera and colleagues' meta-analysis included nine research studies with a total of 12 treatment conditions (N = 651). All treatments were CBT group based treatments. Of note, treatments that utilized imaginal exposure outside of the group setting (e.g., individual sessions or between session assignments) were included in the NON-exposure based group treatment category (four out of seven non-exposure based groups). Overall, Barrera and colleagues found a large pre-to post-treatment effect size change in PTSD symptoms. Reductions in PTSD symptoms were maintained during the follow-up period. Although the effect size was large, it is smaller than what has been reported for individual PTSD

treatments. There was no difference in effect sizes between treatment with or without in-group exposure. However, when dividing treatments based on including any exposure (in group or individual sessions or between session homework) and no exposure, the exposure treatments had large effect sizes while the no exposure treatments had small to medium effect sizes. This was not a statistically significant difference, which could have been due to the study being underpowered. The researchers also found higher attrition rates in treatments with in-group session exposure compared to those without (26.4% vs. 18.9%). Barrera and colleagues concluded that their “results suggest that concerns about the negative impact of in-group exposure on GCBT [group CBT] treatment effectiveness and tolerability may be unwarranted” (p. 29).

In addition to these meta-analyses of group treatments, several studies have evaluated PTSD group treatments with veterans. These studies might be important to consider since they include a highly traumatized population and a setting that tends to utilize group treatments. Schnurr and colleagues (2003) conducted an RCT with 360 male veterans. Participants were randomly assigned to 30 weekly 1.5-2 hour sessions of either trauma-focused group therapy (TFGT) or present-centered group therapy followed by five booster sessions. The researchers found that both treatments were effective in reducing PTSD symptoms but there were no differences between the group treatments. In addition to Schnurr et al.’s study, several articles have been published about group-based exposure therapy (GBET) for veterans, which is a biweekly 24 sessions treatment comprised of group and individual sessions (Ready, Vega, Worley, & Bradley, 2012; Mott et al., 2013; Sutherland et al., 2012). The treatment program includes both in vivo and imaginal exposure. Ready and colleagues’ (2008; Ready, Sylvers, et al., 2012) initial studies evaluated a more extensive version of GBET (32 sessions) without

individual sessions. Approximately 80% of the participants reported a clinically meaningful reduction in PTSD scores from baseline to post-treatment as well as from baseline to the 6-month follow-up assessment (n = 102; Ready et al., 2008). In the 2012 publication, Ready, Sylvers, and colleagues included a sample of 30 male veterans. They found significant reductions in PTSD and depression symptoms from pre-to post-treatment, which were maintained during the 7-11-month follow-up assessment. It is unclear if the samples from these studies overlap.

In 2012, Ready, Vega and colleagues published some preliminary data from the shorter GBET program (24 sessions) that included group and individual sessions (N = 8). Participants reported significant reductions in PTSD symptoms from pre-to post-treatment, and seven out of eight participants no longer met criteria for PTSD at post-treatment. Sutherland and colleagues (2012) also published results from the shorter GBET program (N = 10). Seven participants no longer met criteria for PTSD at post-treatment, and the treatment gains were maintained during the 3-month follow-up period. It is unclear if the samples from the GBET studies overlap or if they are different samples.

Mott and colleagues (2013) included 20 male veterans in their GBET outcome study (10 of the participants were also in Sutherland and colleagues' sample, 2012). Mott and colleagues evaluated tolerability and perceived effectiveness of GBET. Only one participant dropped out of treatment but 14 of them reported considering dropping out. The main reasons they continued the group was their commitment to the other members, hoping the treatment would work, and commitment to the process and the staff. When asked about the impact of group based exposure (e.g., hearing others' stories), participants' most frequent response was that it normalized their own experiences, followed by that it created group cohesion. Importantly, none of the

participants reported that the imaginal group based exposure had an aversive or negative impact. In terms of what the participants believed was most helpful with the treatment, their most frequent response was the “feedback/support from the group members on imaginal exposures” followed by “feedback/support from group leaders on imaginal exposures” (p. 457). Participants also self-reported that the treatment had the greatest impact on “trust, relationships with family members, and relationships with friends” (p. 458). Overall, the GBET outcome studies have reported low attrition rates (0-5%; Mott et al., 2013; Ready et al., 2008; Ready, Sylvers et al., 2012; Ready, Vega et al., 2012; Sutherland et al., 2012).

Castillo, C’de Baca, Qualls, and Bornovalova (2012) evaluated PE as a group treatment for female veterans with PTSD (N = 88). Each group consisted of three participants who met weekly for six 90-minute sessions. Participants wrote detailed scripts of their trauma and shared their script with the group for four consecutive sessions. Each participant had 30 minutes for her imaginal exposure. Participants were encouraged to rewrite their script every week and to read it between sessions. Participants reported significant reductions in PTSD symptoms from pre-to post-treatment and 22% no longer met criteria for PTSD at post-treatment. Importantly, the researchers reported a fairly low attrition rate (12.5%).

Overall, studies evaluating group based PTSD treatments with veterans have shown positive outcomes, with fairly low attrition rates. Participants report significant reductions in PTSD symptoms. Some also report that the treatment gains are maintained during a follow-up period (Ready et al., 2008; Ready, Sylvers et al., 2012; Sutherland et al., 2012), but the sample sizes were small. Only one study included a control group and found no differences between the groups (Schnurr et al., 2003). Although these findings are somewhat encouraging, they are at best preliminary. More research is needed on group treatments for PTSD.

Despite the smaller effect sizes found in PTSD group treatments compared to individual treatments and the limited research on PTSD group treatments (e.g., Sloan et al., 2013), Sloan, Bovin, and Schnurr (2012) suggested that there might be other important aspect with PTSD group treatments. A group setting might encourage clients to become more socially engaged and less isolated. They might also benefit from building trust and increase their sense of safety. By sharing and listening to others, clients might also benefit from normalizing their experiences and symptoms as well as challenging each other. Group treatment is also beneficial because it requires fewer resources. Essentially, fewer therapists can treat more clients in less time. Castillo (2004) report from their experiences with implementing PE in a group format with female veterans. They stated that group participants tend to “gain perspective through the concept of universality,”...”develop a strong sense of empathy for one another,” and...”form close bonds with one another due to the intense emotional experience and validation of sharing without rejection” (p. 357). Also, the results from Mott and colleagues’ (2013) study would support some of these ideas. Nevertheless, Sloan and colleagues (2012) state that the potential benefits to group treatments have not been adequately researched. Some settings and populations might benefit more from a group treatment than others. There might be several benefits to implementing group treatments in prisons. Before considering some of those benefits, treatment options for comorbid PTSD will be discussed.

Treating Comorbid PTSD

PTSD commonly co-occurs with other disorders, especially, anxiety, mood, and substance-use disorders. Clients with comorbid disorders are usually treated using a sequential, a parallel, or an integrated treatment model (see Mueser, Noordsy, Drake, & Fox, 2003, for an overview). In the sequential treatment, one of the client’s diagnoses is treated first followed by

treatment of a second diagnosis, oftentimes by a different mental health professional and potentially in a different mental health clinic. In the parallel model, the two disorders are treated simultaneously by different mental health professionals. In the integrated treatment model two or more disorders are treated simultaneously by the same mental health professional. The discussion below will focus on sequential, parallel, and integrated treatment models for comorbid PTSD and SUDs. Specific considerations for incarcerated women with comorbid PTSD and SUDs will also be discussed.

Sequential Models

Clients with comorbid PTSD and SUDs tend to receive treatments sequentially (e.g., Back, Waldrop, Brady, & Hien, 2007). There is no consensus among mental health professionals about which disorder should be treated first or how much clients need to improve before receiving the second treatment (Mueser et al., 2003). In some cases, clients might not receive any treatment following this model because the treatment providers want the client to stabilize before they receive treatment (Mueser et al., 2003). The PTSD treatment provider might want the client to stabilize his or her substance use prior to receiving treatment and the SUDs treatment provider might want the client to stabilize his or her PTSD symptoms prior to treatment, which leaves the client without any treatment.

When treatments are implemented sequentially, clients tend to receive the SUDs treatment first (e.g., Back et al., 2007), which might be problematic for several reasons. First, clients with comorbid PTSD and SUDs tend to report poorer treatment outcomes after receiving SUDs treatment (e.g., Ouimette, Ahrens, Moos, & Finney, 1997; Ouimette, Finney, & Moos, 1999; Read, Brown, & Kahler, 2004). This is concerning because another limitation with sequential models is that clients might never receive the second treatment. Most of the time they

have to be referred to a different mental health clinic, which decreases the likelihood that the client will receive the second treatment (e.g., referral might not happen or client might not follow through; Mueser et al., 2003). Moreover, SUD treatment providers do not always assess for trauma and PTSD, which further decreases the likelihood that clients with comorbid PTSD and SUDs are referred to a PTSD treatment (see Ouimette, Moos, & Brown, 2003 for an overview). Another issue with implementing a SUDs treatment first is that research has shown that reduction in PTSD symptoms is associated with reduction in SUDs, but reduction in SUDs is not associated with reduction in PTSD symptoms (e.g., Back, Brady, Sonne, & Verduin, 2006; Brown, 2000). This would further be supported by studies showing that PTSD oftentimes precedes or triggers SUDs (Kessler, 2000; Ouimette, Read, Wade, & Tirone, 2010). These findings would suggest that clients with comorbid PTSD and SUDs might benefit from receiving the PTSD treatment first, if using the sequential model.

There is limited research on implementing PTSD and SUDs treatments sequentially. Ouimette, Moos, and Finney (2003) evaluated outcomes from a sequential treatment model implemented with male veterans diagnosed with comorbid PTSD and SUDs (N = 176). All participants received inpatient SUD treatment prior to receiving PTSD treatment. Participants who received PTSD treatment within 3 months of completing the SUD treatment were 3.6 times more likely to be in SUD remission 5 years later. No studies to date have evaluated outcomes from patients receiving a PTSD treatment first followed by a SUDs treatment.

Parallel Models

In the parallel model, clients receive PTSD and SUDs treatments at the same time by two different treatment providers. Compared to the sequential model, using the parallel model might increase the likelihood that the client receives treatment for both disorders (Mueser et al., 2003).

However, there are some other limitations to this model. The two treatment providers might not communicate well with each other and they might have different or even competing theoretical orientations, which could negatively affect the client's progress (Mueser et al., 2003).

As for sequential models, research on implementing separate treatments for PTSD and SUDs simultaneously is limited. Berenz, Rowe, Schumacher, Stasiewicz, and Coffey (2012) implemented PE to clients with comorbid PTSD and alcohol dependence. Participants were receiving PE while they were completing a 6-week residential SUD treatment program (e.g., 12-step program). Preliminary outcome data from four clients showed that none of the clients met criteria for PTSD at post-treatment and they maintained their treatment gains during a 6-month follow-up period (e.g., no changes in PTSD and SUD symptoms). These findings would suggest that clients with comorbid PTSD and SUDs could benefit from receiving treatments for the two disorders at the same time.

Integrated Treatments

One of the limitations with both the sequential and the parallel models is that they ignore the interaction between two or more disorders (Mueser et al., 2003). Therefore, some researchers have developed integrated treatments that target PTSD and SUDs simultaneously by the same treatment provider. Torchalla, Nosen, Rostam, and Allen (2012) conducted a meta-analysis of 17 studies evaluating integrated PTSD and SUDs treatments. Nine of these studies were RCTs. The researchers found that integrated treatments significantly reduced PTSD and SUD symptoms (effect sizes were large). However, there were no differences between the integrated treatments and control groups (e.g., treatment as usual, psychoeducation, SUD treatment, and relapse prevention). Torchalla and colleagues conclude that “there is insufficient evidence to conclude that [integrated treatment] is any more effective than nonintegrated programs” (p. 73).

Altogether, there are several different models for how to treat comorbid PTSD. Clients with comorbid conditions can receive step-like or sequential treatment, parallel treatment, or integrated treatment (see Mueser et al., 2003, for an overview). Each model has pros and cons with limited research support. There might be some additional reasons beyond what has previously been discussed for why some models might be preferred, which could be relevant to treating comorbid PTSD and SUDs in incarcerated women. One factor might be the setting and the kind of treatment resources the clients have access to at the setting. For instance, in a setting in which the client is already receiving a SUD treatment (e.g., Berenz et al., 2012), it might make most sense to offer a sequential or parallel treatment for PTSD. Another factor might be to determine the primary diagnosis and/or using case conceptualization to decide mechanisms that maintain both disorders. There is evidence suggesting that PTSD oftentimes precedes SUDs (Kessler, 2000; Ouimette et al., 2010) but that the two disorders might maintain each other (see Ouimette, Moos, & Brown, 2003 for an overview). Therefore, several researchers have suggested that comorbid PTSD and SUDs should be treated using an integrated treatment (e.g., Mueser et al., 2003). However, integrative treatments tend to be resource intensive (e.g., Zlotnick, Najavits, Rohsenow, & Johnson, 2003). Additionally, no studies have evaluated PTSD and SUDs outcomes from implementing a PTSD treatment. If PTSD symptoms are underlying the substance use then it is possible that treating the PTSD would also reduce the substance use. This might be a more cost and resource effective approach than implementing an integrated treatment. Best-case scenario the PTSD treatment helps the client recover from both PTSD and SUD, which would require the least resources. If the client is still suffering from SUD at the end of the PTSD treatment then a SUD treatment can be offered. Future studies should evaluate PTSD and SUDs outcomes from implementing a PTSD treatment with clients who have

comorbid PTSD and SUDs. Studies should also compare PTSD treatments versus SUDs treatments versus integrated PTSD-SUDs treatments for treating comorbid PTSD and SUDs.

Psychological Treatments for Incarcerated Women

Most prison programs have been developed for men, and several researchers have argued that there is a need for gender specific, sensitive, and responsive treatments for incarcerated women (Blackburn et al., 2008; Bloom et al., 2004; Grella, 2008; Lewis, 2006; Mullings et al., 2003; van Wormer & Kaplan, 2006). According to Bloom and colleagues (2004) “gender-responsive policy and practice target women’s pathways to criminality by providing effective interventions that address the intersecting issues of substance abuse, trauma, mental health, and economic marginality” (p. 42). Lewis (2006) describes the differences between incarcerated men and women as “substantial” and points out that differences between the sexes “include pathway of entry into the correctional system, patterns of substance use and mental illness, parenting responsibilities, trauma history, and level of risk” (p. 782).

Most of the arguments in favor of developing gender specific programs for incarcerated women are based on research showing differences between men and women in terms of their substance use problems. These differences have been found in both prison and non-prison populations. Review studies with non-prison populations have shown that men are more likely to develop a substance use problem, especially alcohol abuse or dependence (Brady & Randall, 1999). Kessler and colleagues (1996) found that both women and men are more likely to develop substance use disorders second to another axis I or II disorders. However, women are more likely than men to report comorbidity with SUDs and other axis I disorders. Additionally, women are more likely to report growing up in a household with substance use problems as well as having partners with substance use problems (see Lewis, 2006 for a review). In Brady and Randall’s

review (1999) they also stated that “studies...suggest that women experience greater medical, physiologic, and psychological impairment earlier in their drinking careers” (p. 248). These differences, among others, between the sexes have been used by researchers to argue that treatments need to be gender specific to address the different treatment needs among men and women.

Differences have also been found among male and female substance users who have been involved with the legal system. In Lewis’ (2006) review article she argues that there are several differences between incarcerated men and women when it comes to substance problems. According to Lewis (2006) incarcerated “[w]omen are likely to be addicted to multiple substances, to suffer comorbid psychiatric pathology, including depression and anxiety, and to use ‘hard drugs,’ such as heroin and cocaine” (p. 778). Incarcerated women are also “more likely to be intravenous drug users, more likely to be introduced to drug use by men, more likely to have substance-using partners and partners who use intravenous drugs, more likely to have positive family histories for drugs/alcohol use, and more likely to prostitute themselves for drugs” (p. 778). Because men and women differ in their substance use behaviors, researchers have argued that female inmates would benefit from treatments developed to address their specific needs. There is some evidence suggesting that gender specific substance use treatments are more beneficial for female prisoners than generic treatment options (Messina, Grella, Cartier, & Torres, 2010).

Trauma Specific Treatments for Incarcerated Women

In addition to substance treatments, researchers have argued that there is a general need for trauma-focused treatments in prisons (Blackburn et al., 2008; Browne et al., 1999; Jordan et al., 1996; van Wormer & Kaplan, 2006; Wolff et al., 2010, 2011). Browne and colleagues (1999)

stated that researchers should identify “what *types* of early interventions or interventions during incarceration might offset negative effects of trauma and promote a positive readjustment to the community upon release” (pp. 318-319). Harner, Budescu, Gillihan, Riely, and Foa (2013) call for the need to implement evidence-based treatments such as PE to incarcerated women. Researchers have further indicated that prison settings might provide a good opportunity for interventions targeting sexual victimization plus substance use (e.g., Browne et al., 1999; Mullings et al., 2003). Some have referred to female inmates as a “captive audience” that could benefit from gender specific treatments, including treatments targeting sexual victimization (Mullings et al., 2003, p. 459).

Overall, researchers have argued that female prisoners need gender sensitive treatments and that there is a general shortage of trauma focused treatments in prisons. However, some researchers have suggested that efficacious trauma treatments such as exposure therapy might not be appropriate for incarcerated women since their environments tend to be stressful and traumatic (Wolff et al., 2010, 2011). Lewis (2006) cautioned health professionals to generalize the results from treatment outcome studies to incarcerated women, as most studies have focused on community samples. Despite these potential concerns, several researchers have implemented and evaluated trauma-focused treatments among female prisoners, with mixed findings. The discussion of these treatments will be categorized into three domains: trauma treatments without an exposure component, trauma treatments with an exposure component, and treatments targeting comorbid PTSD and SUDs.

Treatments without Exposure

Three different research teams have evaluated three separate trauma-informed group treatments without an exposure component in samples of incarcerated women. Roe-Sepowitz,

Bedard, Pate, and Hedberg (2014) evaluated Esuba, which is a 12 2-hour sessions manualized psychoeducational group that aims at addressing trauma-related symptoms and difficulties. According to Roe-Sepowitz and colleagues (2014), Esuba is based on the first stage of Herman's (1992) trauma model (i.e., safety and stabilization). It is a psychoeducation group that focuses on "domestic violence, childhood abuse, and traumatic stress symptoms" (p. 6). For the evaluation study, Roe-Sepowitz and colleagues (2014) included 320 incarcerated women who participated in 34 separate groups. They reported significant reductions in the Trauma Symptom Inventory subscales (TSI; Briere, 1995) from pre-to post-treatment with small effect sizes.

Kubiak, Kim, Fedock, and Bybee (2012) evaluated Covington's (2011) Beyond Violence program with 35 incarcerated women. Similarly to the Esuba program, Beyond Violence is based on Herman's (1992) trauma theory. However, it is also based and Dahlberg and Krug's (2002) social-ecological framework (i.e., individual, relationship, community, societal). The treatment program consists of 20 2-hour group sessions that covers four modules (mimics the social-ecological framework). Beyond Violence was specifically developed for incarcerated women and includes "a variety of evidence-based therapeutic strategies (i.e., psychoeducational, role-playing, mindfulness activities, cognitive behavioral restructuring, and grounding skills for trauma triggers)" (Kubiak et al., 2012; p. 199). All participants in Kubiak and colleagues' (2012) study received treatment in a residential substance use program in the correctional facility. The researchers reported a significant reduction in PTSD (as measured by PTSD short-screen; Breslau, Peterson, Kessler, & Schultz, 1999), depression (as measured by the Patient Health Questionnaire, PHQ-9; Kroenke, Spitzer, & Williams, 2001), and anxiety (as measured by the PHQ Anxiety subscale; Spitzer, Kroenke, & Williams, 1999) symptoms from pre-to post-treatment. They had a 17% attrition rate.

Paquin, Kivlighan, and Drogosz (2013) evaluated another manualized, trauma-informed group treatment with incarcerated women called TREM (Trauma Recovery and Empowerment Model; Fallot & Harris, 2002). TREM consists of 33 75-minute sessions. It was designed “to address the long-term cognitive, emotional, and interpersonal consequences of sexual and physical abuse” and “the needs of women trauma survivors with severe mental disorders, many of whom also have significant substance use problems” (Fallot & Harris, 2002, p. 476). Fallot and Harris (2002) state that “TREM is designed to *integrate* skill development with symptom reduction” (p. 480). The 33 topics are broadly categorized into “empowerment, trauma education, and skill-building...with an emphasis on trauma recovery skills” (p. 477). The specific therapeutic techniques used in TREM are cognitive restructuring, skills training, psychoeducation, peer support, and “contained exposure” (p. 480). According to Fallot and Harris (2002), “TREM does not emphasize the importance or value of detailed recall and retelling of trauma narratives” (p. 482). Group participants may disclose information about their trauma memories but it is not encouraged or necessary.

In Paquin and colleagues’ (2013) study, they modified TREM to consist of 22 75-minute sessions that they implemented biweekly with six different groups of incarcerated women. They did not specify how their modified version differed from the original 33 sessions TREM program. Participants were 51 incarcerated women who either “reported a history of trauma or met criteria for PTSD” (p. 99). Nine participants had a primary diagnosis of PTSD. Participants reported significant reductions in PTSD symptoms from pre-to post-treatment (as measured by the PSS-SR; Foa, Riggs, Dancu, & Rothbaum, 1993). These were large effects.

There are several strengths and weaknesses with these outcome studies. They are all manualized, time-limited treatments, which increase the ability to research and disseminate these

programs (e.g., Onken, Blaine, and Battjes, 1997). All three programs include a psychoeducation component and two of them also include skill-building components (e.g., coping skills and cognitive restructuring; Kubiak et al., 2012; Paquin et al., 2013). The results from these studies suggest that participants experienced a decrease in trauma-related symptoms from pre-to post-treatment. Paquin and colleagues (2013) reported a large effect. Overall, these results show some positive benefits to these treatments. However, there are also several limitations to these studies. Kubiak and colleagues (2012) had a relatively small sample ($N = 35$), and they did not report an effect size. Roe-Sepowitz and colleagues (2014), on the other hand, had a large sample ($N = 320$) but reported a small effect size. Moreover, although the researchers provided some statistical significant findings, they did not provide any information about clinical significance. Paquin and colleagues (2013) reported on their participants' primary diagnoses, which were obtained from the prison's intake procedure. However, no additional information was provided in terms of changes in diagnostic profiles from pre-to post-treatment. Also, none of the studies provided any information about the amount of symptom reduction participants experienced. The absence of a control group in these studies also decreases the strength of the evidence.

In addition to the above-mentioned strengths and limitations, there are some other factors that might be important to consider when implementing trauma treatments in correctional settings. Two of the treatments were fairly lengthy, ranging from 27.5 to 40 hours (Kubiak et al., 2012; Paquin et al., 2013). Resources are limited in correctional facilities and therefore treatments should be as brief as possible so that more women can benefit from them. Briefer treatments might also lower the attrition rates. Kubiak and colleagues (2012) reported an attrition rate of 17%, but the attrition rates are unknown for the other studies. In addition to implementing brief treatments, it is important to implement effective treatments. Although these

studies provided some evidence for their effectiveness, none of them included an exposure component, which researchers have shown is an effective component of PTSD treatments (Foa et al., 2007). Trauma-informed treatments for incarcerated women could benefit from including an exposure component.

Treatments with Exposure

To date, two research teams have evaluated trauma informed group treatments that include an exposure component with samples of incarcerated women. Cole and colleagues (2007) included 13 female inmates in their trauma treatment. They randomly assigned participants to a treatment group (n = 7) or a waitlist control (n = 6). The treatment group received 16 sessions of therapy (2.5 hours twice a week for 8 weeks), which was divided into four phases: (1) learning skills related to setting boundaries, self-esteem, identity formation, and relaxation (2) psychoeducation about trauma, sexual abuse, addiction, interpersonal patterns, and assertiveness, (3) processing (e.g., writing about the trauma), and (4) termination. Cole and colleagues did not find any significant changes from pre-to post-treatment in trauma (i.e., TSI; Briere, 1995) or psychological symptoms (i.e., Symptom Checklist 90 Revised, SCL-90-R; Derogatis, 1994). Moreover, they did not find any differences between the treatment group and the control group.

In another study, by Bradley and Follingstad (2003), they randomly assigned incarcerated women to a treatment (n = 24) or a no-contact control group (n = 25). The researchers implemented 18 sessions (2.5 hour sessions) in two phases: (1) psychoeducation and DBT skills and (2) exposure (writing about the trauma). The treatment group reported significant fewer depressive and trauma symptoms as well as reduction in interpersonal problems from pre- to post-treatment compared to the control group.

These two studies showed mixed results. The findings from Cole and colleagues' (2007) study suggest that their treatment was not effective in reducing symptoms from pre-to post-treatment. There were also no differences between the treatment group and the control group. However, findings from Bradley and Follingstad's (2003) study suggest that their treatment outperformed the control group. Cole and colleagues' (2007) non-significant findings might be due to several factors. They utilized a small sample of female offenders with a history of CSA. Only four women in the treatment group and five women in the control group completed pre-and post-treatment assessments. Moreover, although the researchers claimed that both the control and the treatment group had elevated levels of trauma symptoms, none of the TSI subscale scores for the treatment group was above a T score of 65 at pre-treatment, suggesting that these were not clinically significant elevations. Therefore, it is possible that the PTSD symptom severity at pre-treatment in their sample of CSA victims was too low to expect a decline as a result of the treatment. Similarly to Cole and colleagues' (2007) study, Bradley and Follingstad (2003) also included participants with CSA experiences (all participants had experienced CSA in addition to 71% experiencing physical child abuse). However, in addition to CSA experiences, the participants in Bradley and Follingstad' study had to report elevated symptom levels (i.e., T scores above 65 on at least two TSI subscales or above 65 on one TSI subscale in addition to 18 or higher on the BDI; Beck Depression Inventory; Beck, Steer, & Brown, 1996) to be included in the study. This further supports the hypothesis that the lack of support for Cole and colleagues' treatment might partly be due to low levels of PTSD symptoms at pre-treatment.

Another possible reason for the non-significant findings in Cole and colleagues' (2007) study could be the limited amount of exposure therapy that participants received. Cole and colleagues included one session of writing about the trauma while Bradley and Follingstad

(2003) included nine sessions. It is possible that the additional processing of trauma led to significant outcomes. This would further strengthen the previous argument that trauma informed treatment with incarcerated women would benefit from including an exposure component.

There are some additional considerations that might be important to consider when implementing treatments in correctional facilities. Again, both research teams implemented fairly lengthy group treatment (16-18 2.5 hour sessions; Bradley & Follingstad, 2003; Cole et al., 2007). Although Cole and colleagues (2007) referred to their treatment as “brief” (p. 105), there may be some benefits to implement an even briefer, more targeted treatment. Both of the research teams also reported high attrition rates (43-46%). Moreover, Bradley and Follingstad suggested that participants might need additional “affect regulation skills” prior to writing about the trauma since five of the 11 women who dropped out of the treatment stopped coming after 1-2 sessions of writing about the trauma (p. 340). Similarly, Cole and colleagues (2007) claimed that although their treatment was not effective in reducing symptoms from pre-to post-treatment, it prevented elevation of symptoms during the duration of the treatment. The researchers also argued that their treatment effects might be subtler, and therefore not detectable by measures assessing symptom change. However, they did not provide any statistical analyses supporting these claims. Overall, these researchers are suggesting that there might be a benefit to increasing the dose of treatment. Instead of lengthening treatment and make it more resource intensive, future studies evaluating trauma treatments with incarcerated women could benefit from evaluating briefer treatments that target specific mechanism known to maintain PTSD and other common trauma outcomes.

Treatments for Comorbid PTSD and SUDs

Several research teams have implemented group treatments with incarcerated women that

aim at targeting comorbid PTSD and SUDs. Both Seeking Safety (Najavits, 2002) and TARGET (Trauma Affect Regulation: Guide for Education and Therapy; Ford & Russo, 2006) are manualized treatments developed to address co-occurring PTSD and SUDs and can be implemented with individuals or groups. Seeking Safety includes 25 topics related to PTSD symptoms and SUDs that can be implemented in any order. Main focus is on “psychoeducation and the development of coping skills to help clients attain safety from both PTSD and SUD” (Zlotnick, Johnson, & Najavits, 2009, p. 328). Clients do not have to meet criteria for PTSD but should have a history of trauma. TARGET focuses on using affect regulation skills to cope with PTSD and SUDs (Ford & Russo, 2006). In addition to psychoeducation about PTSD and affect regulation, clients are taught affect regulation skills based on the acronym FREEDOM (i.e., “Focusing, Recognizing triggers, Emotion awareness, Evaluating thoughts, Defining goals, choosing Options, and Making a positive contribution to the world by regulating emotions,” p. 7). The treatment consists of 12 weekly 75-minute sessions in addition to between session assignments (“creating an autobiographical narrative that incorporates, but does not primarily focus upon, trauma, PTSD, and SUD,” Ford & Russo, 2006, p. 342). The narrative is “an experiential exercise designed to enable clients to reengage autobiographical or narrative information processing and memory by safely accessing, containing, and organizing emotionally charged personal memories” (p. 347). The goal of TARGET “is to rediscover the personal goals, choices, and abilities that have been obscured by the problematic aspects of PTSD and SUD symptoms—not to “get rid of” the symptoms, or to simply “substitute” adaptive ways of coping, but to find and rebuild adaptive skills that the survivor possesses and values within her/himself” (Ford & Russo, 2006, p. 343).

Ford, Chang, Levine, and Zhang (2013) randomly assigned 80 incarcerated women with full or partial (at least one symptom from each PTSD cluster) PTSD from interpersonal victimization to receive TARGET (n = 41) or supportive group therapy (n = 39). Approximately 80% of the participants had a history of SUD. The researchers randomly assigned cohorts of 10-12 women to the two treatment conditions. All participants had the option of eventually participating in both treatments. Results were based on assessments from the first group participants were assigned to. The supportive group therapy consisted of 12 sessions of a manualized treatment (Wallis, 2002), which focused on “experiential self-expression activities and nondirective assistance in identifying stresses and effective coping strategies” (Ford et al., 2013, p. 7).

Ford and colleagues (2013) found that both treatments were successful in reducing PTSD symptoms (as measured by the Clinician-Administered PTSD Scale, CAPS; Blake et al., 1995; and the TSI; Briere, 1995) and other psychosocial outcomes (measured by Clinical Outcomes in Routine Evaluation-Outcome Measure, CORE-OM; Barkham et al., 2001) from baseline (within 4 weeks prior to treatment) to post-treatment (after completing treatment) with small to medium effect sizes. Although the effect sizes were in general slightly larger for TARGET compared to the support group, most of the time these differences were not statistically different. The only statistically significant difference between the two treatments was on a measure of forgiveness. TARGET participants were more forgiving at the end of treatment than the women in the support group.

There are several strengths and limitations with Ford and colleagues’ (2013) study. They reported fairly low attrition rates for both treatment groups (TARGET: 7.3%; support group: 12.8%). The treatments were successful in reducing PTSD symptoms while offering a smaller

dose of treatment (12 75-minute sessions) compared to the other PTSD/trauma treatment outcome studies with incarcerated women. The positive findings from Ford and colleagues' study suggest that it is feasible to implement a briefer treatment protocol in this population. However, they found few differences between their active treatment and a support group.

Ford and colleagues (2013) argued that future studies could benefit from evaluating a treatment with incarcerated women that utilizes affect regulation skills in addition to exposure therapy. They also suggested that maybe future studies should expand on the number of sessions and affect regulation training. In contrast, one could argue that future treatment efficacy studies with incarcerated women might benefit from evaluating a brief group treatment targeting specific and maintaining factors of PTSD and common trauma symptoms. Treatments could benefit from including an exposure component, which has been shown to specifically reduce PTSD and other trauma-related symptoms and difficulties. Although TARGET includes creating an “autobiographical narrative” that “incorporates” memories of participants’ traumas (Ford & Russo, 2006, p. 342), it is not designed to be exposure therapy and it is not based on Foa and Kozak’s (1986) emotional processing theory. Instead of doing affect regulation training in addition to exposure therapy, which would further lengthen the treatment and require more resources, incarcerated women might benefit from a brief exposure based treatment that specifically targets trauma symptoms and difficulties.

Moreover, TARGET participants write their narrative autobiography between sessions. As previously discussed, most ESTs for PTSD include between session assignments, which might not be desirable in samples of incarcerated women since they have limited privacy and autonomy. Instead of doing between session work, incarcerated women might benefit from doing

exposure therapy during the group sessions where they have the support from other women with similar experiences as well as the support from group therapists.

Three groups of researchers have evaluated the efficacy of the Seeking Safety program (Najavits, 2002) in groups of incarcerated women (Lynch, Heath, Mathews, & Cepeda; 2012; Wolff, Frueh, Shi, & Schumann, 2012; Zlotnick et al., 2009; Zlotnick et al., 2003). Wolff and colleagues (2012) recruited 111 incarcerated women who met criteria for a SUD and full or partial PTSD (“one re-experiencing symptom and either three or two arousal symptoms with the presence of co-occurring significant distress and impairment,” p. 705) to participate in Seeking Safety. The treatment consisted of 28 90-minute sessions (met biweekly for 14 weeks). The group leaders covered 23 out of 25 topics (excluded Community Resources and the Life Choices Game). Two group participants were excluded from the group because they had two or more “unexcused absences” (p. 705). Seventy-four women completed the group (had two or fewer unexcused absences) and they attended on average of 23 sessions (range 13-27). Wolff and colleagues (2012) reported a significant change from pre-to post-treatment in PTSD symptoms and other psychological symptoms (as measured by the Brief Symptom Inventory, BSI; Derogatis, 1983). Effect sizes were medium.

Zlotnick and colleagues (2003) conducted a pilot study evaluating Seeking Safety with 18 female inmates who met criteria for PTSD and SUD. The treatment consisted of approximately 24 sessions (biweekly 1.5 hour sessions). They received the Seeking Safety treatment in addition to treatment as usual (TAU; e.g., “a voluntary, residential therapeutic program” that is “abstinence-oriented” and based “on the 12-step program;” p. 101). Participants attended between six and 24 sessions with a mean of 14. They reported a significant decrease in PTSD symptoms from pre-to post-treatment and from pre-treatment to 6 and 12 weeks after being

released from prison. They also reported less substance use from pre-treatment to the 6- and 12-week post-prison release date. No descriptive data were provided.

In 2009, Zlotnick and colleagues reported on the larger RCT in which they had randomly assigned female inmates to Seeking Safety treatment (n = 27) or TAU (n = 22). TAU consisted of 3-6 months of a residential substance use treatment primarily focusing on abstinence following the 12-step program. The Seeking Safety group received the Seeking Safety treatment in addition to TAU. Treatment participants met criteria for a SUD and full or partial criteria for PTSD (one or more symptoms from each cluster of PTSD symptoms; symptoms were associated with clinical levels of distress and/or impairment). They met three times a week for 6-8 weeks for a total of 25 sessions (1.5 hour sessions). They also received weekly booster sessions that lasted for 1 hour for a maximum of 12 weeks post-prison release. Participants attended on average 15.6 Seeking Safety treatment sessions and 3 booster sessions.

Zlotnick and colleagues (2009) found that both treatment groups had a significant improvement in PTSD and psychological symptoms (as measured by the Trauma Symptom Checklist 40, TSC-40; Briere, 1996; positive symptom scale of BSI; Derogatis, 1983) as well as a reduction in substance use from pre-treatment to subsequent assessments at 12 weeks after intake and 3 and 6 months after release from prison. They found few differences between the Seeking Safety and TAU groups, suggesting both were effective in reducing symptoms.

In another treatment study with incarcerated women, Lynch and colleagues (2012) assigned 114 incarcerated women to a Seeking Safety treatment group (n = 59) or a waitlist control (n = 55) taking into consideration “anticipated release or transfer dates” (those assigned to the waitlist control had on average 447 days left while those in the treatment group had on average 295 days; p. 93). The Seeking Safety group met twice a week for a total of 24 sessions

(2-hour sessions). Participants were included in the study if they reported “a trauma history, a history of SUD, and moderate to severe PTSD symptoms (score of 30 or greater on the [PTSD Checklist, PCL; Weathers, Litz, Herman, Huska, & Keane, 1993]” (Lynch et al., 2012; p. 93). On average, participants attended 18 sessions.

Lynch and colleagues (2012) found a significant decrease in PTSD symptoms in both groups from pre- to post-treatment. However, the treatment group reported a significantly greater decrease in PTSD symptoms than the control group. Similarly, both groups showed decreases in depressive symptoms and maladaptive coping as well as an increase in interpersonal functioning and adaptive coping, but the Seeking Safety group reported a significant greater change in these symptoms compared to the control group.

Overall, results from these four studies suggest that Seeking Safety can be an efficacious treatment for incarcerated women with comorbid PTSD and SUD. However, of note, there was little additional benefit to receive Seeking Safety in addition to TAU (Zlotnick et al., 2003, 2009). Lynch and colleagues (2012) reported some additional benefit to the Seeking Safety treatment compared to the waitlist control group. It is unclear if their waitlist control received TAU, and, if so, what that entailed. Zlotnick and colleagues (2003, 2009) reported fairly low attrition rates (11-22%). Wolff et al. (2012) reported higher attrition rates (33.3%); however, only 13.5% (15 out of 111) had dropped out of treatment voluntarily. Attrition rates are unknown for Lynch and colleagues’ (2012) study. One of the bigger issues with implementing Seeking Safety in prison settings is how resource intensive this treatment is. As Zlotnick et al. (2003) point out, it is uncertain if Seeking Safety “would be feasible in a prison setting” due to the resources required in the current studies (“intensive training, supervision, and schedule of

sessions,” p. 104). Future studies could benefit from evaluating the efficacy of brief, targeted treatments in samples of incarcerated women.

In conclusion, although some researchers have argued that correctional facilities might be an optimal place to implement trauma focused treatments (Browne et al., 1999; Mullings et al., 2003), others are skeptical (Wolff et al., 2010, 2011). More research is needed to clarify the specific types of trauma-focused treatments incarcerated women could benefit from (Browne et al., 1999). Sexual trauma might be especially important to target since incarcerated women with sexual abuse histories are reporting more difficulties compared to those without these experiences (Abrams et al., 2008; Clark et al., 2012; Herbert et al., 2007; Mullings et al., 2000, 2003; Wolff et al., 2010; Zlotnick, 1997). Some researchers have evaluated trauma focused group treatments in samples of incarcerated women (Bradley & Follingstad, 2003; Cole et al., 2007; Ford et al., 2013; Kubiak et al., 2012; Lynch et al., 2012; Paquin et al., 2013; Roe-Sepowitz et al., 2014; Wolff et al., 2012; Zlotnick et al., 2003, 2009), with mixed results and several limitations. Some of the main issues with these treatments, besides the mixed outcome results, are the amount of resources required (cf. Ford et al., 2013). In addition, several ESTs for sexual trauma have been established through clinical research; however, incarcerated women may be in a unique situation that could necessitate adaptations to already established treatments. It may be valuable to review some of these considerations in addition to considering how a brief exposure based trauma treatment focusing on sexual violence for groups of incarcerated women might best be implemented.

H. FUTURE DIRECTIONS IN SEXUAL VICTIMIZATION TREATMENTS FOR INCARCERATED WOMEN

Prison settings provide several unique contextual factors that are likely to make it difficult to implement and/or may impact the efficacy of trauma-focused ESTs. For instance,

treatments such as PE (Foa et al., 2007; Foa & Rothbaum, 1998) and CPT (Resick & Schnicke, 1992, 1993) require that clients are actively involved in completing between-session assignments, which require privacy (e.g., listen to session tapes, complete worksheets) and autonomy (e.g., complete exposure activities). Incarcerated women have little if any privacy and autonomy. They also have limited options for self-care and self-soothing, which are important components to trauma treatment.

Moreover, treatments such as PE and CPT were developed to target PTSD, which would require that the women be assessed prior to the treatment. It might not be possible for the women, the prison staff, or the clinicians to do extensive assessment of all the women that enter the correctional system. The women might be in need of the treatment despite not meeting diagnostic criteria. Also, using assessments would potentially be time-consuming and costly for the clinicians and the prison staff.

Additionally, being in prison can be stressful and at times might even mimic victimization experiences (e.g., being controlled and told what to do, being unable to leave situations when feeling distressed, anxious, or scared). As Covington (2008) describes there are “standard management practices - such as searches, seclusion, and restraint” that could mimic victimization experiences (p. 382). Other researchers have also commented on the possible reenactment of victimization experiences while in prison. Heney and Kristiansen (1998) stated that prisons “have the potential to recapitulate [a female prisoner’s] abuse experience, including the traumatic violation of physical and sexual boundaries, the dichotomy of the powerful and the powerless, stigmatization and devaluation, and issues of trust and betrayal” (p. 37). Moreover, Lewis (2006) brought attention to incarcerated women’s risk for being revictimized by staff and

other inmates while in prison and the need for additional training of prison staff to prevent these incidents.

Despite all the limitations to providing treatment in correctional facilities, there are also several benefits. There are fewer barriers to treatment such as childcare and transportation needs as well as differing work schedules (e.g., finding a time that works for all participants).

Incarcerated women might also have greater access to health care while in prison compared to living in the community. The World Health Organization in collaboration with the United Nations Office on Drugs and Crime (2009) reported that few female prisoners have had contact with the health services prior to being sentenced to prison. Availability of health care professionals and the lack of privacy while in prison could also be beneficial in the case of someone being suicidal or extremely distressed. They would have someone to turn to if needed and they would have fewer opportunities for harming themselves.

Importantly, research suggests that incarcerated women want treatment for their difficulties. One study found that the majority of female inmates reported they would like to receive psychological treatment and that most of them report greater access to that type of treatment while in prison compared to in the community (Blitz, Wolff, & Paap, 2006). Out of 908 incarcerated women, 56% reported that they needed behavioral health treatment prior to incarceration but 30-45% did not receive it (percentage varied by type of mental health service needed). A major barrier identified was lack of health insurance. While in prison more than 80% of the women who identified that they needed mental health treatment received it. The rates were lower for receiving substance use treatment (45% who needed it did not receive it).

Based on the potential pros and cons of implementing ESTs in prison settings, and the limited research on trauma treatments among incarcerated women, several considerations are

suggested. In general it might be beneficial to implement treatments in a group setting. The potential benefits of group treatments outlined by Sloan and colleagues (2012) might play a greater role in certain settings and populations. Female prisoners share many common characteristics including low socioeconomic status (SES), social isolation, single parenthood, high trauma exposure, and a range of health issues (e.g., Bloom et al., 2004; Haywood et al., 2000; Lewis, 2006). They are also experiencing imprisonment together and can potentially relate to one another through these shared experiences. By implementing the treatment in a group, participants are able to relate to each other's similarities and shared experiences as well as learn from each other's differences.

Incarcerated women might also benefit from a group treatment that does not require between session work since they have limited privacy and autonomy. Keeping homework assignments confidential and out of sight from staff and other prisoners may prove difficult and time to complete homework assignments may be limited. Even if time is not an issue, privacy may be difficult. Since homework assignments often involve some form of exposure (e.g., writing or listening to their traumatic stories), participants are likely to have emotional and physical reactions to completing the homework. It may be stressful and even counterproductive for incarcerated women to complete these homework assignments if they are concerned about not being able to be alone to process and regulate their reactions.

It may also be beneficial to implement a brief treatment protocol. This would allow for more women to participate in the group during a shorter period of time. It may also reduce the attrition rates affected by release dates and transfers to other facilities. More women might be able to complete the group if the number of sessions was reduced. This is an important consideration as previously evaluated trauma treatments for incarcerated women have included

12-28 sessions (i.e., 24 – 48 hours) plus booster sessions (Bradley & Follingstad, 2003; Cole et al., 2007; Kubiak et al., 2012; Lynch et al., 2012; Paquin et al., 2013; Roe-Sepowitz et al., 2014; Wolff et al., 2012; Zlotnick et al., 2003, 2009). The exception is Ford and colleagues (2013) who implemented a 12 75-minute treatment (15 hours).

Altogether, future efficacy studies of trauma-focused treatments with incarcerated women may benefit from considering using a group format. As suggested by Sloan and colleagues (2012), group treatments may be beneficial for participants because the group format has the potential to decrease isolation and increase a sense of belonging, increase trust and a sense of safety, and normalizing symptoms and experiences. Group treatments may also reduce costs. Implementing treatments in a group format might be especially beneficial in prison settings. Incarcerated women represent a “captive audience” (Mullings et al., 2003, p. 459) with high rates of sexual victimization and mental health issues. When asked, incarcerated women also say that they would like to receive treatment (Blitz et al., 2006). Incarcerated women may benefit from being able to share their experiences with other incarcerated women in a group to increase their sense of belonging, trust, and safety in addition to normalizing their experiences. They may never have had the chance to share their trauma experiences with other women who struggle with similar issues. Trauma-focused treatments in women’s correctional facilities could benefit from eliminating between-session work due to limited privacy and autonomy while in prison. Lastly, a brief treatment may be beneficial in a prison setting to limit attrition and increase the number of women who can participate in the group.

I. SUMMARY AND RATIONALE FOR CURRENT STUDY

Women are disproportionately at risk for being sexually victimized at some point in their lives. Compared to men, they are at higher risk for both CSA and ASA (Black et al., 2011; Elliott

et al., 2004; Pereda et al., 2011), which have been associated to a range of physical and mental health issues (Chen et al., 2010; Hillberg et al., 2011; Irish et al., 2010; Maniglio, 2009).

Incarcerated women have been, at large, an ignored group within this area of research despite the high rates of sexual victimization and mental health issues reported by female prisoners.

Research findings show that incarcerated women have higher rates of sexual victimization and mental illness than the average woman (Jordan et al., 1996; Severson et al., 2005; Teplin et al., 1996; Tusher & Cook, 2010) and than incarcerated men (Blitz et al., 2005; Clark et al., 2012; Cloyes et al., 2010; Langan & Pelissier, 2001; McClellan et al., 1997; Trestman et al., 2007; Wolff et al., 2009). Incarcerated women are a high-risk population for a range of interpersonal trauma and health issues, and they are in great need of treatment that can target these issues.

Although researchers have suggested a complex interplay among sexual victimization, mental health, and imprisonment, sexual victimization is oftentimes framed as a pathway to prison for women (Belknap, 2007; Bloom et al., 2004; Browne et al., 1999, Cole et al., 2007; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006). Browne and colleagues (1999) suggest a complicated interaction among factors such as sexual victimization, substance use, prostitution, violent relationships, and imprisonment for incarcerated women. Although these interactions are complex and multi-directional, several researchers suggest that sexual victimization precedes the other variables and increases women's risk for imprisonment (e.g., Belknap, 2007; Bloom et al., 2004; Browne et al., 1999; Cole et al., 2007; Grella et al., 2005; Jordan et al., 1996; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006). Mental illness has received less focus in the relation between sexual victimization and imprisonment (cf. Jordan et al., 1996; Salisbury & Van Voorhis, 2009). Mental illness is likely to moderate or mediate the relation between sexual victimization and imprisonment.

Most treatment programs in prisons have been developed based on men's needs. Although, men are imprisoned at higher rates than women (Carson & Golinelli, 2013), the number of female prisoners is increasing at a faster pace than the number of male prisoners (Frost et al., 2006). There is also substantial evidence suggesting that incarcerated women's treatment needs are different from men's. Most of this research has focused on substance use treatments (see Lewis, 2006 for review). These gender differences, in addition to the disproportionately high rates of sexual victimization among female prisoners, have resulted in several researchers suggesting a need for gender specific treatments in prisons (Blackburn et al., 2008; Bloom et al., 2004; Grella, 2008; Lewis, 2006; Mullings et al., 2003; van Wormer & Kaplan, 2006). One gender specific treatment need is the development, implementation, and evaluation of trauma-focused treatments (Blackburn et al., 2008; Browne et al., 1999; Jordan et al., 1996; van Wormer & Kaplan, 2006; Wolff et al., 2010, 2011).

Researchers have implemented trauma-focused treatments among incarcerated women (Bradley & Follingstad, 2003; Cole et al., 2007; Ford et al., 2013; Kubiak et al., 2012; Lynch et al., 2012; Paquin et al., 2013; Roe-Sepowitz et al., 2014; Wolff et al., 2012; Zlotnick et al., 2003, 2009), with mixed results and several limitations. Most of the treatments are resource-intensive (cf. Ford et al., 2013) and lack an exposure component (cf. Bradley & Follingstad, 2003; Cole et al., 2007), despite research supporting exposure's efficacy (Foa et al., 2007). In general, more research is needed to determine the types of treatments from which incarcerated women can benefit.

Based on established ESTs for PTSD and the potential uniqueness of the prison setting, several suggestions have been made for future development and implementation of trauma-focused treatments among incarcerated women. Correctional facilities provide an opportunity for

mental health professionals to intervene with a largely ignored population who report high rates of interpersonal trauma and associated complications. By targeting incarcerated women's sexual victimization, a pathway to prison for women, their functioning can be improved. Their improved functioning might have a lasting effect on themselves as well as others (e.g., their families and children, the community). Incarcerated women could benefit from a treatment that is brief and implemented in a group setting. They may not be able to complete between-session assignments due to insufficient privacy and autonomy while in prison. This study evaluated the efficacy of a brief (eight sessions) sexual trauma group treatment developed for incarcerated women. Preliminary findings from 14 participants showed positive treatment outcomes (Karlsson, Bridges, Bell, & Petretic, in press), but the sample size was small and therefore generalizability was limited. This study will expand on these findings by including a larger sample of incarcerated women.

J. HYPOTHESES

For the current study, it was predicted that participants would report significant declines in PTSD, depressive, and anxiety/worry symptoms from pre- to post-treatment. It was also predicted that they would report significant decreases in maladaptive trauma-related cognitions from pre-to post-treatment.

II. METHOD

A. PARTICIPANTS

Research participants were a subset of incarcerated women who attended a voluntary 8-session weekly therapy group focused on sexual trauma (refer to Table 1 for a session by session outline of the treatment content). Data was collected from eight separate groups. Each group consisted of 8-12 women and two group leaders/therapists. A total of 76 participants attended at

least one session. Importantly, this number includes 10 women who repeated the group at least once (one woman repeated the group twice so there were nine repeaters in total). Excluding the repeaters, 66 women participated in the group treatment. Seven of the 66 women were not approached about the research study. Majority of these ($n = 5$) were from group 1 as the first group started before the research study was approved (i.e., no pre-treatment data from group 1). The other two participants attended at least one session but they were absent during the pre-treatment assessment and they, for unknown reasons, did not complete the group, and, therefore, were also absent from the post-treatment assessment. One participant did not consent to the study, which leads to a total of 58 incarcerated women who participated in at least one session, consented to the study, and completed the pre-and/or post-treatment assessment. Refer to Table 2 for an overview of number of participants in each group, number of repeaters, and number of completers and non-completers. Treatment completers are defined as participants who attended at least five sessions including at least one of the first two sessions, at least one session in which they shared their sexual trauma memories, at least two sessions of listening to other participants sharing their memories, and completed the pre-and/or post-treatment assessment. A subset of the treatment completers completed both pre-and post-treatment assessments ($n = 34$).

The participants are incarcerated at a minimum-security community correctional facility for non-violent felonies. Most of the women have been charged with felonies related to using or selling illegal substances and/or money fraud. The maximum stay in the facility is two years; most women are incarcerated for 10-15 months. Some residents have longer prison sentences and serve the remainder of their sentence in a different facility. The community facility has a maximum of 100 female residents. The residents have access to a range of programs while in prison including abstinence focused substance use treatment (e.g., Alcohol Anonymous, AA).

The therapy group is implemented in the evenings when volunteer based groups are allowed in the correctional facility. During the duration of this study, the group was implemented on Monday evenings and was co-occurring with other non-therapy groups led by volunteers. There was typically at least one faith-based group in addition to at least one more non-faith based group.

B. MEASURES

The following measures were selected to assess for PTSD and other common trauma symptoms (i.e., depression and anxiety/worry) and cognitions that are expected to change from pre-to post-treatment (Primary Care PTSD screen, PC-PTSD; Prins et al., 2003; Patient Health Questionnaire, PHQ-9; Kroenke et al., 2001; 2-item Generalized Anxiety Disorder scale, GAD-2; Kroenke, Spitzer, & Williams, 2007; Posttraumatic Cognitions Inventory, PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). The measures were also selected based on good reliability and validity. In addition to considering the psychometrics of the measures, brevity and level of reading difficulty were a priority in selecting measures because of limited available time for participants to complete measures in this setting and potentially low literacy rates of this sample.

Treatment alliance was assessed in addition to the trauma symptoms and cognitions (Group Climate Questionnaire Short Form, GCQ-S; MacKenzie, 1983). Since few studies have evaluated the efficacy of group trauma treatments implemented in correctional facilities, treatment alliance was measured to assess for participants' perception of the relationship between themselves and other group members as well as between themselves and the group leaders/therapists.

Trauma histories were not formerly assessed in self-reports due to time constraints in completing pre-and post- assessments. This decision was also based on previous studies

showing high rates of interpersonal trauma among incarcerated women, specifically sexual trauma (Clark et al., 2012; Langan & Pelissier, 2001; McClellan et al., 1997; Severson et al., 2005; Tusher & Cook, 2010; Wolff et al., 2009). All participants disclosed at least one of their sexual traumas during treatment.

PTSD

Participants' PTSD symptoms were assessed using the Primary Care PTSD screen (PC-PTSD; Prins et al., 2003). This measure was developed to detect PTSD in medical settings, and requires an eight grade reading level. It is a four-item measure assessing re-experiencing, numbing, avoidance, and hyperarousal symptoms. Answer options are dichotomous (yes or no). The total score ranges between 0 and 4, with a higher score indicating more symptoms. Participants are asked to report on their symptoms in the past month. Responding "yes" to three of the four items indicates a positive screen for PTSD.

The PC-PTSD was validated in a veterans affairs (VA) primary care setting (Prins et al., 2003) and has mainly been used with military samples (Bliese et al., 2008; Calhoun et al., 2010). However, it has also been used in civilian primary care settings (Freedy et al., 2010). Studies have shown good reliability and validity (Prins et al., 2003). Prins and colleagues (2003) identified a clinical cutoff score of 3 with 78% sensitivity and 87% specificity (70% and 81% respectively for female participants) when comparing it to the CAPS (Blake et al., 1995). Other researchers have found similar results (Bliese et al., 2008; Calhoun et al., 2010; Freedy et al., 2010). The avoidance question (item 2) has been found to discriminate between individuals with moderate versus elevated PTSD levels (Bliese et al., 2008). This item alone had a sensitivity of .80 and specificity of .84. The PC-PTSD is comparable to the PCL-C in terms of ability to accurately diagnose PTSD (e.g., specificity and sensitivity; Bliese et al., 2008; Freedy et al.,

2010). Freedy and colleagues (2010) compared four PTSD measures (i.e., PC-PTSD; Prins et al., 2003; PTSD Checklist Civilian Version, PCL-C; Weathers et al., 1993; SPAN; Davidson, 2002; and Breslau's scale; Breslau et al., 1999) and concluded that the "PC-PTSD was the best single PTSD screening test for use in civilian primary care [based on] brevity, equivalency to the longer PCL-C in terms of diagnostic efficiency, sensitivity and specificity, and >80% correct classification" (p. 621).

Depression

Depression symptoms were assessed using the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). This is a 9-item measure asking about DSM-IV symptoms of depression as well as level of impairment. Participants are asked about their symptoms in the past two weeks using answer options ranging from 0 (*Not at all*) to 3 (*Nearly every day*). Items are summed to a total score, with a higher score indicating greater depression. Additionally, a symptom count score is calculated by dummy coding the items as present (1) or absent (0). Symptoms are considered present if the participant endorsed items 1-8 at 2 (*More than half the days*) or 3 (*Nearly every day*). Item 9 is considered present if endorsed as 1 (*Several days*) or higher. The symptom count score ranges from no symptoms to a maximum of nine symptoms.

Kroenke and colleagues (2001) provided evidence for good reliability and validity. They also identified a cutoff score of 10 that indicated 88% sensitivity and specificity for a diagnosis of major depressive disorder. Moreover, they identified cutoff scores for mild (5), moderate (10), moderately severe (15), and severe (20) depression. Other studies have also reported good reliability and validity for the PHQ-9 (Lowe, Unutzer, Callahan, Perkins, & Kroenke, 2004; Merz, Malcarne, Roesch, Riley, & Sadler, 2011; Spitzer et al., 1999; Wittkampf et al., 2009;

Zuithoff et al., 2010). The Cronbach's alpha coefficients from the current study were .84 at the pre-treatment assessment and .86 at the post-treatment assessments.

Several studies have included the PHQ-9 as a treatment outcome measure. Lowe and colleagues (2004) concluded that the PHQ-9 "can be used to establish depression diagnoses, depression severity, and depression outcome" (p. 1199). Cigrang and colleagues (2011) modified Foa and colleagues' PE (Foa et al., 2007; Foa & Rothbaum, 1998) for primary care VA patients with PTSD. They modified the treatment to 4-6 30-minute sessions with a primary care psychologist in addition to completing written narratives about the trauma between sessions. They found significant decreases in PTSD and depressive symptoms (as measured by the PHQ-9) from baseline to the one-month follow-up assessment. Another PTSD treatment outcome study randomly assigned 44 participants to an online CBT treatment for PTSD (n = 23) or a control group (n = 21; Spence et al., 2011). The online CBT treatment consisted of seven lessons with homework assignments. Eighty-one percent of participants were women and 57% were victims of sexual assault. The treatment group reported significant reductions in PTSD and depressive symptoms (as measured by the PHQ) compared to the control group (effect sizes were large). The reductions were maintained during the 3-month follow-up period. The group leader/therapist spend on average 104 minutes per participant.

Anxiety

Participants' anxiety symptoms were assessed using the 2-item Generalized Anxiety Disorder scale (GAD-2), a shorter version of the original 7-item scale (GAD-7; Spitzer, Kroenke, & Williams, 2006). The GAD-7 was developed to detect GAD in primary care settings. Participants report on their symptoms in the past two weeks. The first item addresses anxiety while the second question addresses worry. The answer options ranges from 0 (*Not at all*) to 3

(*Nearly every day*). A total score is created by summing the two items together, so that a higher score indicates greater frequency of anxiety and worry.

Spitzer and colleagues (2006) reported good reliability and validity for the GAD-7. Kroenke et al. (2007) have also shown high sensitivity and specificity for the GAD-2, using a cutoff score of 3. The highest sensitivity (.86) and specificity (.83) was found for GAD (in comparisons to Panic Disorder, .76 and .81; Social Phobia, .70 and .81; and PTSD, .59 and .81). In the current study, the correlation coefficients between the GAD-2 items were .72 for the pre-treatment assessment and .47 for the post-treatment assessment.

Trauma Cognitions

The Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) was used to assess for trauma-related cognitions. This is a 36-item measure with three subscales (negative cognitions about self, negative cognitions about the world, and self-blame). The answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*). Mean scores are calculated for the three subscales and all items are summed for a total score. Higher scores indicate more maladaptive trauma-related cognitions.

Foa and colleagues (1999) provided evidence of good reliability and validity in a sample of sexual assault victims. In the current study, the Cronbach's alpha coefficients at pre-and post-treatment respectively were .95 and .98 for the negative cognitions about self subscale, .83 and .87 for the negative cognitions about the world subscale, and .84 and .87 for the self-blame subscale.

Other studies have also shown evidence of good reliability and validity (Beck et al., 2004; Blain, Galovski, Elwood, & Meriac, 2012; Daie-Gabai, Aderka, Allon-Schindel, Foa, & Gilboa-Schechtman, 2011; Karl, Rabe, Zollner, Maercker, & Stopa, 2009; Startup,

Makgekgenene, & Webster, 2007), and support for the three-factor structure (excluding four items from negative cognitions about self subscale; Beck et al., 2004; Daie-Gabai et al., 2011). However, there have been some inconsistencies, especially in regards to the self-blame subscale. In a sample of survivors of motor vehicle accidents (MVAs), Beck and colleagues' (2004) results showed good reliability (i.e., internal consistency) and validity (i.e., concurrent, discriminant, and discriminative) for two of the subscales (i.e., negative cognitions about self and the world) but low concurrent and discriminative validity for the self-blame subscale. The self-blame subscale was not significantly associated with PTSD symptoms and did not discriminate between those with and without PTSD. Other researchers have also reported no association between the self-blame subscale and PTSD symptoms/ diagnosis in samples of sexual assault victims (Blain et al., 2012) and CSA and MVA survivors (Cieslak, Benight, & Lehman, 2008). Startup and colleagues (2007) found a negative association between the self-blame subscale and PTSD diagnosis/symptoms in a sample of traumatized community members. Some studies have found a significant association between the self-blame subscale and PTSD symptoms (Daie-Gabai et al., 2011; Moser, Hajcak, Simons, & Foa, 2007).

Moreover, Blain and colleagues (2012) found that the three PTCI subscales predicted different PTSD symptom clusters (measured by the CAPS; Blake et al., 1995; and the Posttraumatic Diagnostic Scale, PDS; Foa, Cashman, Jaycox, & Perry, 1997) in their sample of sexual assault victims. Using structural equation models (SEMs), Blain and colleagues (2012) found that the negative cognitions of self predicted re-experiencing symptoms while the negative cognitions about the world predicted avoidance and hyperarousal symptoms. Both the negative cognitions about self and the self-blame subscales predicted numbing symptoms. Numbing

symptoms were positively associated with negative cognitions about the self but negatively associated with self-blame.

Several studies have found that the negative cognitions about self-subscale is the best predictor of PTSD symptom severity and symptom change. Negative cognitions about self before the trauma predicted PTSD symptom severity four years later in a sample of fire fighters (Bryant & Guthrie, 2007). Other researchers have found that the negative cognitions about self had the highest correlation with PTSD and depression symptoms (Daie-Gabai et al., 2011; Moser et al., 2007). Karl and colleagues (2009) found that the self-subscale predicted PTSD severity even after controlling for depressive symptoms. One study found that women reported significantly higher scores on this subscale compared to men; however, men's scores on the self-subscale had a stronger association with PTSD severity (Daie-Gabai et al., 2011).

Decreases in PTCI scores have been associated with treatment related reductions in PTSD and depressive symptoms, which were maintained during the follow-up period after completing the treatment (Foa & Rauch, 2004). Importantly, changes in scores on the negative thoughts about self-subscale were the only subscale scores that accounted for reductions in PTSD symptoms. This has been supported by other studies (Karl et al., 2009). In Foa and Rauch's (2004) study changes in negative thoughts about the world was also significantly associated with reductions in PTSD symptoms, but this association became non-significant when including the negative thoughts about self subscale. The self-blame subscale was not predictive of reductions in PTSD symptoms.

Group Alliance

MacKenzie's (1983) Group Climate Questionnaire Short Form (GCQ-S) was used to address the group alliance. This is a 12-item measure with answer options ranging from 0 (*Not at*

all) to 6 (*Extremely*). The measure has three subscales: Engaged, Conflict, and Avoiding. The GCQ-S is one of the most frequently used group alliance measure among researchers and studies have shown good reliability (e.g., Kivlighan & Goldfine, 1991). Studies have also shown that the Engaged subscale positively predicts treatment outcomes (e.g., Braaten 1989). In the current study the Cronbach's alpha coefficients were .20 and .26 for the Engaged (items 1, 2, 4, 8, and 11) and Avoiding subscales (items 3, 5, 7, and 9). The correlation coefficient for the two items (6 and 10) comprising the Conflict subscale was .21.

C. PROCEDURE

This project was initiated while the researcher, a doctoral clinical psychology student, completed her part-time clinical externship at Peace at Home Family Shelter, which is a domestic violence shelter located in the Northwest area of Arkansas. Results from focus groups with female domestic violence victims at the shelter indicated that there was a great need for therapy groups focusing on sexual trauma. After several failed attempts to start the sexual trauma group at the shelter (e.g., not enough individuals committed to attending weekly sessions), it was decided to implement the group at a local correctional facility for women. Peace at Home Family Shelter staff had led domestic violence support groups at the women's correctional facility in the past and expressed interest in supporting the researcher in implementing the sexual trauma group at the prison. The current group was designed and implemented by the researcher at the correctional facility starting in January of 2012. Initially, the main focus was to provide treatment to this underserved and highly traumatized population. Shortly after initiating the treatment, approval to evaluate pre-to post-treatment outcomes was received from the Institutional Review Board at the University of Arkansas as well as from Arkansas Community

Corrections. Participation in the group was not contingent upon participating in the research study.

Participants were recruited for the treatment group in the following way. During a mandatory morning or evening meeting of residents at the correctional facility, one of the treatment group leaders (the researcher) announced the start date for the group. This announcement occurred approximately one week before the group start date. The group leader described the group structure (e.g., meet every week for eight weeks, 1.5 hours long sessions, closed group) and stated that this group was for women who have been victims of sexual trauma, abuse, or violence. The group leader provided behavioral specific examples of sexual abuse, violence, and trauma (e.g., being touched when they did not want to, being threatened if they did not have sex, or being gang raped). The group leader also stated that the group was for women who experienced some difficulties because of their sexual trauma. Examples provided were difficulties associated with trust, anger, or sadness. The group was described as a process group in which the women would talk about their trauma and receive help processing their reactions as well as learning adaptive coping strategies and sexual behaviors.

Residents who had an interest in participating in the group were encouraged to inform staff members, most often the treatment coordinator or counselors at the facility. The treatment coordinator then informed the group leaders of the number of women to expect for each group, with the maximum number of 10. Although the maximum number was intended to be 10, two groups exceeded that number. The treatment coordinator also informed the residents whether they were going to participate in the current group or be placed on the waitlist for the following group. Women who had not participated in the group were prioritized as well as women who had earlier release dates. Otherwise, the treatment coordinator decided who should be prioritized. If

fewer than 10 women wanted to participant in the group, former group participants had the opportunity of repeating the treatment program. The first woman repeating the treatment group was in group number 4. There were no investigator exclusion criteria for participating in the group. Staff at the correctional facility screen the residents for mental illness and send them to a different correctional facility if they meet criteria for severe mental illness and cannot function in their program (e.g., they can stay at the facility if they can be stabilized on medications etc.). Therefore, the researcher did not have any additional exclusion criteria for the group treatment.

During the first group meeting, information about the study was presented to the women. Following brief introductions, confidentiality, and group norm discussions, the group leaders informed the participants about the purpose and nature of the research study. After providing written consent, interested women were invited to complete a packet of questionnaires (PC-PTSD, Prins et al., 2003; PHQ-9, Kroenke et al., 2001; GAD-2, Spitzer et al., 2006; PTCI; Foa et al., 1999). In addition to initial consent, participants were given the option of withdrawing their consent to the research study once they had completed the pre-treatment questionnaires. Pre-treatment data were not collected for group 1 because the research study had not been approved yet.

Post-treatment data, which include responses to all of the pretreatment questionnaires as well as the GCQ-S (MacKenzie, 1983), were collected at the end of the last session. Again, participants were given the opportunity to decline participation in the research study before and after completing the measures. The researcher provided the treatment participants with several opportunities to decline participating in the research study as an attempt to increase their sense of control in a setting (e.g., the prison) in which they typically have less control. The data for the

current project were from eight groups. The first group started on January 16th, 2012, and the eighth group ended on August 26th, 2013.

In January 2013, the research project was expanded to include a 3-6-month follow-up assessment using the same measures as for the pre-treatment assessment (e.g., all measures except for group alliance). The goal was to assess participants three months after completing the treatment program, with the possibility of assessing them in the time frame of 3 to 6 months after completing treatment.

D. TREATMENT

Each group consisted of eight weekly 1.5-hour sessions with 8-12 female residents and two female group leaders/therapists. The group was developed and implemented by the researcher who is a clinical psychology doctoral student. The co-therapist for the first three groups was a licensed clinical social worker. The remaining groups were co-led by one other clinical psychology doctoral student. The group leaders were supervised by a licensed clinical psychologist. The groups were conducted at a minimum-security community correctional facility for women. Refer to Table 1 for an overview of the treatment content session by session.

The group treatment was mainly an exposure-based treatment. The group format and structure were based on Foa and colleagues' PE therapy (Foa, et al., 2007; Foa & Rothbaum, 1998), with a focus on imaginal exposure. Common victimization themes were also included in the treatment. These themes (e.g., safety, trust, power and control, esteem, and intimacy) were based on McCann, Sakheim, and Abrahamson's (1988) work and are also used in CPT (Resick & Schnicke, 1992, 1993). The current group aimed at providing a safe environment for women to discuss and process their sexual trauma memories.

Although the overall structure and content of the group remained the same, some procedural changes were implemented. For instance, participants decided their own group norms and rules for confidentiality. These norms and rules were largely the same across the eight groups. For example, if someone would breach confidentiality participants decided that the individual would be excluded from the group and disciplinary actions would be put in place (e.g., group leaders would inform the treatment coordinator at facility who would inform the Sergeant in charge of disciplinary actions). In terms of group norms, all the groups agreed to create a non-judgmental and supportive atmosphere (e.g., listen to each other, ask permission before one provides feedback or suggestions).

However, there were also some differences among the groups. Most of the differences were as a result of situations that arose during treatment. When issues arose in the group, the participants decided how to proceed with guidance from the group leaders. Some of these issues were unexpected and/or specific to the current group. One example was a participant who returned to the group after being absent for several sessions. The group decided to let her continue in the group and the participant decided that she would like to continue. Another example was a participant who walked out of the room while someone else was processing her trauma (e.g., in the middle of an exposure). Again, the group decided how they wanted to handle the situation at the time and in the future. The above-mentioned issues that arose in different groups seemed relevant for future groups and were therefore addressed by the group leaders in the groups that followed. However, other issues were more specific to the group at hand and were therefore not discussed with other groups. One example was interpersonal conflicts or disagreements between two or more participants. These conflicts and disagreements may have

originated before participants were incarcerated or while they were incarcerated, but they were unrelated to the group content and process.

The treatment structure and content remained the same across groups. The first session consisted of introductions and discussion of the structure of the group. A session outline was provided to the participants (e.g., topics covered each session) and confidentiality and group norms were discussed. Group structure and expectations were also discussed. Next, interested participants were provided with time to complete pre-treatment measures. Following the pre-treatment assessment, participants were asked to define sexual violence, abuse, and trauma. Psychoeducation followed about common sexual abuse and trauma reactions (e.g., physical and mental health outcomes). Participants were provided handouts about sexual abuse statistics as well as physical and mental health outcomes. The first session typically exceeded 1.5 hours due to the time needed to complete the pre-treatment assessments (e.g., 10-15 minutes).

Starting with the second group, 1-2 participants from the most recently completed group were encouraged to come and discuss their experiences with the new group in the beginning of the first session. Previous participants shared their thoughts and emotions prior to starting the group as well as how they experienced being part of the group. Current group participants were encouraged to ask questions. Confidentiality was emphasized (e.g., neither past or current participants could talk about anything they have seen or heard in the group).

The second session was dedicated to psychoeducation about the role of avoidance and the rationale for exposure therapy (i.e., why they would need to talk about their sexual traumas). This was mainly based on the rationale behind Foa and colleagues' PE therapy (Foa, et al., 2007; Foa & Rothbaum, 1998), which is based on emotional processing theory (Foa & Kozak, 1986). During the second session, participants were also provided handouts about coping skills, which

were followed by a discussion on how to cope with reactions in session as well as between sessions. Throughout the treatment, group leaders and participants shared ideas for coping strategies (e.g., breathing and grounding exercises) and metaphors were provided to help participants stay regulated (e.g., emotions are like waves; Linehan, 1993; exposure therapy is like a wound that needs to be cleaned or a file cabinet that needs to be organized; Foa, et al., 2007; Foa & Rothbaum, 1998). Participants who were not able to attend at least one of the first two sessions were asked to stay on the waitlist for the next group.

Sessions 3 and 4 were primarily focused on exposure therapy (e.g., imaginal exposure; Foa, et al., 2007; Foa & Rothbaum, 1998). Participants described details about one or more of their most distressing sexual trauma memories. One participant shared at a time and the group leaders helped that participant process her emotions, thoughts, and reactions to the trauma. The focus was on facilitating the emotional processing of the trauma to reduce PTSD and other trauma-related symptoms and thought patterns (Foa, et al., 2007; Foa & Rothbaum, 1998). Once someone had processed their trauma, the group leaders checked in with all participants before encouraging another person to share her trauma memory. Group participants were also encouraged to provide feedback for the person who shared (e.g., commenting on the person's strength or abilities, thanking the person for sharing, discussing triggers and/or commonalities between stories, and suggestions for continuing recovery and healing from the trauma). One to three participants processed their sexual trauma memories during one exposure session. Each participant shared once during the duration of the treatment.

Participants continued to share about their sexual trauma during sessions 5-7. However, common beliefs or themes that emerge following trauma (e.g., difficulties with safety and trust, issues of power and control, and impacts on self-esteem and intimacy; McCann et al., 1988) were

also interspersed. Other themes that arose among the group participants were also discussed (e.g., how to recognize symptoms of sexual abuse in children, how to talk to children about sexual boundaries, domestic violence, and risk factors for mental illnesses). These additional themes were at large similar across the groups, although there were some differences. For instance, one group learned more about dissociation and its relation to trauma because several participants reported current and past experiences with dissociative symptoms.

The last session focused on increasing coping strategies and self-care as well as defining healthy sexual relationships. These topics were often intermixed throughout prior sessions. The last session was also dedicated to discussing what the participants had learned from the group, what issues they would continue working on, and additional resources that they might benefit from accessing. Participants were provided with handouts about resources in the community, how to find a therapist, and information about coping and healthy relationships. All women were provided with paper certificates for completing treatment. Finally, participants were invited to complete post-treatment measures.

E. ANALYTIC APPROACH

Paired samples t-tests were used to determine changes from pre-to post-treatment. Pre-treatment levels of PTSD, depressive, and anxiety/worry symptoms were compared to post-treatment levels. The same analyses were completed for trauma-related cognitions at pre-treatment (total score and mean scores for the three subscales) compared to post-treatment. Eta squared was used to determine the effect sizes for the paired samples t-tests. Small effect size is .01, medium is .06, and large is .14 (Cohen, 1988).

Moreover, Jacobson and Truax's (1991) reliable change index (RCI) was used to determine the amount of change in participants' depressive and anxiety/worry symptoms from

pre-to post-treatment. The reliable change index is calculated by subtracting the pre-treatment score from the post-treatment score and divide it by the standard error of difference ($RC = (x_2 - x_1)/S_{diff}$). The standard error of difference is calculated using the standard error ($S_{diff} = \sqrt{2*(S_E)^2}$), which is based on the standard deviation at pre-treatment and the test-retest reliability coefficient for the measure of interest ($S_E = s_1*\sqrt{(1 - r_{xx})}$). The standard deviations at pre-treatment from the current study were used to calculate RCI values for the PHQ-9 ($SD = 5.93$) and the GAD-2 ($SD = 1.79$). Additionally, the test-retest reliability coefficients used for the RCI calculations were from Kroenke and colleagues' (2001) study (PHQ-9; $r = .84$) and from Garcia-Campayo and colleagues' (2012) study (GAD-2; $r = .74$). Although test-retest reliability coefficients could have been calculated from the current study by correlating pre-and post-treatment scores on the PHQ-9 and the GAD-2, this would have been problematic because the treatment program implemented in this study was expected to reduce participants' symptoms from pre-to post-treatment. Therefore, test-retest reliability coefficients from the current study would not reflect their intended purpose. An RCI above 1.96 is considered clinically and statistically meaningful and suggests that "it is unlikely that the posttest score is not reflecting real change" (Jacobson & Truax, 1991, p.14).

For the pre-to post-treatment analyses, treatment outcomes from participants who completed more than eight sessions (e.g., more than one group) were limited to the first time they participated. Moreover, participants who completed the treatment were compared to those who did not in terms of pre-treatment symptom levels (PTSD, depression, anxiety/worry, and maladaptive cognitions) and demographics (e.g., age, ethnicity, number of children, previous therapy experiences). Independent t-tests and chi square tests were utilized to compare completers to non-completers as well as comparing participants who completed pre-and post-

treatment assessments to those who completed the treatment program but only completed one of the assessment time points. Treatment alliance was measured as well. Participants' scores on the three subscales (Engaged, Conflict, and Avoiding) at post-treatment were compared using paired samples t-tests.

Moreover, some secondary analyses were conducted as well. One-way repeated measures analysis of variance (ANOVA) were used to analyze changes in PTSD, depressive, and anxiety/worry symptoms as well as trauma-related cognitions during treatment and until the follow-up assessment (i.e., three time points; pre-treatment, post-treatment, and the 3-6 month follow-up assessment). One-way repeated measures ANOVAs were also used to analyze the effect of time for participants who completed two groups. Changes in PTSD, depressive, and anxiety/worry symptoms as well as trauma-related cognitions were assessed over four time points (i.e., pre-and post-treatment of first group and second group). Effect sizes were determined using partial eta squared. Small effect size is .01, medium is .06, and large is .14 (Cohen, 1988).

Lastly, comparisons were made between group leaders and treatment outcomes. Treatment outcomes from the first three groups were compared to treatment outcomes from the other groups to test for potential impact from using different group leaders. Independent t-tests were used to compare pre-to post-treatment outcomes from groups 1-3 to groups 4 and beyond. Change scores were used as the dependent variable (e.g., changes in PTSD, depression, anxiety/worry, and trauma-related cognitions from pre- to post-treatment). Change scores were calculated by subtracting each participant's post-treatment sum score from her pre-treatment sum score. A positive change score indicates a decrease in symptoms or symptom severity from pre-

to post-treatment while a negative change score indicate an increase in symptoms or symptom severity. Mean scores were used to calculate change scores for the PTCI subscales.

F. POWER ANALYSIS

A priori power analysis was conducted using G* Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007). Expecting at least a medium effect size (Cohen's $d = 0.5$) and power of 0.8 (t-test: difference between two dependent means; α - level 0.05; two tails), it was recommended to use 44 participants.

III. RESULTS

A. PARTICIPANTS

Table 3 describes basic demographics of the 58 women who consented to the research study. Data from women who repeated the group ($n = 9$) is only from the first time they participated in the study. Participants were between 21 and 61 years old, with a fairly equal distribution between ages 21 and 44. Two participants were substantially older (58 and 61 years old respectively). Majority of participants were mothers of at least one child ($n = 56, 89.7\%$), with a maximum of six children. Almost all participants self-identified as Caucasian ($n = 53, 91.4\%$). Two self-identified as African American, one of which also identified as Latina. Data about ethnicity is missing for the remaining three participants. Approximately 40% reported that they are divorced, 25% married, and 20% single. Seventy percent of the sample reported that they have been in therapy previously. Most frequent experience was with individual therapy, and 38% ($n = 22$) of participants reported only experiencing individual therapy. Sixteen women (27.6%) had experience with more than one type of therapy. The "other" category included receiving treatment from a local rape crisis center ($n = 2$) or a substance use program ($n = 2$).

Table 3 also compares demographics for the women who completed the group ($n = 46$) to those who did not ($n = 12$). Completers were significantly older and had more children than the non-completers. There were no other significant differences based on demographics between the completers and non-completers. Refer to Table 4 for comparison between completers and non-completers on symptom levels at pre-treatment. Non-completers were significantly more depressed at pre-treatment than the completers. The non-completers reported experiencing a significantly higher frequency of depressive symptoms (total sum) as well as a significantly higher number of symptoms ($p < .05$). Non-completers also reported marginally significantly more self-blame at pre-treatment compared to completers ($p = .07$).

Out of the 46 women who completed the treatment, 34 provided pre-and post-treatment data, 3 pre-treatment data only, and 9 post-treatment data only (5 of these were from group 1 before the research project was approved). All participants reported their age while only 43 participants answered the other demographical variables. There were no significant differences on any of the demographical variables between the 34 completers who provided pre-and post-treatment data compared to the other 12 completers who provided pre- or post-treatment data only (Table 5). See Table 6 for means and standard deviations as well as test statistics for comparing treatment completers with pre-and post-treatment data to treatment completers with pre- treatment data only. There were no significant differences between these two groups of completers at the pre-treatment assessment. However, there were some differences at the post-treatment assessment (Table 7). Participants with post-treatment data only reported significantly more trauma-related cognitions at post-treatment than the participants with pre-and post-treatment data ($p < .05$). Completers with post-treatment data only reported significantly more negative cognitions about self ($p < .05$) and the world ($p < .01$) as well as more self-blame ($p <$

.05) than completers with pre-and post-treatment data. Interestingly, those with pre-and post-treatment data attended significantly more sessions than those with post-treatment data only ($p = .01$).

To summarize, treatment completers who provided both pre-and post-treatment data attended more sessions than treatment completers who provided the post-treatment data only. They also reported fewer maladaptive trauma-related cognitions at post-treatment compared to those with post-treatment data only. It is possible that the treatment completers with post-treatment data only had higher levels of maladaptive trauma-related cognitions already at pre-treatment. It is also possible that participants need to attend more sessions in order to target their maladaptive cognitions. At pre-treatment, there was no difference between treatment completers who provided pre-and post-treatment data to treatment completers who provided pre-treatment data only. Overall, these results suggest that there were few differences between treatment completers who provided pre-and post-treatment data to those who provided pre- or post-treatment data only.

B. PRIMARY TREATMENT OUTCOMES

Table 8 provides descriptive data for each of the measures at pre-and post-treatment for the treatment completers. Pre-to post-symptom change is determined by paired sample t-test statistics as well as RCI values (Jacobson & Truax, 1991). Table 9 shows sum scores (pre- and post-treatment), RCI values, improvement (change pre-post > critical RCI value), and recovery rates (i.e., above clinical cutoff at pre-treatment and below cutoff at post-treatment) for each participant who provided pre-and post-treatment data ($n = 34$). The following analyses focus on treatment outcomes for women who completed the treatment program ($n = 46$). However, all pre-

post assessment comparisons are from the 34 women who provided both pre-and post-treatment data.

PTSD

Using a cutoff score of 3 (Prins et al., 2003), 71.7% (n = 33) were above the screening cutoff indicating possible PTSD diagnosis at pre-treatment while 47.8% (n = 22) were above the cutoff at post-treatment. Out of the 34 women who provided pre-and post-treatment data, 88.2% (n = 30) were above the screening cutoff at pre-treatment and 44.1% (n = 15) at post-treatment. Fourteen participants (41.2%) were above the screening cutoff for possible PTSD diagnosis at pre-treatment but below at post-treatment and are therefore considered recovered (Table 9). Fifteen participants (44.1%) remained above the clinical cutoff at pre-and post-treatment (two of them reported an increase in one symptom from pre-to post). Four participants (11.8%) were below the cutoff at both time points (one reported an increase in one symptom from pre-to post). Data was missing for the last participant at post-treatment (4 symptoms at pre-treatment).

A paired-samples t-test comparing pre- ($M = 3.45$, $SD = 0.79$) and post-treatment scores ($M = 2.33$, $SD = 1.55$) for the 34 women who provided information at both time points was significant, $t(32) = 4.43$, $p < .001$, with a large effect size, $\eta^2 = .38$.

Depression

Using a cutoff score of 10 (Kroenke et al., 2001), 58.7% (n = 27) participants were above the clinical cutoff for depression at pre-treatment and 17.4% (n = 8) at post-treatment. Out of the 34 women who provided pre-and post-treatment data, 73.5% (n = 25) were above the clinical cutoff at pre-treatment and 20.6% (n = 7) at post-treatment. See Table 9 for recovery and improvement rates for the 34 women who provided pre-and post-treatment data. Fifteen participants (44.1%) improved and recovered on the PHQ-9, six participants (17.6%) improved

but did not recover, and three participants (8.8%) recovered but did not improved. The three participants who recovered but did not improved were above the clinical cutoff at pre-treatment and below at post-treatment but their symptom change was not large enough to be below the RCI value. Eight participants (23.5%) neither recovered nor improved on the PHQ-9 and two participants had missing data at one of the two time points. Importantly, all participants with pre- and post-treatment data on the PHQ-9 ($n = 32$) reported some decrease in severity of depressive symptoms from pre-to post-treatment (e.g., no participants reported an increase in symptom severity from pre-to post-treatment and no participants reported the same level of symptom severity at pre-and post-treatment).

A paired-samples t-test comparing pre- ($M = 13.34$, $SD = 5.71$) and post-treatment mean sum scores ($M = 5.22$, $SD = 4.58$) for the 34 women who provided information at both time points was significant, $t(31) = 10.98$, $p < .001$, with a large effect size, $\eta^2 = .92$. Paired-samples t-test comparing mean number of depression symptoms at pre- ($M = 4.59$, $SD = 2.66$) and post-treatment ($M = 1.19$, $SD = 1.67$) was also significant, $t(31) = 8.28$, $p < .001$, with a large effect size, $\eta^2 = .69$.

Anxiety

Using a cutoff score of 3 (Kroenke et al., 2007), 56.5% ($n = 26$) of participants were above the clinical cutoff for possible GAD diagnosis at pre-treatment and 26.1% ($n = 12$) at post-treatment. Out of the 34 women with pre-and post-treatment data, 70.6% ($n = 24$) were above the clinical cutoff at pre-treatment and 26.5% ($n = 9$) at post-treatment. Refer to Table 9 for recovery and improvement rates for the women who provided pre-and post-treatment data. Twelve participants (35.2%) improved and recovered on the GAD-2, one participant (2.9%) improved but did not recover, and five participants (14.7%) recovered but did not improve, which appears

to mainly be related to lower anxiety levels at pre-treatment. Sixteen participants (47.0%) neither recovered nor improved on the GAD-2; three of the 16 (8.8%) reported an increase in symptom severity from pre-to post-treatment.

A paired-samples t-test indicated significant declines in anxiety and worry symptoms from pre- ($M = 3.76$, $SD = 1.79$) to post-treatment ($M = 1.56$, $SD = 1.62$), $t(33) = 6.54$, $p < .001$, with a large effect size, $\eta^2 = .56$. The decreases were significant for both the anxiety item (question 1; $t(33) = 4.48$, $p < .001$, large effect size, $\eta^2 = .38$) and the worry item (question 2; $t(33) = 7.25$, $p < .001$, large effect size, $\eta^2 = .61$).

Trauma Cognitions

Refer to Table 8 for descriptive data for the following analyses. Treatment completers reported significantly more negative cognitions about the world at pre-treatment compared to the other two subscales (self: $t(36) = 10.69$, $p < .001$, large effect size, $\eta^2 = .76$; self-blame: $t(36) = 7.52$, $p < .001$, large effect size, $\eta^2 = .61$). The same pattern was found at post-treatment comparing cognitions about the world to cognitions about self ($t(42) = 9.52$, $p < .001$, large effect size, $\eta^2 = .68$) and self-blame ($t(42) = 7.23$, $p < .001$, large effect size, $\eta^2 = .55$). There was no significant difference between negative cognitions about self and self-blame at pre-treatment, $t(36) = 1.42$, $p = .16$. However, at post-treatment, participants reported significantly more self-blame compared to negative cognitions about self, $t(42) = -2.06$, $p < .05$, with a moderate effect size, $\eta^2 = .09$.

For the 34 women who provided data at both time points, a paired-sample t-test shows significant reductions in trauma-related cognitions from pre- ($M = 136.58$, $SD = 43.50$) to post-treatment ($M = 81.23$, $SD = 44.30$), $t(30) = 6.14$, $p < .001$, large effect size, $\eta^2 = .56$. There were significant changes from pre-to post-treatment in all three subscales with large effect sizes

(world: $t(33) = 6.69, p < .001, \eta^2 = .58$; self: $t(33) = 6.51, p < .001, \eta^2 = .56$; self-blame: $t(33) = 3.23, p < .01, \eta^2 = .24$).

Group Alliance

Participants who provided post-treatment data ($n = 43$) reported significantly higher levels of engagement ($M = 4.94, SD = .70$) than avoidance ($M = 1.95, SD = .94$) and conflict ($M = 0.07, SD = .23$), $t(42) = 17.68, p < .001, \eta^2 = .88$ and $t(42) = 39.56, p < .001, \eta^2 = .97$. They also reported significantly more avoidance than conflict, $t(42) = -13.03, p < .001, \eta^2 = .80$. The participants who completed pre-and post-treatment assessments ($n = 34$) had significantly higher scores on the Avoiding subscale ($M = 2.12, SD = .89$) compared to the other treatment completers with post-treatment data only ($n = 9; M = 1.30, SD = .87$), $t(41) = -2.47, p = .02, \eta^2 = .13$. There were no significant differences between the two groups of treatment completers for the other two subscales ($ps > .55$).

Zero-order correlations were used to explore possible associations between group alliance (e.g., three subscales) and treatment outcomes (e.g., post-treatment scores as well as change scores). The Engaged subscale was negatively correlated with depression sum score ($r = -.32, p = .04$) and number of depressive symptoms ($r = -.35, p = .02$) at post-treatment. The conflict subscale was positively associated with depression sum score ($r = .33, p = .03$), number of depressive symptoms ($r = .34, p = .03$), anxiety/worry sum score ($r = .39, p = .01$), and maladaptive cognitions (total sum score: $r = .40, p = .01$; negative cognitions about self: $r = .42, p < .01$; negative cognitions about the world: $r = .32, p = .03$; self-blame: $r = .46, p < .01$) at post-treatment. The correlations between the group alliance subscales and the change scores (e.g., changes in PTSD, depression, anxiety/worry, and trauma-related cognitions from pre- to post-treatment) were non-significant ($ps > .08$).

C. SECONDARY TREATMENT OUTCOMES

Follow-Up Period

Seven participants provided follow-up data from groups 5-7. No follow-up data was collected from group 8 because none of the participants were still at the facility 3 months after completing the group. One of the seven participants with follow-up data provided these data after attending two groups and was therefore excluded from these analyses. Thus, the follow-up data analyses are from 6 women (3 from group 5, 1 from group 6, and 2 from group 7). On average, these 6 participants completed the follow-up data assessment 111.33 days ($SD = 21.27$) after they completed the group treatment, with a range of 98 to 154 days. One-way repeated measures ANOVAs were used to compare changes across the three time points (pre-treatment, post-treatment, and follow-up assessment).

PTSD

See Figure 1 for individual participants' PTSD symptom levels at pre-treatment, post-treatment, and the follow-up assessment as well as the mean symptom level at the three time points. All six participants were above the screening cutoff for possible PTSD at pre-treatment and three were below at post-treatment. Two of the three participants remained below at the follow-up assessment, one had an increase in one symptom, and one participant who was above at pre-treatment was below at the follow-up assessment. Two participants remained above the screening cutoff for possible PTSD at all three assessment points. The one-way repeated measures ANOVA did not indicate a significant impact of time for changes in PTSD symptoms across the three time points, Wilks' Lambda = .41, $F(2, 3) = 2.17$, $p = .26$.

Depression

Refer to Figures 2 and 3 for individual participants' depression sum score and number of depressive symptoms at pre-treatment, post-treatment, and the follow-up assessment as well as the mean symptom level at the three time points. Five participants were above the clinical cutoff for depression at pre-treatment; three of the five were below at post-treatment and remained below at the follow-up assessment. The other two who were above the clinical cutoff at pre-treatment remained above at post-treatment, but they were below the clinical cutoff at the follow-up assessment. The last participant was never above the clinical cutoff for depression but showed a reduction in symptoms from pre-to post-treatment, which remained unchanged until the follow-up assessment.

Results from the one-way repeated measures ANOVA indicated a significant impact of time for changes in depressive symptom severity (sum score) across the three time points, Wilks' Lambda = .13, $F(2, 4) = 13.05$, $p = .02$, multivariate partial eta squared = .87, which is a large effect size. Bonferroni pairwise comparisons showed significant reductions in the depressive symptom sum score from pre-to post-treatment ($p = .03$) as well as from pre-treatment to the follow-up assessment ($p < .01$). There were no significant changes from post-treatment to the follow-up assessment ($p = .42$). Similar results were found for changes in number of depressive symptoms across the three time points. The one-way repeated measures ANOVA indicated a significant impact of time for changes in depressive symptoms, Wilks' Lambda = .22, $F(2, 4) = 7.14$, $p < .05$, multivariate partial eta squared = .78, which is a large effect size. Bonferroni pairwise comparisons indicated marginally significant reductions in depressive symptoms from pre-to post-treatment ($p = .06$) and significant reductions from pre-treatment to the follow-up assessment ($p = .03$). There were no significant changes in depressive symptoms from post-treatment to the follow-up assessment ($p = .36$).

Anxiety

Refer to Figure 4 for individual participants' anxiety and worry sum score at pre-treatment, post-treatment, and the follow-up assessment as well as the mean symptom level at the three time points. All six participants were above the clinical cutoff for possible GAD at pre-treatment and four were below at post-treatment and remained below at the follow-up assessment. One participant remained above at the post-treatment but was below at the follow-up assessment. The last participant remained above the clinical cutoff at all three assessment points.

A one-way repeated measures ANOVA indicated a significant impact of time for changes in anxiety and worry symptoms across the three time points, Wilks' Lambda = .09, $F(2, 4) = 19.96$, $p < .01$, multivariate partial eta squared = .91, which is a large effect size. Bonferroni pairwise comparisons between the three time points showed significant reductions in anxiety and worry symptoms from pre-to post-treatment ($p = .02$) as well as from pre-treatment to the follow-up assessment ($p < .01$). There were no significant changes from post-treatment to the follow-up assessment ($p = 1.00$).

Trauma Cognitions

See Figure 5 for individual participants' PTCI sum score at pre-treatment, post-treatment, and the follow-up assessment as well as the mean at the three time points. Results from the one-way repeated measures ANOVA indicated a significant impact of time for changes in trauma-related cognitions across the three time points, Wilks' Lambda = .14, $F(2, 4) = 12.71$, $p = .02$, multivariate partial eta squared = .86, which is a large effect size. Bonferroni pairwise comparisons indicated significant reductions in trauma-related cognitions from pre-to post-treatment ($p = .04$) as well as from pre-treatment to the follow-up assessment ($p < .01$). There were no significant changes in trauma-related cognitions from post-treatment to the follow-up

assessment ($p = .85$). The same pattern was found for changes in negative cognitions about self (Figure 6) as well as negative cognitions about the world (Figure 7). There was an overall effect of time (self: Wilks' Lambda = .17, $F(2, 4) = 9.97$, $p = .03$, multivariate partial eta squared = .83; world: Wilks' Lambda = .13, $F(2, 4) = 13.50$, $p = .02$, multivariate partial eta squared = .87), and there were significant reductions in both subscales from pre-to post-treatment (self: $p = .04$; world: $p = .03$) as well as from pre-treatment to the follow-up assessment (self: $p = .01$; world: $p < .01$). There were no significant changes from post-treatment to the follow-up assessment ($ps > .60$). There were no significant effects of time for changes in self-blame (Figure 8), Wilks' Lambda = .38, $F(2, 4) = 3.22$, $p = .15$.

Repeaters

Nine women repeated the group. One of these nine women repeated the group twice. Data from the woman who completed the group twice are from the first two groups she completed (i.e., excluded data from the third group in which she participated). Out of the nine women who repeated the group once, eight completed both groups. The analyses below are based on the eight women who repeated and completed the group treatment twice. Compared to the women who completed one group ($n = 38$), the eight women who completed two groups reported significantly more trauma-related cognitions at pre-treatment ($p = .01$) as well as significantly more negative cognitions about self at pre-treatment ($p < .01$). There were no other significant differences between these two groups of participants at pre-treatment (Table 10) or at post-treatment (Table 11). Moreover, there were no significant differences on any of the demographic variables between the women who repeated and completed the group treatment twice compared to the ones who completed it once ($ps > .28$).

The number of days between completing the first group and starting the second group varied from 7 to 84 days with a mean of 61.25 days ($SD = 34.24$). Two participants started their second group 7 days after completing their first groups while the remaining six participants started their second group 63 to 84 days after completing their first group. There were no significant differences between these two participants and the other six on any of the outcomes at the four measured time points (pre-and post-treatment scores for both groups).

Refer to Figures 9-12 for participants' PTSD, depression, and anxiety/worry symptoms at all four time points (i.e., pre-and post-treatment scores from the first group and pre-and post-treatment scores from the second group). Three of the eight participants (37.5%) recovered on all three measures during the first group (e.g., above cutoff for PTSD, depression, and GAD at pre-treatment for the first group but below at post-treatment for the first group). Two participants (25.0%) recovered on two of the measures (PHQ-9 and GAD-2) after participating in their first group and on the third measure (PC-PTSD) after participating in their second group. The remaining three participants did not recover on any of the measures after completing one group. One of these participants was below the cutoff at pre-treatment for depression and GAD. However, this person was above the cutoff for PTSD at pre-treatment of the first group and had recovered by the pre-treatment assessment of the second group. The other two participants remained above the cutoff on all three measures, but one of them was missing data for the fourth time point (i.e., post-treatment of second group).

One-way repeated measures ANOVAs were used to compare the pre-and post-treatment scores for the 8 participants who completed two groups (i.e., four time points). There was no significant effect of time across the four time points for PTSD symptoms (Wilks' Lambda = .18, $F(3, 3) = 4.71$, $p = .12$), the depression sum score (Wilks' Lambda = .01, $F(3, 1) = 51.03$, $p =$

.10), the number of depressive symptoms (Wilks' Lambda = .02, $F(3, 1) = 17.00$, $p = .18$), or the anxiety and worry sum score (Wilks' Lambda = .16, $F(3, 3) = 5.09$, $p = .11$).

However, there was a significant effect of time for trauma-related cognitions (Figure 13), Wilks' Lambda = .001, $F(3, 2) = 583.37$, $p < .01$, multivariate partial eta squared = 1.00, which is a large effect size. Pairwise comparisons with Bonferroni corrections showed significant reductions in trauma-related cognitions from the first (pre-treatment group 1) to the third time point ($p = .02$; pre-treatment group 2) as well as significant reductions from the first to the last time point ($p < .001$; post-treatment group 2). Moreover, there was a significant effect for time related to the negative cognitions about self-subscale (Figure 14), Wilks' Lambda = .02, $F(3, 3) = 45.85$, $p < .01$, multivariate partial eta squared = .98, which is a large effect size. Pairwise comparisons with Bonferroni corrections showed significant reductions from the first (pre-treatment group 1) to the second time point ($p = .02$; post-treatment group 1), from the first to the third time point ($p = .02$; pre-treatment group 2), and from the first to fourth time point ($p = .001$; post-treatment group 2). The time effect for changes in negative cognitions about the world (Figure 15) was also significant, Wilks' Lambda = .05, $F(3, 3) = 19.04$, $p = .02$, multivariate partial eta squared = .95, which is a large effect size. Pairwise comparisons with Bonferroni corrections indicated marginally significant reductions in negative cognitions about the world from the first (pre-treatment group 1) to the second time point ($p = .07$; post-treatment group 1) as well as significant reductions from the first to the fourth time point ($p < .01$; post-treatment group 2) and from the third (pre-treatment group 1) to the fourth time point ($p < .01$; post-treatment group 2). The time effect was not significant for changes in self-blame (Figure 16) across the four time points, Wilks' Lambda = .16, $F(3, 3) = 5.17$, $p = .11$.

Group Leaders

The researcher was one of two group leaders during all eight groups. A licensed social worker was the co-therapist for the first three groups and then a graduate student in the clinical psychology program at the University of Arkansas was the co-therapist for the remaining five groups. In order to test for potential therapist effects on the treatment outcomes, the women who completed one of the first three groups ($n = 18$) were compared to the women who completed one of the remaining five groups ($n = 28$). There were no significant differences between these two groups of participants on any of the demographic variables ($ps > .18$). However, both of the women who self-identified as African-American were in one of the first three groups ($p = .06$ for ethnicity).

Participants in the first three groups reported significantly more anxiety and worry symptoms at pre-treatment (Table 12) and marginally significant more negative cognitions about self and self-blame at post-treatment (Table 13). When only including participants who completed pre-and post-treatment assessments ($n = 34$), women from the first three groups ($n = 9$) still reported significantly more anxiety and worry at pre-treatment compared to women from the other five groups ($n = 25$), $t(32) = 2.34$, $p = .03$, $\eta^2 = .15$. However, the marginally significant differences at post-treatment became non-significant ($ps > .50$). Participants in the first three groups reported a significant greater amount of change in their anxiety and worry symptoms from pre-to post-treatment compared to participants in the other five groups (Table 14).

IV. DISCUSSION

In the current sample of predominantly Caucasian, non-violent incarcerated women, the participants reported a significant reduction in PTSD symptoms, depression symptoms and

symptom severity, and anxiety/worry symptom severity from pre-to post-treatment. They also reported a significant reduction in trauma-related cognitions from pre-to post-treatment, which was significant for all three subscales (i.e., negative cognitions about self, negative cognitions about the world, and self-blame). All effect sizes were large. These results support the primary hypothesis that a brief exposure-based treatment targeting the sexual trauma sequelae in incarcerated women would result in significant reductions in PTSD, depression, anxiety/worry, and trauma-related cognitions from pre-to post-treatment.

In addition to the paired samples t-test analyses comparing pre-to post-treatment symptom levels, Jacobson and Truax's (1991) reliable change index (RCI) was used to determine individual participants' improvement rates. Suggested cutoff scores for potential PTSD (≥ 3 ; Prins et al., 2003), depression (≥ 10 ; Kroenke et al., 2001), and GAD diagnoses (≥ 3 ; Kroenke et al., 2007) were also used to determine participants' recovery rates (i.e., above clinical cutoff at pre-treatment and below at post-treatment). Approximately 40-50% of participants who provided pre-and post-treatment data recovered and 40-60% improved (e.g., RCI above 1.96). The lowest recovery rate was for PTSD (41.2%) and the highest was for depression (52.9%). The improvement rate was 38.2% for GAD and 61.8% for depression. No RCI was calculated for the PTSD measure because of its dichotomous answer options.

Overall, the primary outcomes from this study would suggest that it is feasible to implement a brief exposure-based treatment with incarcerated women and that many of them experienced a significant reduction in a range of psychological symptoms from pre-to post-treatment. However, at post-treatment, approximately half of them remained above the clinical cutoff for possible PTSD, depression, and/or GAD. This would suggest that participating in this treatment program could significantly reduce the number of symptoms and/or symptom severity

but not always to the extent that clients' symptoms would fall below the suggested clinical cutoff for PTSD, depression, and GAD. Also, not all participants experienced enough change for it to be considered clinically meaningful/ significant. However, of note, the majority of participants with pre-and post-treatment data (82.4%; n = 28) recovered and/or improved on at least one of the primary symptom measures (e.g., PTSD, depression, and/or GAD).

The primary treatment outcomes from the current study add in important ways to the existing research literature on trauma-informed treatments for incarcerated women. Previous studies have shown mixed results. The majority of these studies reported significant reductions in trauma-related symptoms from pre-to post-treatment (Bradley & Follingstad, 2003; Ford et al., 2013; Kubiak et al., 2012; Lynch et al., 2012; Paquin et al., 2013; Roe-Sepowitz et al., 2014; Wolff et al., 2012; Zlotnick et al., 2003, 2009). However, while some treatments outperformed control groups (Bradley & Follingstad, 2003; Lynch et al., 2012), others did not (Ford et al., 2013; Zlotnick et al., 2009). For example, Zlotnick and colleagues' (2009) sample maintained their gains during a follow-up period post-release from prison but no differences were found between the treatment (Seeking Safety; Najavits, 2002) and the control group. Additionally, Cole and colleagues (2007) did not find any support for their treatment. In addition to the mixed results, the majority of these treatments were lengthy and resource intensive (cf. Ford et al., 2013) and provided few if any information about clinical significance (e.g., changes in diagnostic profiles, magnitude of symptom change, improved functioning). Also, the majority of these studies did not include an exposure component (cf. Bradley & Follingstad, 2003; Cole et al., 2007), despite research supporting this as an effective treatment for PTSD (Foa et al., 2007; Foa & Rothbaum, 1998). The findings from the current study provide preliminary evidence supporting the feasibility and positive outcomes from implementing a brief exposure-based

group treatment with incarcerated women. The results also include information about clinical significance and changes in symptoms as well as maladaptive cognitions from pre-to post-treatment.

In addition to the primary analyses, secondary analyses were conducted as well. Six women who participated in groups 5-7 provided follow-up data 3-6 months after completing the treatment. Results indicated significant reductions in depression and anxiety/worry symptoms from pre-to post-treatment and from pre-treatment to the follow-up assessment. Importantly, there were no significant changes from post-treatment to the follow-up assessment, which indicates that the participants maintained their treatment gains during the follow-up period. The results were not significant for PTSD, which suggest that there was no consistent pattern of changes in PTSD symptoms across the three time points for these six participants. However, the descriptive data show that half of the sample had recovered at post-treatment; two of them maintained these gains and an additional person had recovered by the follow-up assessment. These findings are very preliminary, using a small sample, and should therefore be interpreted cautiously.

A pattern emerged for changes in trauma-related cognitions across the three time points similar to the one obtained for depression and anxiety/worry symptoms. Participants reported significant reductions in trauma-related cognitions from pre-to post-treatment and from pre-treatment to the follow-up assessment. This pattern was found for two of the subscales (i.e., negative cognitions about self and negative cognitions about the world). These treatment gains were maintained during the follow-up period. However, there were no effects of time for the self-blame subscale across the three time points, which might indicate that the current treatment program was not as effective in targeting self-blame. This would further be supported by some of

the findings from the larger sample of treatment completers. Although the effect size was large for the treatment completers' reductions in self-blame from pre-to post-treatment, it was smaller ($\eta^2 = .24$) than for the other two subscales ($\eta^2 = .56$ and $.58$). However, it is also important to note that treatment completers reported significantly less self-blame at pre-treatment compared to the other two subscales. Because of the lower mean score at pre-treatment and the small sample who had follow-up data, it is possible that the analysis was underpowered. Moreover, previous studies found no association between the self-blame subscale and reductions in PTSD symptoms during the course of treatment (Foa & Rauch, 2004; Karl et al., 2009).

Secondary data analyses were also conducted on outcomes from eight women who completed the group treatment twice. There was no effect of time across the four time points (i.e., pre-and post-treatment scores from the first group and pre-and post-treatment scores from the second group) for changes in PTSD, depression, or anxiety/worry symptoms. This would suggest that these eight women did not show a consistent change in their symptoms during the course of completing two treatment groups. However, graphing the mean scores at the four time points (Figures 9-12) suggest a trend for a reduction in their symptoms across the four time points, with marginally significant p-values ($ps = .10$ -. $.12$). It is possible that these analyses were underpowered. Moreover, the descriptive data show that majority of the participants (62.5%) had recovered on at least two of the three symptom outcome measures after completing the first group. Altogether, these findings suggest there were no additional benefits to reduction in affective symptoms from completing more than one group. However, these results should be interpreted with caution since the sample size was small.

Interestingly, there was an effect of time for changes in trauma-related cognitions for the eight women who repeated the group treatment. They reported significant reductions from pre-

treatment of their first group participation to pre-treatment of their second group participation as well as to post-treatment of their second group participation. There were significant reductions in negative cognitions about self and negative cognitions about the world from pre-treatment of their first group participation to all the other time points (marginally significant from time point 1 to 2 for negative cognitions about the world). There was no significant effect of time for the self-blame subscale.

The eight women who completed two groups reported significant more trauma-related cognitions, including negative cognitions about self, at pre-treatment compared to the women who only completed one group. This might indicate that participants with higher levels of trauma-related cognitions at pre-treatment might benefit from receiving more than eight sessions of treatment. It is possible that repeating the group treatment has little impact on symptoms such as PTSD, depression, and anxiety/worry but maybe more so on maladaptive cognitions, especially for participants with higher levels of maladaptive cognitions at pre-treatment of their first group.

Although the secondary data analyses for participants providing follow-up data and data from repeating the group treatment are preliminary, they support previous arguments about the feasibility and positive outcomes of implementing a brief exposure-based group treatment with incarcerated women. More specifically, although the findings are preliminary, they suggest that there are few if any additional benefits to symptomatic reduction when participating in a second group. This would suggest that eight sessions are sufficient to affect symptomatic change and/or that additional sessions are unlikely to result in additional symptomatic reduction. It is possible, however, that women with high levels of trauma-related cognitions might benefit from additional

sessions, but it is also possible that the cognitions would decrease with passage of time without attending additional sessions.

The results from the current study also suggest that exposure-based group treatment is not effective for everyone. Non-completers were younger, had fewer children, and were more depressed at pre-treatment compared to completers. It is possible that women with these characteristics could benefit from receiving another treatment before they participate in the group or they might benefit from a different type of treatment altogether. Future studies could benefit from exploring ways to maintain women with these characteristics in the group. Moreover, in the current study, the attrition rate was 20.1% ($n = 12$). Although this attrition rate is comparable with other PTSD treatments (18.3%; Imel, Laska, Jakupcak, & Simpson, 2013), it might be an indicator that exposure therapy is not effective and/or feasible with all clients. Imel and colleagues (2013) compared drop out rates from 54 PTSD outcome studies and found that they varied significantly by modality, number of sessions, and sample size. Drop out rates were higher for group treatments, treatments with more sessions, and studies with smaller sample sizes. They found no difference between PE and other treatments, but they found higher drop out rates in “trauma-specific treatments” (e.g., “explicit retellings of the trauma memory,” p. 398).

In addition to the attrition rates and the difference between completers and non-completers, not all participants improved or recovered during their participation in the current study. This would further suggest that this kind of treatment might not be effective for everyone. Research is limited in understanding why some participants experience more of a response to PTSD treatments than others. Stein, Dickstein, Schuster, Litz, and Resick (2012) used growth mixture modeling to determine participants’ trajectories (e.g., changes in PTSD symptoms) during PTSD treatment. The samples were from RCTs evaluating CPT compared to PE and a

waitlist (Resick, Nishith, Weaver, Astin, & Feuer, 2002) as well as a dismantling study of CPT (Resick et al., 2008). The results suggested a two-class fit such that participants were either classified as responders (87%) or non-responders (13%). Participants with MDD were more likely to be in the non-responder category. However, of note, the majority of participants with comorbid MDD were in the responder group (78%). Bluett, Zoellner, and Feeny (2014) reported that participants with reliable reductions in distress ($RCI > 1.96$ in subjective units of distress ratings from first to last imaginal exposure; Jacobson & Truax, 1991) during imaginal exposure had better PE treatment outcomes than participants with unreliable reductions in distress (Bluett, Zoellner, & Feeny, 2014). However, there was no difference between the two groups when examining PTSD diagnostic status at post-treatment. Interestingly, the researchers did not find any support for habituation between sessions as a predictor of PE treatment outcomes.

Altogether, the findings from the current study and those of Stein et al. (2012) and Bluett et al. (2014) suggest that some clients do not respond to PTSD treatments. More research is needed to understand why some clients respond to PTSD treatments while other do not. Several factors could be involved but some moderators and mediators might have a larger impact in samples of incarcerated women. There are several trauma-related factors that might play a role. For instance, types and number of traumas as well as the severity of the trauma(s) could differentiate women who benefit from exposure-based PTSD treatments to those who do not. Psychological disorders and comorbidity may also play a role. Women with multiple traumas and comorbid conditions might respond less well to a PTSD treatment. Moreover, researchers have suggested that certain mechanisms such as distress tolerance are likely to differentiate clients who respond to treatment well versus clients who do not. For instance, Vujanovic, Bonn-Miller, Potter, Marshall, and Zvolensky (2011) found that distress tolerance accounted for

additional variance in PTSD symptoms after controlling for number of traumas and negative emotionality in a sample of adult trauma survivors. Therefore, it is possible that clients with lower distress tolerance respond less to exposure-based PTSD treatments.

The last set of secondary analyses compared outcomes from the first three groups to the subsequent five groups to test for potential therapist effects in the current study. The researcher was one of two group leaders during all eight groups; the second group leader changed after the third group. Participants in the first three groups reported significantly more anxiety and worry symptoms at pre-treatment and they reported a greater amount of change in these symptoms from pre-to post-treatment compared to the subsequent group participants. Although these differences might be related to the change in one of the therapists, there are other potential confounding factors that could also have impacted the treatment outcomes.

The differences between the first three groups and the subsequent five groups might be indicative of other changes made to the group treatment, in addition to or instead of the changes in therapists. For instance, participants were allowed to repeat the group starting with group number 4. Having someone repeat the group might have had an impact on the other participants' experience in the group. The repeaters oftentimes served as role models for the others and could provide specific examples of how the treatment had helped them and others. Another possible explanation for the effects is the learning curve of the current researcher who was a group leader for all eight groups. It is possible that the researcher gained experience from the first three groups, which had an impact on the treatment process for the subsequent group participants. Maybe the researcher's experiences helped decrease the anxiety and worry symptoms of group participants in the last five groups. Moreover, as more participants successfully completed the group, other residents at the correctional facility might have been informed from multiple

sources (e.g., treatment completers, staff) that the group can have a positive impact on past participants' difficulties, which also might have had an impact on their anxiety and worry symptoms.

Findings from the current study add to the larger literature on psychotherapy outcome research. Below follows a discussion about important aspects associated with conducting psychotherapy outcome research, as an attempt to put the findings from the current study into a larger context. Limitations, strengths, and future directions related to the current study will be considered while discussing psychotherapy outcome research in general.

A. PSYCHOTHERAPY OUTCOME RESEARCH

Several factors are important to consider when conducting psychotherapy outcome studies. These factors include research on efficacy, effectiveness, specific and non-specific treatment components, researcher allegiance, empirically supported treatments (ESTs), and evidence-based practice (EBP).

Efficacy and Effectiveness

The current study evaluated a brief exposure-based group treatment for incarcerated women, which was designed to fit the prison context and the needs of incarcerated women. The treatment program was developed based on emotional processing theory (Foa & Kozak, 1986) and Foa and colleagues' (Foa et al., 2007; Foa & Rothbaum, 1998) PE treatment. PE is an EST for PTSD that includes both imaginal and in vivo exposure (Foa et al., 2007; Foa & Rothbaum, 1998). Although PE is considered a "gold standard" treatment for PTSD (Rauch, Eftekhari, & Ruzek, 2012), few studies have reported on implementing PE in a group format (cf. Castillo et al., 2012) or implementing group based imaginal exposure (cf. TFGT; Schnurr et al., 2003; GBET; Ready, Vega, et al., 2012; Mott et al., 2013; Sutherland et al., 2012). Also, to date, no

published studies have evaluated PE or an exposure-based group treatment (i.e., conducting imaginal exposure in a group setting) with incarcerated women. Altogether, this means that research is limited about the implementation of exposure-based treatment in a group setting with incarcerated women.

ESTs mainly focus on efficacy, which means that they have empirical evidence supporting their theoretical foundations of why and how the treatment works for a specific disorder or problem. Therefore, efficacy primarily focuses on internal validity. Effectiveness, on the other hand, mainly focuses on external validity (e.g., if the treatment can be implemented successfully in other settings and with other populations and comorbid conditions). The current study evaluated the effectiveness of implementing an imaginal exposure group treatment with incarcerated women. However, it could also be considered a first step towards evaluating the treatment program's efficacy and feasibility based on Onken and colleagues' (1997) stage model.

Several models have been developed to determine what should qualify as an EST but fewer models exist for determining how to reach that goal. The National Institute on Drug Abuse (NIDA) developed the stage model of behavioral therapies research, which outlines the steps researchers should take to evaluate the efficacy and effectiveness of behavioral therapies (Onken, et al., 1997). The model consists of three stages. According to Rounsaville, Carroll, and Onken (2001) “[s]tage I consists of pilot/feasibility testing, manual writing, training program development, and adherence/competence measure development for new and untested treatments” (p. 133). Moreover, Onken and colleagues (1997) describes the first stage as “a multistage, iterative process consisting of all the preliminary work necessary before a well-designed and controlled clinical trial...can take place” (p. 481). Onken and colleagues believe the first stage is an important step to acknowledge so that researchers can apply and receive funding for

developing ESTs. They also acknowledge that the first stage is costly and time consuming and that many researchers are unable to proceed beyond this stage without funding support. If researchers cannot go beyond stage one then the development of ESTs will be limited. Onken and colleagues (1997) further states that “[p]ilot efficacy testing of newly developed and modified therapies should be considered an integral part of any therapy development process” (pp. 481-482). Once there is enough evidence supporting that the treatment is feasible and appears to have a positive impact on the target symptoms, the researchers can proceed to stage II.

Randomized control trials are used in the second stage to test for treatment efficacy. This stage also includes research on the mechanisms involved in treatment change and replication of other researchers’ treatment results. Overall, research in the second stage focuses on internal validity and why the treatment works. According to Onken and colleagues (1997), “[a]t the end of Stage II, a manualized therapy for a well-defined population should exist that has been shown, through at least one controlled clinical trial and a replication, to be efficacious” (p. 483). The third and final stage focuses on “determin[ing] a therapy’s transferability and usefulness in community-based...treatment programs” (Onken et al., 1997, p. 483). According to Rounsaville and colleagues (2001) the focus is on “generalizability..., implementation issues..., cost effectiveness issues..., and consumer/marketing issues” (p. 134).

Based on Onken and colleagues’ (1997) model, the current study would be a stage I project with a focus on pilot and feasibility testing. In the current study, Foa and colleagues’ PE treatment (Foa, et al., 2007; Foa & Rothbaum, 1998) was modified to fit the prison context and the need of women prisoners. One major change was the reduction in the number of imaginal exposures per participant. In PE, participants continue their individual imaginal exposure for several sessions while in the current study participants shared their traumatic memories once.

They were, however, exposed to other participants' traumatic memories during sessions 3-7. According to the stage model, the treatment program continues to be shaped and modified during stage I, and pilot data is collected on the way. The current study would also meet the more elaborate criteria outlined by Rounsaville and colleagues (2001) for the first part of stage I (e.g., "specify theoretical rationale (theory of the disorder).., specify hypothesized causal chain (theory of change mechanisms)..., specify procedures for supervising and monitoring performance..., identify target population (heterogeneity/ homogeneity).., and specify measures," p. 135) as well as some components of the second part of stage I (e.g., "demonstrate feasibility/describe feasibility place (e.g., acceptability, safety)..., specify pilot testing procedures..., specify a priori hypotheses (outcome, predictors, process, etc.)..., specify analysis plan to test hypotheses" (p. 135).

Rounsaville and colleagues (2001) also point out that some researchers will begin stage I with a written treatment manual "while others beg[i]n...with only an outline of the treatment procedures in hand" (p. 136). The current treatment was partially based on the PE manual (Foa, et al., 2007), most specifically the parts about emotional processing therapy and the rationale for imaginal exposure. The group leaders used an outline for each session, which continued to be modified to reflect lessons learned from each group (e.g., how to handle situations in which someone leaves the room in the middle of an exposure). During the pilot phase, the researchers try to:

[D]emonstrate...patient acceptance of the new treatment (e.g., retention)...,the investigators' ability to recruit sufficient numbers of the target population..., feasibility of treatment delivery with the proposed types of therapists, patients, and treatment settings..., clinically significant patient improvement over the course of treatment in at

least one important outcome domain, and...the likely effect size to be obtained contrasting the new treatment with a comparison group to be used to determine the sample size for a stage II trial. (Rounsaville et al., 2001, p. 137).

In the current study, there was evidence for all the components listed above. In terms of evidence for feasibility, attrition rates and participants' report of group alliance could be used as measures of feasibility in the current study. Twelve participants (20.7%) discontinued the treatment program for unknown reasons. The participants who completed the treatment (n = 46) reported higher levels of engagement than avoidance or conflict on the alliance measure, suggesting that they overall experienced a positive group alliance. Previous studies using the GCQ-S (MacKenzie, 1983) have shown that the Engaged subscale predicted better treatment outcomes (e.g., Braaten 1989). However, it is important to note that in the current study the internal consistency was low for the GCQ-S subscales suggesting that this measure was not a reliable indicator of group alliance in this sample.

Specific and Non-Specific Components

The consideration of specific and non-specific treatment components is another important aspect of evaluating psychological treatments. Rosen and Davison (2003) suggested that it would be more valuable to focus on empirically supported principles of change (ESPs) as opposed to ESTs. Following their argument, it would be more informative to know that imaginal exposure and in vivo exposure are ESPs for treating PTSD as opposed to knowing that PE is an EST for PTSD. With a focus on ESPs instead of ESTs, clinicians and researchers would know what treatment components work for what specific psychological disorders and problems and why they work. Rosen and Davison's (2003) ESPs are related to the research literature on determining specific and non-specific components of psychological treatments.

Non-specific treatment components are “elements of treatment that are shared across virtually all therapeutic intervention” such as “a healing setting, education, a treatment rationale, expectations of improvement, a treatment ritual, and the therapeutic relationship” (DeRubeis, Brotman, & Gibbons, 2005, p. 174). Specific treatment components, on the other hand, are the therapeutic techniques designed to target underlying features and mechanisms that are theorized to maintain the psychological disorder, symptoms, or problems (e.g., Borkovec & Castonguay, 1998).

There are several different types of non-specific factors. One is therapist effects, which is the therapist’s impact on treatment outcomes. One meta-analysis of treatment outcome studies has found that therapist effects accounted for 8.6% of the variance in treatment outcomes (Crits-Christoph et al., 1991). In a study implementing CPT for PTSD among veterans, the researchers found that therapist effects accounted for 12% of the variance in treatment outcomes (Laska, Wislocki, Minami, Smith, & Wampold, 2013). Several hypotheses exist in terms of what therapist characteristics could account for these effects. Anderson, Ogles, Patterson, Lambert, and Vermeersch (2009) found that therapists’ ability to facilitate interpersonal skills significantly predicted treatment outcomes. Examples of facilitative interpersonal skills were the therapists’ “verbal fluency, emotional expression, persuasiveness, hopefulness, warmth, empathy, alliance-bond capacity, and problem focus” (p. 759). They included 32 therapists and 1,141 clients at a college-based counseling center in their study.

Therapist effects include therapeutic alliance, which has also been found to be associated with treatment outcomes. Therapeutic alliance has been defined as “the collaborative bond between the therapist and patient” (DeRubeis et al., 2005, p. 178). Meta-analyses have found that alliance accounts for 5% of the variance in clinical trials (e.g., Horvath & Bedi, 2002).

Furthermore, studies have shown that this relationship appears unaffected by differences in study methodologies, types of treatments (CBT vs. non-CBT) implemented, primary diagnosis treated, and clients' comorbidity (Fluckiger, Del Re, Wampold, Symonds, & Horvath, 2012; McLaughlin, Keller, Feeny, Youngstrom, & Zoellner, 2013). According to DeRubeis and colleagues (2005) there are four different ways that the therapeutic alliance can impact treatment outcomes. One is the therapist's ability to form positive working relationships with patients. The second is the patient's ability to form a positive working relationship with the therapist. Third is the interaction between the therapist and the client, and fourth is symptom reduction. Although several studies have found that there is a significant relation between therapeutic alliance and symptom reduction, the temporal order of these variables are debated.

In response to DeRubeis and colleagues' (2005) suggestions for factors impacting the relationship between alliance and treatment outcomes, Baldwin, Wampold, and Imel (2007) analyzed data from a larger study involving 45 different college-based counseling centers (N = 80 therapists and 331 clients). They found that some therapists appear to be better at forming stronger alliances with their patients (i.e., between therapist effects), who consequently also report better treatment outcomes. They found less support for differences among patients (i.e., within therapist effects) and no support for an interaction between therapists and patients. These results suggest that it is mainly the therapists and not the patients who account for differences in the therapeutic alliance and treatment outcomes. Because the researchers found a difference between the within-and between-therapist effects, they concluded that the positive association between the therapeutic alliance and treatment outcomes is not only due to symptom reductions. That is, the therapeutic alliance is not purely a result of symptom reduction.

Barber, Connolly, Crits-Christoph, Gladis, & Siqueland (2009) further elaborated on the relationship between therapeutic alliance and clinical outcomes in a sample of 88 male and female outpatient clients who received 16-52 sessions of manualized supportive-expressive dynamic therapy for depression, GAD, or avoidant-or obsessive-compulsive personality disorder. The treatment was implemented by 15 therapists with psychodynamic training. Barber and colleagues found that early reduction in depressive symptoms predicted stronger therapeutic alliance. However, therapeutic alliance throughout treatment also predicted greater reduction in depression symptoms. This would suggest that patients with early symptom reduction might experience stronger therapeutic alliance, which predicts additional treatment gains. Yet another study found that greater therapeutic alliance predicted a decreased risk for depression relapse one year after completing a 16-session CBT treatment for depression (N = 80 clients; Weck et al., 2013).

Few studies have investigated the role of therapeutic alliance in PTSD treatment outcomes. Importantly though, these studies have shown a positive relationship between therapeutic alliance and PTSD treatment outcomes. Cloitre, Stovall-McClough, Miranda, and Chemtob (2004) found that clients with higher alliance ratings earlier in the treatment process reported better treatment outcomes when participating in a CBT treatment for CSA related PTSD. Two publications from another research group (Keller, Zoellner, & Feeny, 2010; McLaughlin et al., 2013) investigated the role of alliance in clients assigned to either receiving PE (Foa et al., 2007; Foa & Rothbaum, 1998) or medication (i.e., sertraline) for treating PTSD. McLaughlin and colleagues (2013) reported on results from 116 participants who were randomly assigned to the PE treatment. They found a positive relationship between alliance and PE outcomes, which was equally effective for participants with and without comorbid depression

and/or CSA histories. Participants who were randomly assigned to PE reported a stronger alliance than participants randomly assigned to take medication (N = 188; Keller et al., 2010). McLaughlin and colleagues (2013) also found that 46% of the PE participants experienced a rupture in their alliance during the treatment process (e.g., “a significant drop in the therapeutic alliance,” p. 6), and that clients with repaired ruptures had better treatment outcomes than those with unrepaired ruptures. Of note, participants with no rupture also showed a positive association between alliance and outcomes. Importantly, these findings suggest that there is no negative impact of exposure therapy for PTSD on the therapeutic alliance, and that building a strong therapeutic alliance with clients is important when implementing any psychological treatment.

Since studies have shown that psychotherapy outcomes are at least partly due to non-specific treatment components (Crits-Christoph et al., 1991; Horvath & Bedi, 2002; Laska et al., 2013), it is important to consider the possibility of such effects in the current study. Although the research methodology used in the current study limits the ability to determine non-specific treatment effects, some of the results might be relevant. Overall, participants reported a positive group alliance, with higher scores on the Engaged subscale compared to the other two subscales (i.e., Conflict and Avoiding; GCQ-S, MacKenzie, 1983). The Engaged subscale has been shown to positively predict treatment outcomes (e.g., Braaten 1989). Therefore, it is possible that non-specific treatment components such as group alliance accounted for some of the outcomes in the current study. Exploratory analyses using zero-order correlations between the three group alliance subscales and treatment outcomes showed significant negative associations between the engagement subscale and depression sum score and number of depressive symptoms at post-treatment. This suggests that greater engagement in the treatment was associated with fewer depressive symptoms and less symptom severity at post-treatment. There were also significant

positive correlations between the conflict subscale and depression symptoms, anxiety/worry symptoms, and trauma-related cognitions at post-treatment. Higher levels of conflict were associated with more symptoms at post-treatment. There were no significant correlations between the group alliance subscales and the change scores (i.e., post-treatment score subtracted from pre-treatment score). Although these preliminary findings might indicate that treatment outcomes from the current study were partly accounted for by non-specific treatment components such as group alliance, it is important to note that the internal consistency was low for the GCQ-S subscales suggesting that this measure was not a reliable indicator of group alliance in this sample.

Specific treatment effects are also important when evaluating psychotherapy. Borkovec and Castonguay (1998) suggested a stepwise approach to determine a treatment's efficacy and specific components. The first step is to conduct a small n or pilot study. Next the treatment should be compared to several different types of control groups. The treatment should first be compared to a wait-list control, then to an attention control, a non-specific control, a component control (e.g., dismantling design), and lastly to a standard treatment (e.g., an EST). Borkovec (1993) questioned the validity of comparing two treatments. When researchers find outcome differences between two treatments, it is difficult to know what to attribute them to since the treatments differ in many ways (e.g., theoretically, therapeutic techniques). To make valid comparisons between two groups, researchers need to hold one of the groups constant, but since both treatments vary on multiple levels it is difficult to make valid comparisons (Borkovec, 1993).

The current study would be considered a pilot study. Due to the limited data on group based exposure therapy with incarcerated women, the first step would be to conduct a small n or

a pilot study (Borkovec & Castonguay, 1998). To continue to determine the efficacy of the current group treatment, the next step would be to compare it to a control group (Borkovec & Castonguay, 1998). There are many different types of control group and they serve different purposes. Since the participants in the current study received the treatment program in addition to other psychological services (e.g., counseling, AA), the most appropriate control group might be comparing the effects of the current group treatment in combination with treatment as usual versus receiving treatment as usual only (Rounsaville et al., 2001).

Several researchers have attempted to determine specific and non-specific treatment components for various types of psychotherapies. Some researchers argue that psychological treatments are equally effective (e.g., Luborsky, Singer, & Luborsky, 1975), and that the majority of the treatment outcome effect size can be accounted for by non-specific treatment components (e.g., Eysenck, 1994). Others have argued that some treatments are more effective than others. For instance, Smith, Glass, and Miller (1980) found that CBTs had greater effect sizes than non-CBTs. Tolin (2010) also found that CBT had greater effect sizes than non-CBT (e.g., psychodynamic treatments), especially for treating disorders related to depression and anxiety. Similar debates exist in the field of PTSD treatment outcome studies.

Some researchers have concluded that there are few if any differences between PTSD treatments. Bradley, Greene, Russ, Dutra, and Westen (2005) conducted a meta-analysis of 26 RCTs for PTSD. They found that PTSD treatments (e.g., CBT, behavioral therapy, and EMDR) were more efficacious than wait-list control and support groups. They found no differences between the PTSD treatments. Another meta-analysis by Benish, Imel, and Wampold (2008) included 17 studies comparing two or more bona fide treatments for adult with PTSD. They found few differences between treatments and concluded that “specific ingredients may not be

critical for the treatment of PTSD” (p. 754). However, Ehlers and colleagues (2010) were skeptical of Benish and colleagues’ conclusions. They suggested that Benish and colleagues’ selection of studies for their meta-analysis was biased and that a more appropriate conclusion would have been that “different forms of trauma-focused psychological treatments have similar effects” (p. 272), which is not a new finding. Powers, Halpern, Ferenschak, Gillihan, and Foa (2010) compared PE to other treatments (e.g., CPT, EMDR, cognitive therapy, CT, and stress inoculation therapy, SIT) in their meta-analysis and did not find any differences between the treatments.

Nevertheless, some researchers have argued for specific effects within PTSD treatments showing that some treatments are more effective than others. Bisson and colleagues (2007) reported on a meta-analysis with 38 RCTs for PTSD. They found that trauma focused CBT (TFCBT) and EMDR outperformed wait-list and control groups. Although they found few differences between TFCBT and EMDR they concluded that the evidence was not as strong for EMDR as for TFCBT. They found some evidence in favor of stress management therapy and group TFCBT compared to control groups. However, they did not find any support for the non-trauma focused therapies, which included “supportive/non-directive therapy, psychodynamic therapies and hypnotherapies” (p. 101). Bisson and colleagues’ result would suggest that there are specific effects in PTSD treatments. According to their meta-analysis, treatments that included a focus on the clients’ trauma memories and the personal meanings associated with the trauma are more effective than those without these components. It is possible that Powers and colleagues (2010) did not find any differences between PE and the other treatments because all treatments were trauma-focused. Another meta-analysis of 112 RCTs of PTSD treatments found

the largest effect sizes for CBT and EMDR (Watts et al., 2013). The effect size for CBT groups was not significant.

The research methodology used for the current study limits the ability to determine any specific treatment effects. Although specific treatment effects cannot be determined from the current study, results showed that participants who completed both pre-and post-treatment assessments attended significantly more sessions and they reported significantly less maladaptive cognitions at post-treatment compared to the other treatment completers. Previous research has shown that changes in maladaptive trauma-related cognitions are associated with reductions in PTSD symptoms (Foa & Rauch, 2004). It is therefore possible that the current treatment was able to specifically target PTSD and cognitions maintaining PTSD. More research is needed to determine specific treatment components in the current group treatment. In addition to considering research about efficacy, effectiveness, and specific and non-specific treatment components, researcher allegiance is another factor that appears to be associated with treatment outcomes and will therefore be discussed next.

Researcher Allegiance

Researcher allegiance is another factor that is associated with treatment outcomes (Gaffan, Tsaoisis, & Kemp-Wheeler, 1995; Luborsky et al., 1999, 2002; Munder, Fluckiger, Gerger, Wampold, & Barth, 2012; Munder, Brutsch, Leonhart, Gerger, & Barth, 2013, Tolin, 2010). Allegiance can be defined as “the preference that authors apparently hold for one therapy over others” (Gaffan et al., 1995, p. 966). Munder and colleagues (2013) conducted a meta-meta-analysis of 30 previously published meta-analyses exploring the link between allegiance and treatment outcome. They found a moderate effect size that was unaffected by a range of moderators (e.g., treatment formats, age group, defined or undefined populations, weighted or

unweighted meta-analysis, assessment of allegiance, publication year). In a meta-analysis of trauma-focused treatments (n = 20), Munder and colleagues (2012) found that allegiance explained 12% of the variance in treatment outcomes.

In Gaffan and colleagues' (1995) meta-analysis they found that CT for depression outperformed control groups, other psychotherapy, and medication. Allegiance accounted for a significant amount of variance in treatment outcomes among the earlier studies (n = 28; 1976-1987) but not for the more recent studies (n = 37, 1987-1994). The authors suggested that the researchers in the more recent studies were further removed from the original developers of CT (Beck, 1979) and therefore allegiance was no longer a significant factor. Importantly, even after accounting for the allegiance effect in the earlier studies, CT still outperformed the other groups.

In Luborsky and colleagues' (1999) study they found that positive allegiance had a stronger association with treatment outcomes than negative allegiance. Moreover, Fluckiger and colleagues (2012) found that allegiance moderated the relationship between therapeutic alliance and clinical outcomes early in the treatment process such that research studies with higher allegiance had a stronger alliance-treatment outcome association. However, later in the treatment process allegiance did not impact this relationship. Importantly, studies with low allegiance still showed a significant association between alliance and treatment outcomes. They included 201 published articles in their meta-analysis.

Some researchers suggest that allegiance should be controlled for in psychotherapy outcomes studies (Luborsky et al., 1999, 2002). Others are more skeptical. Leykin and DeRubeis (2009), for instance, caution researchers when interpreting the current research evidence linking allegiance to treatment outcomes. They emphasize that researchers have found an association between allegiance and treatment outcomes, which does not necessarily indicate a bias that needs

to be controlled for when doing treatment outcome research. They state that an alternative explanation is that allegiance to a treatment develops over time because the treatment is superior to other treatments. It is also possible that the allegiance-outcome association is related to the researchers being better at implementing the treatment than researchers with no or little allegiance.

Researcher allegiance is not a particularly important factor to consider in the current study. Although it is possible that researcher allegiance impacted the treatment outcomes, the current researcher is not closely connected to the developers of exposure therapy for PTSD (Foa et al., 2007; Foa & Rothbaum, 1998). This argument would be supported by Gaffan and colleagues' (1995) study in which they found that the relationship between allegiance and treatment outcomes was not significant for studies published by researchers further removed from the original therapy developer. However, since the current researcher developed the group treatment believing it would be effective in reducing symptoms associated with the sexual sequelae, it is still possible that researcher allegiance accounted in part for treatment outcomes. The researcher based those beliefs on previous research supporting exposure therapy as a treatment for PTSD (Foa et al., 2007; Foa & Rothbaum, 1998).

So far several important factors associated with psychotherapy outcome research have been discussed. This discussion will continue with a focus on empirically supported treatments and evidence-based practice.

ESTs and EBP

ESTs are related to evidence-based practice (EBP). APA (APA Presidential Task Force on Evidence-Based Practice; 2006) has defined EBP in psychology (EBPP) as “the integration of

the best available research with clinical expertise in the context of patient characteristics, culture, and preferences” (p. 273). According to APA:

ESTs start with a treatment and ask whether it works for a certain disorder or problem under specified circumstances. EBPP starts with the patient and asks what research evidence (including relevant results from RCTs) will assist the psychologist in achieving the best outcome. In addition, ESTs are specific psychological treatments that have been shown to be efficacious in controlled clinical trials, whereas EBPP encompasses a broader range of clinical activities (e.g., psychological assessment, case formulation, therapy relationships). As such, EBPP articulates a decision-making process for integrating multiple streams of research evidence—including but not limited to RCTs—into the intervention process (p. 273).

According to APA (2006) “[t]he purpose of EBPP is to promote effective psychological practice and enhance public health by applying empirically supported principles of psychological assessment, case formulation, therapeutic relationship, and intervention” (p. 280). Spring (2007) states that “EBP ranges along a spectrum from top-down, normative guidelines to bottom-up, idiographic decision-making principles” (p. 611). Nomothetic approaches include practice and policy guidelines as well as ESTs while idiographic approaches include individual clinical decision-making. APA’s (2006) publication about EBP appears to mainly refer to the latter part.

EBP consists of three components: *best available research evidence*, *clinical expertise*, and *patient characteristics* (APA, 2006; Spring, 2007). The first component, *best available research evidence*, “refers to scientific results related to intervention strategies, assessment, clinical problems, and patient populations in laboratory and field settings as well as to clinically relevant results of basic research in psychology and related fields” (APA, 2006, p. 274).

According to APA, psychologists need to consider and evaluate multiple types of research evidence (e.g., internal and external validity, study design), and they should recognize that what constitutes best available research evidence depends on the question they are trying to answer. The second component, *clinical expertise*, “refers to competence attained by psychologists through education, training, and experience that results in effective practice” (APA, 2006, p. 275). Psychologists are scientist-practitioners, which means that they integrate the science with their clinical work. In other words, they use science to inform their clinical practice and they use their clinical practice to inform their scientific endeavors. APA suggests psychologists should be aware of the limits to their clinical expertise and use “[m]echanisms such as consultation and systematic feedback from the patient” to decrease “biases” (p. 276). APA also suggests that clinical expertise affects all areas of clinical work (e.g., assessment, case conceptualization, treatment planning and implementation) and that it “develops from clinical and scientific training, theoretical understanding, experience, self-reflection, knowledge of research, and continuing professional education and training” (p. 275). The third component, *patient characteristics*, refers broadly to patients’ values, characteristics, preferences, and circumstances (Spring, 2007). According to Spring (2007), this is the least developed component of EBP. The basic idea is for psychologists to share the health decisions with their patients in order “to engage patients more fully in self-management of their own wellness and health care” (Spring, 2007, p. 614). Part of this process is for psychologists “to respect and help patients clarify their own values and treatment preferences” (p. 614). According to APA (2006), patient characteristics includes “variations in presenting problems or disorders, etiology, concurrent symptoms or syndromes, and behavior...chronological age, developmental status, developmental history, and life stage...sociocultural and familial factors (e.g., gender, gender identity, ethnicity, race, social

class, religion, disability status, family structure, sexual orientation)...current environmental context, stressors (e.g., unemployment, recent life event), and social factors (e.g., institutional racism, health care disparities)...and...personal preferences, values, and preferences related to treatment (e.g., goals, beliefs, worldviews, treatment expectations)” (p. 279).

The current study could be evaluated in the context of EBP. PE (Foa et al., 2007; Foa & Rothbaum, 1998) has been established as an EST for PTSD, but, more importantly, numerous efficacy and effectiveness studies have contributed to researchers referring to PE as the “gold standard” treatment for PTSD (Rauch et al., 2012). Therefore, the best available research evidence (e.g., one component of EBP) suggests that psychologists use PE to treat clients with PTSD. Although, the researcher could have implemented and evaluated PE in the current study, the decision was made to develop a brief exposure-based group treatment to take into account the specific contextual factors affecting incarcerated women. The treatment program, while based on emotion processing theory (Foa & Kozak, 1986) and the research on PE techniques (Foa et al., 2007; Foa & Rothbaum, 1998), differed in important ways (e.g., no *in vivo* exposure, no between session assignments, one imaginal exposure per client). The decision to design the current treatment program with modifications instead of implementing PE can be understood in the context of EBP. Considering the other two components of EBP (e.g., clinical expertise and patient characteristics), it might be important to make some modifications to ESTs for PTSD when implementing these kind of treatments in correctional facilities for women. As previously discussed, the prison setting creates some challenges to implementing ESTs such as PE. These challenges include residents’ limited privacy and autonomy, which could negatively affect important aspects of PE (e.g., completing between session exposure exercises). It might also limit the number of imaginal exposure sessions per client. Moreover, incarcerated women share

many characteristics, which might be important to consider when implementing a trauma treatment in correctional facilities. The shared characteristics include: low SES, social isolation, single parenthood, high trauma exposure, and a range of health issues (e.g., Bloom et al., 2004; Haywood et al., 2000; Lewis, 2006). Additionally, they report high rates of sexual victimization, especially CSA (Abrams et al., 2008; Browne et al., 1999; Cook et al., 2005; Martin & Hesselbrock, 2001; McDaniels-Wilson & Belknap, 2008; Mullings et al., 2000, 2003; Raj et al., 2008; Wolff et al., 2010, 2011). Because of their shared characteristics and the potential benefits of group treatment for traumatized individuals (Mott et al., 2013; Sloan et al., 2012), the current treatment project was designed to be implemented in a group setting. Altogether, considering the best available research evidence (e.g., exposure treatment) and patient characteristics (e.g., prison setting, needs and characteristics of incarcerated women), the researcher used her clinical expertise in combination with the research evidence when deciding to design a brief group treatment for incarcerated women with histories of sexual victimization.

B. LIMITATIONS

There are several limitations with the current study. Some of these limitations have already been discussed and will now be summarized. Others have not previously been considered and will therefore be described in more detail. The first set of limitations refers to the sample. The sample is relatively small and homogenous. The majority of participants were Caucasian women and they were all convicted of non-violent felonies. Although the majority of women prisoners are convicted of non-violent felonies (approximately 65%; Carson & Golinelli, 2013), there might be other characteristics of the current sample and the community correction facility in which the study took place that affected the results. Overall, this would limit the generalizability of the findings. There also might be geographical differences as well as other

unique features of the current correctional facility that affected the treatment outcomes. For instance, the current correctional facility offers a range of rehabilitation programs (e.g., AA). Future studies could benefit from implementing the group treatment with ethnically diverse samples of incarcerated women who are convicted of a variety of crimes. Future studies could also benefit from including different geographical locations and facilities.

The measures used in the current study to assess symptomatic characteristics of PTSD, depression, and anxiety/worry were brief, and, therefore included only a small number of psychological symptoms. It is possible that certain PTSD, depression, and anxiety/worry symptoms were not measured, which could have affected the interpretation of the results. Moreover, the PTSD measure (i.e., PC-PTSD; Prins et al., 2003) only included four items with dichotomous answer options. It would be important for future studies to include a measure with a greater range of PTSD symptoms and with answer options indicating symptoms severity. This would make it possible to investigate changes in symptom severity and to calculate RCI scores (Jacobsen & Truax, 1991). For instance, future studies could include the PTSD Checklist (PCL; Weathers et al., 1993) or the PDS (Foa et al., 1997).

Another limitation to the measures used in the current study is the absence of an assessment of participants' trauma histories. In the current study, participants self-identified as being victims of sexual violence and experiencing some difficulties related to their victimization. However, previous research shows that the majority of incarcerated women have been exposed to multiple traumas (Cook et al., 2005; Green et al., 2005; Wolff et al., 2011; Zlotnick, 1997). Therefore, it is possible that other traumas, besides the sexual violence, have impacted participants' symptoms and overall functioning. Future studies should incorporate an assessment of participants' trauma histories including information about types and number of traumas.

Moreover, test-retest correlation coefficients for the RCI calculations (Jacobsen & Truax, 1991) were used from previous studies. Both studies used primary care samples, and one of them included a large sample of patients (N = 212, Garcia-Campayo et al., 2012; N = 6,000, Kroenke et al., 2001). Garcia-Campayo and colleagues' sample was from Spain and the GAD-2 had been translated into Spanish. Therefore, the test-retest correlation coefficients used in the current study might not be a valid measure of test-retest reliability for the current sample mainly because the other studies used larger, non-forensic samples, and in one case, a Spanish speaking sample. Although a test-retest correlation coefficient could have been calculated from the current study (correlating pre-and post-treatment scores) it would have been problematic as the treatment program was expected to reduce the scores from pre-to post-treatment. Therefore, even though there were limitations to the test-retest correlation coefficients used in the current study, they were a more valid alternative than calculating these coefficients by correlating pre-and post-treatment scores from the current study. Future studies could benefit from evaluating psychometric properties of measures assessing psychological symptoms in samples of incarcerated women.

Another limitation with the current study is the absence of a control group. The current study investigated reductions in symptoms from pre-to post-treatment without including a control group, such as TAU. This limits the conclusions that can be drawn from the treatment outcomes and it might impact the validity of the study. Comparing the results to a control group would control for factors that could have an impact on the treatment outcomes such as passage of time (e.g., symptom reduction could be an effect of time as opposed to the treatment itself) or other events outside of the treatment. There might have been other events or situations at the correctional facility that impacted the treatment outcomes such as participating in other groups or

receiving counseling or medical treatment. However, at this stage of treatment evaluation, it is common and appropriate to utilize a pre-to post-treatment change in participants without a control group (Onken et al., 1997).

Moreover, as described previously when discussing the results comparing the first three groups to the other five groups, there were several potential confounding factors that might have impacted the results. These factors could have impacted the treatment outcomes in general and not just analyses comparing the first three groups to the subsequent five. Participants who repeated the treatment a second time might have had an impact on the treatment outcome. Their presence and potential function as a role model for the other treatment participants might have impacted the outcomes. Treatment completers and staff at the correctional facility might also have positively impacted the treatment outcomes by encouraging new participants to join the group and by informing them of the positive effects the group treatment has had on other women. Although these are possible confounds, it is unlikely that they completely explain the results from the current study. Preliminary findings from the first four groups showed significant reductions in PTSD, depression, and anxiety/worry with large effect sizes (Karlsson et al., in press). Approximately 60% of the sample had recovered on the PTSD, depression, and/or anxiety/worry measure (e.g., above the clinical cutoff at pre-treatment but below at post-treatment). These preliminary findings were prior to including repeaters in the groups.

Importantly, in the current study the active components of the treatment (e.g., exposure therapy) are assumed to be related to the positive treatment outcomes. However, it is possible that other treatment factors might explain the outcomes. Several non-specific factors might have impacted the results. For instance, as previously discussed, factors such as therapist effects (e.g., Crits-Christoph et al., 1991) and therapeutic alliance have been shown to influence treatment

outcomes. It is also possible that the support participants received from the group leaders and each other have impacted the treatment outcomes. Although, it is possible that these non-specific factors explain the results, several studies have shown that exposure therapy is an efficacious treatment component for targeting PTSD symptoms and other trauma-related outcomes (e.g., Foa et al., 2007). Therefore, it is probably more likely that exposure therapy accounted for most of the variance in the treatment outcomes in the current study and that non-specific factors accounted for additional, but a smaller part, of the variance. Future studies would benefit from determining specific treatment effects in samples of incarcerated women (see discussion below for more details).

Moreover, although the results from the current study show significant reductions in a range of symptoms and cognitions from pre-to post-treatment and some indication that these changes can be maintained 3-6 months after treatment, it will be important for future studies to collect additional follow-up data. At this point it is unclear how well participants would be able to maintain their treatment gains after completing the group and after leaving the correctional facility. Unfortunately this is a common limitation with treatment outcome studies. More research is needed to determine long-term outcomes.

Lastly, 1 in 5 women who signed up for the treatment program did not complete it. Although this attrition rate is similar to other studies (Imel et al., 2013), it suggests that exposure therapy is not for everyone who endorses sexual assault experiences. Additionally, not all treatment completers showed clinically meaningful change (e.g., improvement and recovery rates). This would further suggest that this type of therapy is not effective for all clients with sexual abuse histories. More research is needed to understand why some clients benefit from exposure therapy while others do not. In samples of incarcerated women, it might be beneficial

to consider trauma chronicity (e.g., number and types of traumas, duration and severity of traumas) and comorbidity. It might also be beneficial to consider mechanisms such as distress tolerance (e.g., Vujanovic et al., 2011).

C. FUTURE DIRECTIONS

Some future directions for treatment studies in samples of incarcerated women and follow-up to the current treatment program have already been discussed. These considerations will be summarized at this point and some additional suggestions will be shared. First, future studies could benefit from including a diverse sample of incarcerated women from different correctional facilities and regions. Moreover, in the current sample non-completers were significantly younger and had fewer children than the completers. They were also significantly more depressed at pre-treatment. Therefore, future studies could benefit from exploring ways to maintain clients with these characteristics in the treatment program and/or explore if they could benefit from a different type of treatment altogether. For instance, if depression were the primary diagnosis, then maybe they would benefit from a depression treatment such as cognitive therapy (Beck, 1976) or interpersonal psychotherapy (Weissman, Markowitz, & Klerman, 2000). There might also be additional differences between completers and non-completers that were not assessed in the current study. For instance, trauma histories and comorbid conditions might differ. There might also be differences in distress tolerance (e.g., Vujanovic et al., 2011).

Because there were several limitations to the measures used in the current study, future studies could benefit from expanding the number of symptoms measured as well as including a PTSD measure with severity ratings. In addition to good psychometrics, the measures used in the current study were selected with considerations of brevity and reading level. This choice was made primarily to limit the burden on participants. Future studies could benefit from conducting

more comprehensive assessments of participants' trauma histories and psychological symptoms and diagnoses. More comprehensive assessments would potentially allow for better understanding of how client characteristics are associated with treatment outcomes. Moreover, the group alliance measure used in the current study (GCQ-S; MacKenzie, 1983) was potentially not a valid indicator of alliance (e.g., low internal consistency). Future studies should explore other measures of group alliance and their relationship to treatment outcomes in samples of incarcerated women.

Future studies could also benefit from including a follow-up period to assess for maintenance of treatment gains or any additional treatment gains. Although follow-up data was collected in the current study, the sample was small. Future studies would benefit from strategic planning to collect follow-up data from all participants if possible. Furthermore, future studies would benefit from putting in place plans to collect data after participants leave the correctional facility. It would also be important to work with the agency to determine if there are ways to gain access to recidivism rates in order to compare if difference exist in re-offending between women who have and have not completed treatment.

More research is needed to determine efficacy and effectiveness of the current group treatment. Using Onken and colleagues' (1997) model, the next steps would be to write a treatment manual, incorporate treatment adherence and competence measures, and conduct an RCT. For the RCT, participants would be randomly assigned to either the treatment program or a control group. Conducting an RCT would increase internal validity, which would allow researchers to better determine causation (e.g., if the treatment program is responsible for the symptom reductions). Since the women in the current study are already receiving treatment at the correctional facility (e.g., AA, counseling), it might make most sense to compare the current

treatment protocol to TAU (e.g., exposure therapy plus TAU vs. TAU; Rounsaville et al., 2001). This would answer the question of whether or not the exposure group treatment would add anything to the treatment already provided. Another important step would be to determine specific treatment effects. According to Borkovec and Castonguay's (1998) procedures, the group treatment should be compared to a wait-list control, then to an attention control, a non-specific control, a component control (e.g., dismantling design), and lastly to a standard treatment (e.g., an EST). The dismantling study would be especially important in order to determine specific treatment effects. The current researcher would suggest to first compare the current treatment to TAU, then to a non-specific control (e.g., psychoeducation group), a component control study, and lastly an EST.

There are some additional questions related to efficacy and effectiveness that are important to consider when evaluating trauma-specific group treatments as well as treatments with incarcerated women. One would be to compare the current group treatment to individual treatment. To date, studies suggest that individual exposure treatment is more effective than group exposure treatment (e.g., Sloan et al., 2013). However, this research is limited and to date few studies have explored treatment outcomes that might be specifically relevant to group treatments as opposed to individual treatments (cf. Mott et al., 2013). Therefore, future studies could benefit from comparing outcome for PTSD group treatments to individual treatments beyond symptom change. Examples would be social support, normalization of trauma reactions, trust, and safety (Sloan et al., 2012).

Another important question related to efficacy and effectiveness would be comparing different models for treating comorbid PTSD. Although researchers have argued in favor of using integrated treatments for comorbid PTSD and SUDs, the research is limited (Torchalla et

al., 2012). Moreover, these treatments are oftentimes resource intensive (e.g., Zlotnick et al., 2003). Few studies have evaluated sequential and parallel models for treating comorbid PTSD and SUDs (cf., Berenz et al., 2012; Ouimette et al., 2003). Interestingly, no studies to date have evaluated PTSD-SUDs treatment outcomes from implementing a PTSD treatment despite the fact that studies have shown that PTSD oftentimes precedes SUDs (Back et al., 2005; Kessler, 2000; Ouimette et al., 2010), reductions in PTSD symptoms is associated with reductions in SUDs but not vice versa (e.g., Brown, 2000), and clients with comorbid PTSD-SUDs report better treatment outcomes after receiving PTSD treatment following a SUDs treatment (Ouimette et al., 2003). If PTSD treatments could target comorbid PTSD-SUDs, then this could be a more effective way of treating comorbidity (e.g., less resources needed).

D. CONCLUSIONS

Although men are more likely to be imprisoned than women (Carson & Golinelli, 2013), since the 1980s, the rate of female prisoners has increased more rapidly than the rate of male prisoners (Frost et al., 2006). Several researchers have debated the issue of whether this increase in incarceration of women can best be explained by the war on drugs (e.g., Bloom et al., 2004; Frost et al., 2006). More importantly, pathways to prison differ by men and women. Sexual victimization has been described as a pathway to prison for women (Belknap, 2007; Bloom et al., 2004; Browne et al., 1999, Cole et al., 2007; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006). Incarcerated women are disproportionately affected by sexual victimization, especially CSA (Abrams et al., 2008; Browne et al., 1999; Cook et al., 2005; Martin & Hesselbrock, 2001; McDaniels-Wilson & Belknap, 2008; Mullings et al., 2000, 2003; Raj et al., 2008; Wolff et al., 2010, 2011). They report higher rates of sexual victimization than incarcerated men (Clark et al., 2012; Langan & Pelissier, 2001; McClellan et al., 1997; Wolff et

al., 2009) and than community samples of women (Severson et al., 2005; Tusher & Cook, 2010). They are also at high risk for sexual re-victimization both inside (Beck & Johnson, 2012; Wolff et al., 2008) and outside of prison (Severson et al., 2005; Walsh et al., 2011). Moreover, incarcerated women are disproportionately affected by physical (Abrams et al., 2008; Kane & DiBartolo, 2002; Nijhawan et al., 2010; Richie & Johnsen, 1996) and mental health problems (Blitz et al., 2005; Cloyes et al., 2010; Jordan et al., 1996; Teplin et al., 1996; Trestman et al., 2007), which are oftentimes associated with the sexual sequelae (Chen et al., 2010; Hillberg et al., 2011). Although women's pathway to prison is likely complex, researchers have suggested that sexual victimization oftentimes precedes problems with substance use, violent relationships, and prostitution, which can lead to issues with the legal system (Belknap, 2007; Bloom et al., 2004; Browne et al., 1999; Cole et al., 2007; Grella et al., 2005; Jordan et al., 1996; Salisbury & Van Voorhis, 2009; van Wormer & Kaplan, 2006). Despite the high rates of sexual victimization and mental health issues, and their possible connection to women's imprisonment, few studies have evaluated psychological treatments targeting these issues in correctional populations.

Most treatment programs in correctional facilities have been developed for men, and therefore researchers have argued that there is a need for gender specific, sensitive, and responsive treatments for incarcerated women (Blackburn et al., 2008; Bloom et al., 2004; Grella, 2008; Lewis, 2006; Mullings et al., 2003; van Wormer & Kaplan, 2006), including trauma-focused treatments. Some researchers have evaluated trauma treatments with incarcerated women (Bradley & Follingstad, 2003; Cole et al., 2007; Ford et al., 2013; Kubiak et al., 2012; Lynch et al., 2012; Paquin et al., 2013; Roe-Sepowitz et al., 2014; Wolff et al., 2012; Zlotnick et al., 2003, 2009), with mixed results and several limitations. The majority of these treatments have been resource-intensive (cf. Ford et al., 2013) and lack an exposure component (cf. Bradley

& Follingstad, 2003; Cole et al., 2007), despite research supporting exposure's efficacy (Foa et al., 2007). None of these studies included group-based exposure. Moreover, few studies provided any information about clinical significance (e.g., changes in diagnostic profiles, magnitude of symptom change, improved functioning).

The current group was developed based on the conceptual foundation of emotional processing theory (Foa & Kozak, 1986) and Foa and colleagues' PE treatment (Foa et al., 2007; Foa & Rothbaum, 1998). The group treatment was developed specifically to consider adaptations based on the prison context (e.g., limited privacy and autonomy) and the needs of incarcerated women. It was designed to be brief (eight sessions) and to specifically target PTSD and trauma-related difficulties among incarcerated women with sexual victimization histories.

Fifty-eight predominantly Caucasian women incarcerated for non-violent felonies participated in eight separate groups. Participants reported significant reductions in PTSD, depression, and anxiety/worry symptoms as well as trauma-related cognitions from pre-to post-treatment, with large effect sizes. The majority of participants who provided pre-and post-treatment data (n = 34) showed clinically significant reductions in PTSD, depression, and/or anxiety/worry during the duration of the treatment. More specifically, of the participants who were above the clinical cutoff for possible PTSD (n = 30), depression (n = 25), and GAD (n = 26) at pre-treatment, 40-50% were below the clinical cutoff at post-treatment (PTSD: n = 14; depression: n = 18; GAD: n = 18). Moreover, approximately 60% of participants improved (RCI above 1.96; Jacobsen & Truax, 1991) on the depression measure and 40% on the GAD measure. Preliminary findings suggest that these treatment gains were maintained 3-6 months after completing the group program and that there were few if any additional symptomatic benefits to completing more than one group. However, these results should be interpreted with caution since

the sample was small (n = 6 for follow-up data and n = 8 for participants repeating the group treatment).

Overall, the results from the current study suggest that it is feasible to implement a brief exposure-based group treatment with incarcerated women who report histories of sexual victimization. Nevertheless, results also suggest that this treatment might not be effective for everyone. Approximately 20% (n = 12) of participants did not complete the group treatment. The non-completers were younger, had fewer children, and were more depressed at pre-treatment compared to the completers. Moreover, not all treatment completers (n = 46) showed clinical significant change. On the other hand, of the participants with pre-and post-treatment data (n = 34), only six participants did not improve or recover on any of the measures.

The current study adds in important ways to existing psychotherapy research with incarcerated women. This is the first study evaluating a brief exposure-based group treatment with incarcerated women. There were few exclusion criteria, which increase the generalizability of the results. Participants were women who self-identified as having a history of sexual victimization and some difficulties related to those experiences. No other inclusion or exclusion criteria were implemented by the researcher. Additionally, the current study included information about both statistical and clinical significance (e.g., effect size, recovery rates, improvement rates). Altogether, the results suggest that it is feasible to implement an exposure-based group treatment with incarcerated women. Future studies should expand by including a diverse sample of incarcerated women, a control group, and a more comprehensive assessment battery.

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VI. TABLES

Table 1

Treatment Content Session by Session

Sessions	Content
1	Introduction (e.g., confidentiality, group norms, treatment structure and content) Psychoeducation about sexual trauma and its sequelae
2	Treatment rationale (e.g., avoidance and exposure therapy) Coping skills (e.g., in session and between sessions)
3	Imaginal exposure
4	Imaginal exposure
5	Continue imaginal exposure Incorporate sexual trauma themes (e.g., safety and trust)
6	Continue imaginal exposure Incorporate sexual trauma themes (e.g., power and control)
7	Continue imaginal exposure Incorporate sexual trauma themes (e.g., self-esteem and intimacy)
8	Coping and self-care Healthy sexual relationships Lessons learned from the group and relapse prevention Information and handouts about resources in the community

Table 2

Overview of Number of Treatment Participants in Each Group as well as Number of Research Participants in Each Group, Further Categorized by Repeaters, First Time Participants, Completers, and Non-Completers

Groups	Number of group participants	Number of research participants	Number of repeaters	First time participants	Non-completers ^a	Completers ^a
1	10	5 ^b	0	5	0	5
2	10	10	0	10	4	6
3	8	7 ^c	0	7 ^c	0	7 ^c
4	12	11	1	10	2	8
5	11	11	3	8	2	6
6	9	9	2	7	2	5
7	8	8	3	5	2	3
8	8	7	1	6	0	6
Sum	76	68	10 ^d	58	12	46

^aNon-completers and completers only includes participants the first time they participated in the group (e.g., excluded the second or third time they participated)

^bNo pre-treatment data was collected from group 1

^cEight participants completed group 3 but only seven consented to the research study

^dEight participants repeated the group once and one participant repeated it twice

Table 3

Demographic Information for All Participants as well as by Completers and Non-Completers

Variable	Total sample N = 58 ^a	Completers n = 46 ^a	Non-Completers n = 12 ^a	Test Statistic ^b	p-value
	<i>M (SD)</i> or n (%)	<i>M (SD)</i> or n (%)	<i>M (SD)</i> or n (%)		
Age	32.36 (8.16)	33.50 (8.43)	28.00 (5.31)	$t(56) = -2.14$	.04
Number of children	2.42 (1.33)	2.58 (1.40)	1.83 (.83)	$t(53) = -2.32^c$	.03
Latina				$\chi^2(1) = .30$	.59
Yes	1 (1.7%)	1 (2.2%)	0 (0%)		
No	57 (98.3%)	45 (97.8%)	12 (100%)		
Ethnicity				$\chi^2(1) = .58$	.45
Caucasian	53 (91.4%)	41 (89.1%)	12 (100%)		
African-American	2 (3.4%)	2 (4.3%)	0 (0%)		
Marital status				$\chi^2(4) = 4.46$	.35
Married	14 (24.1%)	11 (23.9%)	3 (25.0%)		
Divorced	22 (37.9%)	17 (37.0%)	5 (41.7%)		
Single	10 (17.2%)	6 (13.0%)	4 (33.3%)		
Dating, not married	2 (3.4%)	2 (4.3%)	0 (0%)		
Other	7 (12.1%)	7 (15.2%)	0 (0%)		
Previous therapy				$\chi^2(1) = .50$	.48
Yes	41 (70.7%)	33 (71.7%)	8 (66.7%)		
No	14 (24.1%)	10 (21.7%)	4 (33.3%)		
Individual therapy				$\chi^2(1) = .83$	.36
Yes	38 (65.5%)	31 (67.4%)	7 (58.3%)		
No	17 (29.3%)	12 (26.1%)	5 (41.7%)		
Family therapy				$\chi^2(1) = .72$	.40
Yes	9 (15.5%)	8 (17.4%)	1 (8.3%)		
No	46 (79.3%)	35 (76.1%)	11 (91.7%)		
Group therapy				$\chi^2(1) = .02$	.90

Yes	13 (22.4%)	10 (21.7%)	3 (25.0%)		
No	42 (72.4%)	33 (71.7%)	9 (75.0%)		
Couple therapy				$\chi^2 (1) = 1.20$	.27
Yes	4 (6.9%)	4 (8.7%)	0 (0%)		
No	51 (87.9%)	39 (84.8%)	12 (100%)		
Other therapy				$\chi^2 (1) = 1.20$	.27
Yes	4 (6.9%)	4 (8.7%)	0 (0%)		
No	51 (87.9%)	39 (84.8%)	12 (100%)		

Note. N = total sample size; n = number of participant in subsample; M = mean; SD = standard deviation.

^aOnly includes participants the first time they participated in the group (e.g., excluded the second or third time they participated)

^bTest statistics compares completers to non-completers.

^cEqual variance could not be assumed and was therefore corrected for using Levene's test.

Table 4

Pre-treatment Symptom Levels for All Participants as well as by Completers and Non-Completers

Measures	Total sample N = 58 ^a		Non- Completers n = 12 ^a	Completers n = 46 ^a	Test Statistic ^b	p-value
	<i>M (SD)</i>	Range	<i>M (SD)</i>	<i>M (SD)</i>		
PC-PTSD	3.35 (.97)	0 – 4	2.92 (1.38)	3.49 (.77)	<i>t</i> (47) = -1.36 ^c	.20
PHQ-9						
Sum	14.02 (5.93)	1 - 25	17.27 (4.45)	13.03 (6.01)	<i>t</i> (45) = 2.16	.04
Symptom count	4.77 (2.63)	0 - 9	5.91 (1.64)	4.42 (2.79)	<i>t</i> (45) = 2.20 ^c	.04
GAD-2						
Sum	4.02 (1.79)	0 - 6	4.75 (1.48)	3.78 (1.83)	<i>t</i> (47) = 1.66	.10
Item 1	1.98 (.92)	0 - 3	2.25 (.75)	1.89 (.97)	<i>t</i> (47) = 1.17	.25
Item 2	2.04 (1.00)	0 - 3	2.50 (.80)	1.89 (1.02)	<i>t</i> (47) = 1.88	.07
PTCI						
Self	3.88 (1.46)	1.10 – 6.71	4.32 (1.31)	3.73 (1.50)	<i>t</i> (47) = 1.21	.23
World	5.51 (1.21)	1.57 – 7.00	5.80 (.85)	5.42 (1.31)	<i>t</i> (47) = .95	.35
Self-Blame	3.66 (1.71)	1.00 – 7.00	4.43 (1.61)	3.41 (1.68)	<i>t</i> (47) = 1.86	.07
Total Sum	142.33 (40.73)	41 - 223	153.50 (33.74)	138.27 (42.73)	<i>t</i> (43) = 1.11	.27

Note. N = total sample size; n = number of participant in subsample; M = mean; SD = standard deviation; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

^aOnly includes participants the first time they participated in the group (e.g., excluded the second or third time they participated).

^bTest statistics compares completers to non-completers at pre-treatment.

^cEqual variance could not be assumed and was therefore corrected for using Levene's test.

Table 5

Demographic Information for All Completers as well as Categorized by Completers with Pre-and Post-Treatment Data and Completers with Pre- or Post-Treatment Data Only

	All completers n = 46 ^a	Pre and Post data n = 34 ^a	Pre or post data only n = 9 ^{ab}	Test Statistic ^c	p-value
	<i>M (SD)</i> or n (%)	<i>M (SD)</i> or n (%)	<i>M (SD)</i> or n (%)		
Age ^b	33.50 (8.43)	33.76 (8.81)	32.75 (7.57)	$t(44) = -.36$	.72
Number of children	2.58 (1.40)	2.65 (1.28)	2.33 (1.87)	$t(41) = -.59$	.56
Latina				$\chi^2(1) = .25$	.62
Yes	1 (2.2%)	1 (2.9%)	0 (0%)		
No	45 (97.8%)	32 (94.1%)	8 (88.9%)		
Ethnicity				$\chi^2(1) = 1.07$	.30
Caucasian	41 (89.1%)	33 (97.1%)	8 (88.9%)		
African-American	2 (4.3%)	1 (2.9%)	1 (11.1%)		
Marital status				$\chi^2(4) = 6.94$	.14
Married	11 (23.9%)	10 (29.4%)	1 (11.1%)		
Divorced	17 (37.0%)	13 (38.2%)	4 (44.4%)		
Single	6 (13.0%)	3 (8.8%)	3 (33.3%)		
Dating, not married	2 (4.3%)	1 (2.9%)	1 (11.1%)		
Other	7 (15.2%)	7 (20.6%)	0 (0%)		
Previous therapy				$\chi^2(1) = .65$	.42
Yes	33 (71.7%)	27 (79.4%)	6 (66.7%)		
No	10 (21.7%)	7 (20.6%)	3 (33.3%)		
Individual therapy				$\chi^2(1) = 1.55$	.21
Yes	31 (67.4%)	26 (76.5%)	5 (55.6%)		
No	12 (26.1%)	8 (23.5%)	4 (44.4%)		
Family therapy				$\chi^2(1) = .10$	.75
Yes	8 (17.4%)	6 (17.6%)	2 (22.2%)		
No	35 (76.1%)	28 (82.4%)	6 (66.7%)		
Group therapy				$\chi^2(1) = .94$	.33

Yes	10 (21.7%)	9 (26.5%)	1 (11.1%)		
No	33 (71.7%)	25 (73.5%)	8 (88.9%)		
Couple therapy				$\chi^2 (1) = .04$	.83
Yes	4 (8.7%)	3 (8.8%)	1 (11.1%)		
No	39 (84.8%)	31 (91.2%)	8 (88.9%)		
Other therapy				$\chi^2 (1) = 1.17$	.28
Yes	4 (8.7%)	4 (11.8%)	0 (0%)		
No	39 (84.8%)	30 (88.2%)	9 (100%)		

Note. N = total sample size; n = number of participant in subsample; M = mean; SD = standard deviation.

^aOnly includes participants the first time they participated in the group (e.g., excluded the second or third time they participated)

^bDemographic information is missing from three participants, except for age. All participants provided information about their age.

^cTest statistics compares completers with pre-and post-treatment data to completers with pre-or post-treatment data only.

Table 6

Pre-Treatment Symptom Levels for Completers with Pre-and Post-Treatment Data and Completers with Pre-Treatment Data Only

	Pre-and post data n = 34	Pre-data only n = 3	Test Statistic	p-value
Measures	<i>M (SD)</i>	<i>M (SD)</i>		
PC-PTSD	3.47 (.79)	3.67 (.58)	$t(35) = .42$	.68
PHQ-9				
Sum	13.12 (5.76)	12.00 (10.00)	$t(34) = -.31$	.76
Symptom count	4.45 (2.74)	4.00 (4.00)	$t(34) = -.27$	.79
GAD-2				
Sum	3.76 (1.79)	4.00 (2.65)	$t(35) = .21$	.83
Item 1	1.88 (.98)	2.00 (1.00)	$t(35) = .20$	.84
Item 2	1.88 (.98)	2.00 (1.73)	$t(35) = .19$	.85
PTCI				
Self	3.74 (1.49)	3.63 (1.95)	$t(35) = -.13$	.90
World	5.50 (1.18)	4.48 (2.52)	$t(35) = -.70^a$	.56
Self-Blame	3.34 (1.70)	4.20 (1.51)	$t(35) = .85$	.40
Total Sum	136.58 (43.50)	164.50 (14.85)	$t(31) = .89$	.38

Note. n = number of participant; M = mean; SD = standard deviation; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

^aEqual variance could not be assumed and was therefore corrected for using Levene's test.

Table 7

Post-treatment Symptom Levels and Number of Sessions Attended for Completers with Pre-and Post-Treatment Data and Completers with Post-Treatment Data only

Measures	Pre-and post data	Post-data only	Test Statistic	p-value
	n = 34	n = 9		
	<i>M (SD)</i>	<i>M (SD)</i>		
PC-PTSD	2.33 (1.55)	3.33 (1.32)	<i>t</i> (40) = 1.76	.09
PHQ-9				
Sum	5.21 (4.51)	7.38 (5.34)	<i>t</i> (39) = 1.18	.25
Symptom count	1.18 (1.65)	1.88 (2.53)	<i>t</i> (39) = .96	.35
GAD-2				
Sum	1.56 (1.62)	2.33 (1.50)	<i>t</i> (41) = 1.30	.20
Item 1	1.00 (1.04)	1.11 (.60)	<i>t</i> (41) = .30	.76
Item 2	.56 (.79)	1.22 (1.20)	<i>t</i> (41) = 2.00	.052
PTCI				
Self	2.05 (1.29)	3.18 (1.68)	<i>t</i> (41) = 2.19	.034
World	3.55 (1.62)	5.35 (.83)	<i>t</i> (41) = 3.19	.003
Self-Blame	2.27 (1.43)	3.44 (1.60)	<i>t</i> (41) = 2.13	.039
Total Sum	79.30 (43.58)	118.75 (48.33)	<i>t</i> (39) = 2.25	.030
Number of sessions	7.70 (.59)	7.11 (.60)	<i>t</i> (40) = -2.65	.012

Note. n = number of participant; M = mean; SD = standard deviation; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

Table 8

Pre-and Post-treatment Symptom Levels for All Treatment Completers

Measures	Completers n = 46			
	Pre		Post	
	<i>M (SD)</i>	Range	<i>M (SD)</i>	Range
PC-PTSD	3.49 (.77)	1 - 4	2.55 (1.55)	0 - 4
PHQ-9				
Sum	13.03 (6.01)	1 - 25	5.63 (4.69)	0 - 18
Symptom count	4.42 (2.79)	0 - 9	1.32 (1.84)	0 - 7
GAD-2	3.78 (1.83)	0 - 6	1.72 (1.61)	0 - 5
PTCI				
Self	3.73 (1.50)	1.10 - 6.71	2.29 (1.44)	1.00 - 5.76
World	5.42 (1.31)	1.57 - 7.00	3.93 (1.66)	1.00 - 6.71
Self-Blame	3.41 (1.68)	1.00 - 7.00	2.52 (1.53)	1.00 - 6.40
Total Sum	138.27 (42.73)	41 - 223	87.00 (46.68)	33 - 196

Note. n = number of participant; Pre = pre-treatment; Post = post-treatment; M = mean; SD = standard deviation; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

Table 9

Individual Participants' PTSD, Depression, and Anxiety/Worry Symptom Sum Scores at Pre-and Post-Treatment and Change Status at Post-Treatment

Participant/ Group number	PC-PTSD			PHQ-9					GAD-2				
	Pre	Post	Re	Pre	Post	RCI	Im	Re	Pre	Post	RCI	Im	Re
8 / 2	4	4	No	12	3	2.68	Yes	Yes	3	1	1.55	No	Yes
9 / 2	4	1	Yes	13	3	2.98	Yes	Yes	6	0	4.65	Yes	Yes
11 / 2	1	2	No	5	2	.89	No	No	2	0	1.55	No	No
12 / 2	4	4	No	22	3	5.66	Yes	Yes	6	0	4.65	Yes	Yes
13 / 2	4	2	Yes	23	10	3.88	Yes	No	6	1	3.87	Yes	Yes
14 / 3	3	2	Yes	9	1	2.38	Yes	No	3	1	1.55	No	Yes
16 / 3	4	4	No	17	15	.60	No	No	6	4	1.55	No	No
20 / 3	4	1	Yes	13	4	2.68	Yes	Yes	6	2	3.10	Yes	Yes
22 / 3	4	3	No	21	13	2.38	Yes	No	6	4	1.55	No	No
24 / 4	3	0	Yes	11	4	2.09	Yes	Yes	2	0	1.55	No	No
25 / 4	4	4	No	17	11	1.79	No	No	4	3	.77	No	No
27 / 4	4	0	Yes	14	5	2.68	Yes	Yes	4	0	3.10	Yes	Yes
30 / 4	3	1	Yes	12	1	3.28	Yes	Yes	5	1	3.10	Yes	Yes
31 / 4	3	2	Yes	15	9	1.79	No	Yes	5	2	2.32	Yes	Yes
34 / 5	3	4	No	20	5	4.47	Yes	Yes	5	5	.00	No	No
35 / 5	4	4	No	25	15	2.98	Yes	No	6	5	.77	No	No
36 / 5	4	4	No	18	4	4.17	Yes	Yes	3	1	1.55	No	Yes
37 / 5	4	4	No	6					0	4	-3.10	No	No
38 / 5	4	2	Yes	11	8	.89	No	Yes	6	3	2.32	Yes	No
39 / 5	4	4	No	17	9	2.38	Yes	Yes	5	2	2.32	Yes	Yes
42 / 6	4	1	Yes	8	1	2.09	Yes	No	4	0	3.10	Yes	Yes
43 / 6	4	4	No	13	7	1.79	No	Yes	5	2	2.32	Yes	Yes

44 / 6	2	0	No	11	2	2.68	Yes	Yes	2	1	.77	No	No
45 / 6	3	4	No	13	3	2.98	Yes	Yes	4	0	3.10	Yes	Yes
46 / 6	2	1	No	1	0	.30	No	No	3	1	1.55	No	Yes
50 / 7	4	4	No	19	12	2.09	Yes	No	5	4	.77	No	No
51 / 7	4			14	10	1.19	No	No	3	2	.77	No	Yes
53 / 7	4	0	Yes	16	0	4.77	Yes	Yes	3	0	2.32	Yes	Yes
54 / 8	2	1	No	5	0	1.49	No	No	0	1	-.77	No	No
55 / 8	3	3	No		5				2	3	-.77	No	No
56 / 8	4	2	Yes	10	2	2.38	Yes	Yes	2	0	1.55	No	No
57 / 8	4	4	No	10	0	2.98	Yes	Yes	2	0	1.55	No	No
58 / 8	3	1	Yes	8	3	1.49	No	No	2	0	1.55	No	No
59 / 8	3	0	Yes	4	2	.60	No	No	2	0	1.55	No	No
% Improved								61.8%		38.2%			
% Recovered			41.2%					52.9%		50.0%			

Note. Pre = pre-treatment sum score; Post = post-treatment sum score; Re = recovered (above clinical cutoff at pre-treatment and below at post-treatment); Im = improved (above the reliable change index; RCI > 1.96); PC-PTSD = Primary Care PTSD scale; clinical cutoff = ≥ 3 ; PHQ-9 = 9-item Patient Health Questionnaire; clinical cutoff ≥ 10 ; GAD-2 = Generalized Anxiety Disorder scale; clinical cutoff ≥ 3 .

Table 10

Pre-Treatment Symptom Levels for Participants who Completed the Group Once and Participants who Completed the Group Twice

	Non-repeaters n = 38	Repeaters n = 8	Test Statistic	p - value
Measures	<i>M (SD)</i>	<i>M (SD)</i>		
PC-PTSD	3.41 (.82)	3.71 (.49)	$t(35) = -1.10$	.28
PHQ-9				
Sum	12.57 (6.35)	14.63 (4.63)	$t(34) = -.85$	.40
Symptom count	4.11 (2.79)	5.50 (2.67)	$t(34) = -1.26$	.22
GAD-2	3.62 (1.82)	4.38 (1.85)	$t(35) = -1.03$	.31
PTCI				
Self	3.48 (1.55)	4.67 (.82)	$t(35) = -2.91^a$	.008
World	5.24 (1.40)	6.05 (.62)	$t(35) = -1.59$	.12
Self-Blame	3.23 (1.72)	4.05 (1.46)	$t(35) = -1.23$	.23
Total Sum	131.12 (45.97)	160.63 (18.72)	$t(31) = -2.60^a$	.01

Note. n = number of participant; M = mean; SD = standard deviation; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

^aEqual variance could not be assumed and was therefore corrected for using Levene's test.

Table 11

Post-Treatment Symptom Levels for Participants who Completed the Group Once and Participants who Completed the Group Twice

Measures	Non-repeaters	Repeaters	Test Statistic	p-value
	n = 38	n = 8		
	<i>M (SD)</i>	<i>M (SD)</i>		
PC-PTSD	2.50 (1.56)	2.75 (1.58)	$t(40) = -.41$	.69
PHQ-9				
Sum	5.15 (4.70)	8.00 (4.12)	$t(39) = -1.49$	.15
Symptom count	1.15 (1.83)	2.14 (1.77)	$t(39) = -1.32$	.20
GAD-2	1.57 (1.61)	2.38 (1.51)	$t(41) = -1.29$	.21
PTCI				
Self	2.15 (1.42)	2.86 (1.49)	$t(41) = -1.27$	.21
World	3.85 (1.63)	4.27 (1.83)	$t(41) = -.64$	.53
Self-Blame	2.47 (1.53)	2.70 (1.60)	$t(41) = -.37$	.71
Total Sum	83.00 (45.77)	103.50 (49.84)	$t(39) = -1.12$	.27

Note. n = number of participant; M = mean; SD = standard deviation; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

Table 12

Pre-Treatment Symptom Levels for Participants in Groups 1-3 and Participants in Groups 4 -8

Measures	Groups 1-3 ^a	Groups 4-8	Test Statistic	p-value
	n = 18	n = 28		
	<i>M (SD)</i>	<i>M (SD)</i>		
PC-PTSD	3.60 (.97)	3.44 (.70)	<i>t</i> (35) = .54	.59
PHQ-9				
Sum	14.70 (5.91)	12.38 (6.04)	<i>t</i> (34) = 1.04	.31
Symptom count	5.00 (2.94)	4.19 (2.76)	<i>t</i> (34) = .77	.45
GAD-2	4.90 (1.60)	3.37 (1.76)	<i>t</i> (35) = 2.41	.02
PTCI				
Self	4.30 (1.44)	3.53 (1.49)	<i>t</i> (35) = 1.41	.17
World	5.77 (1.29)	5.28 (1.31)	<i>t</i> (35) = 1.01	.32
Self-Blame	4.12 (1.94)	3.14 (1.53)	<i>t</i> (35) = 1.61	.12
Total Sum	151.20 (45.21)	132.65 (41.37)	<i>t</i> (31) = 1.15	.26

Note. n = number of participant; M = mean; SD = standard deviation; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

^aNo pre-treatment data was collected from group 1

Table 13

Post-Treatment Symptom Levels for Participants in Groups 1-3 and Participants in Groups 4 -8

	Groups 1-3 n = 18	Groups 4-8 n = 28	Test Statistic	p-value
Measures	<i>M (SD)</i>	<i>M (SD)</i>		
PC-PTSD	2.88 (1.32)	2.32 (1.68)	<i>t</i> (40) = 1.16	.25
PHQ-9				
Sum	6.94 (5.18)	4.80 (4.24)	<i>t</i> (39) = 1.44	.16
Symptom count	1.63 (2.25)	1.12 (1.54)	<i>t</i> (39) = .86	.40
GAD-2	1.88 (1.62)	1.62 (1.63)	<i>t</i> (41) = .53	.60
PTCI				
Self	2.75 (1.59)	1.98 (1.28)	<i>t</i> (41) = 1.75	.09
World	4.36 (1.53)	3.65 (1.70)	<i>t</i> (41) = 1.40	.17
Self-Blame	3.00 (1.66)	2.20 (1.38)	<i>t</i> (41) = 1.72	.09
Total Sum	100.75 (49.59)	78.20 (43.44)	<i>t</i> (39) = 1.53	.13

Note. n = number of participant; M = mean; SD = standard deviation; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

Table 14

Symptom Change Scores for Participants in Groups 1-3 and Participants in Groups 4 -8

Measures	All completers n = 34	Min	Max	Groups 1-3 ^a n = 9	Groups 4-8 n = 25	Test Statistic ^b	p-value
	<i>M (SD)</i>			<i>M (SD)</i>	<i>M (SD)</i>		
PC-PTSD	1.12 (1.45)	-1	4	1.00 (1.41)	1.17 (1.49)	<i>t</i> (31) = -.29	.77
PHQ-9							
Sum	8.13 (4.19)	1	19	9.00 (5.05)	7.78 (3.87)	<i>t</i> (30) = .73	.47
Symptom count	3.41 (2.33)	0	9	3.89 (2.89)	3.22 (2.11)	<i>t</i> (30) = .73	.47
GAD-2	2.21 (1.97)	-4	6	3.44 (1.81)	1.76 (1.85)	<i>t</i> (32) = 2.35	.03
PTCI							
Self	1.69 (1.52)	-3.05	4.48	2.04 (2.37)	1.57 (1.11)	<i>t</i> (32) = .58 ^c	.58
World	1.94 (1.69)	-2.29	5.86	2.21 (2.35)	1.85 (1.44)	<i>t</i> (32) = .53	.60
Self-Blame	1.06 (1.92)	-3.40	5.60	1.38 (2.78)	.95 (1.57)	<i>t</i> (32) = .56	.58
Total Sum	55.35 (50.18)	-97	150	65.22 (76.65)	51.32 (36.06)	<i>t</i> (29) = .52 ^c	.61

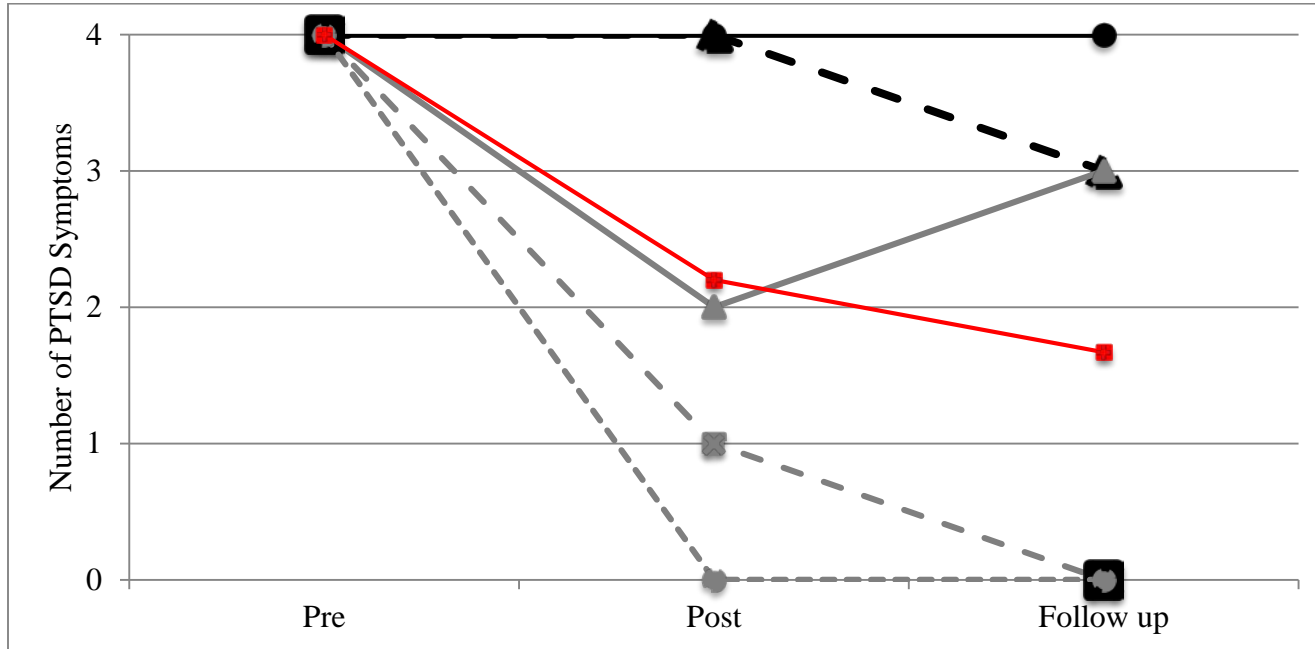
Note. Change scores = post-treatment score subtracted from pre-treatment score; a positive change score indicates a reduction in symptoms or symptom severity from pre-to post-treatment; a negative change score indicates an increase in symptoms or symptom severity from pre-to post-treatment; n = number of participant; M = mean; SD = standard deviation; Min = minimum score; Max = maximum score; PC-PTSD = Primary Care PTSD screen, total score ranges between 0 and 4; PHQ-9 = 9-item Patient Health Questionnaire, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); GAD-2 = 2-item Generalized Anxiety Disorder scale, answer options ranges from 0 (*Not at all*) to 3 (*Nearly every day*); PTCI = Posttraumatic Cognitions Inventory, answer options ranges from 1 (*Totally disagree*) to 7 (*Totally agree*); Self = negative cognitions about self subscale; World = negative cognitions about the world subscale; Self-Blame = self-blame subscale.

^aNo pre-treatment data was collected from group 1

^bTest statistics compares symptom change scores for participants in groups 1-3 versus participants in groups 4-8

^cEqual variance could not be assumed and was therefore corrected for using Levene's test.

VII. FIGURES



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Figure 1. Changes in participants' PTSD symptoms from pre-treatment to post-treatment and to the follow-up assessment (n = 6), as measured by the Primary Care PTSD screen (PC-PTSD; Prins et al., 2003). Maximum number of PTSD symptoms is four. The red line is the mean score for all participants at the three time points.

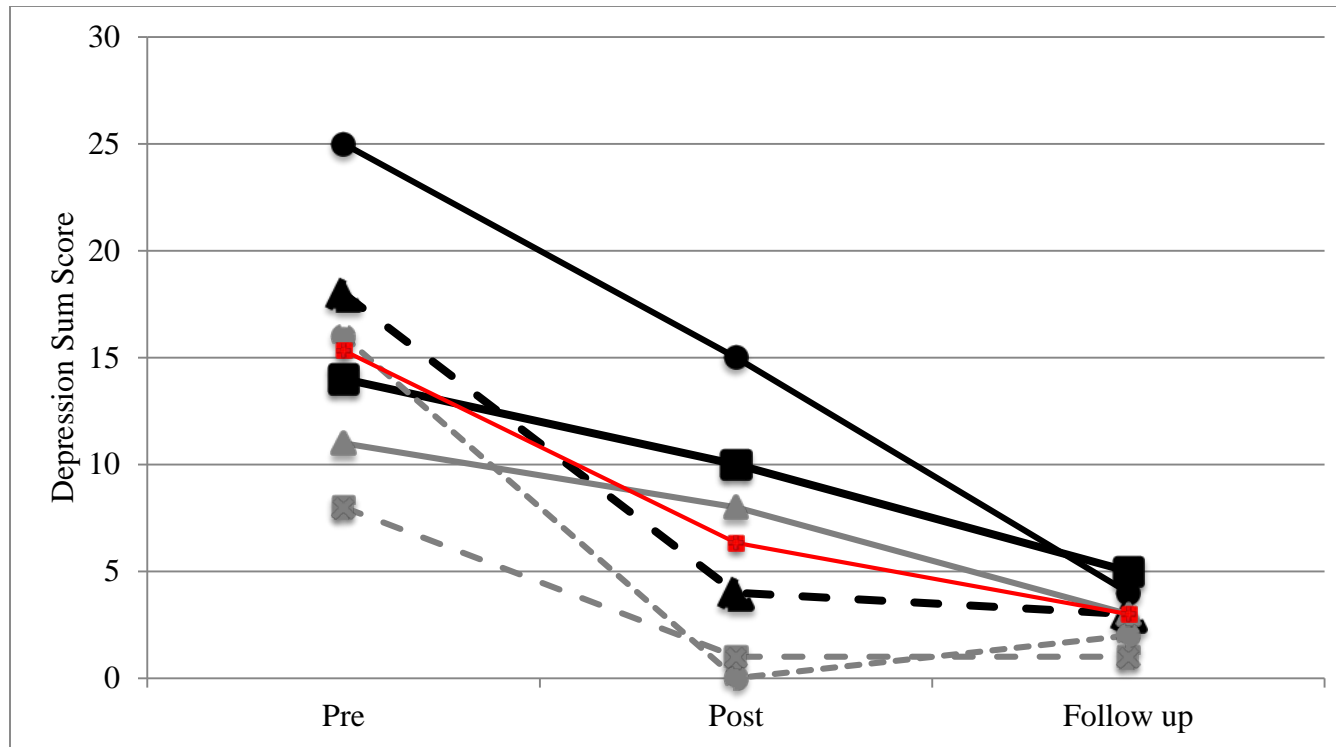


Figure 2. Changes in participants' depression sum score from pre-treatment to post-treatment and to the follow-up assessment ($n = 6$), as measured by the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). The answer options ranged from 0 (*Not at all*) to 3 (*Nearly every day*) with a maximum score of 27. A higher score indicates greater depression severity. The red line is the mean score for all participants at the three time points.

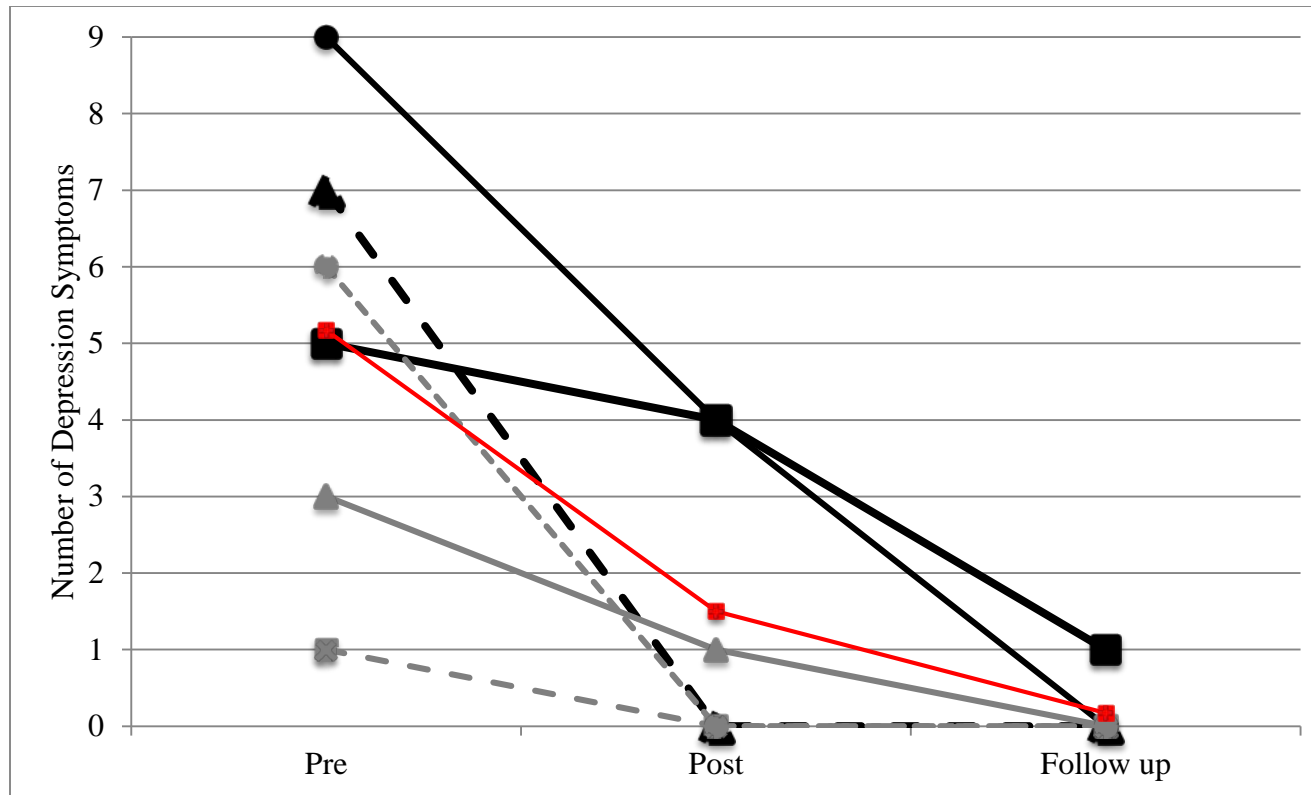


Figure 3. Changes in participants' depression symptoms from pre-treatment to post-treatment and to the follow-up assessment ($n = 6$), as measured by the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). Maximum number of depression symptoms is nine. The red line is the mean score for all participants at the three time points.

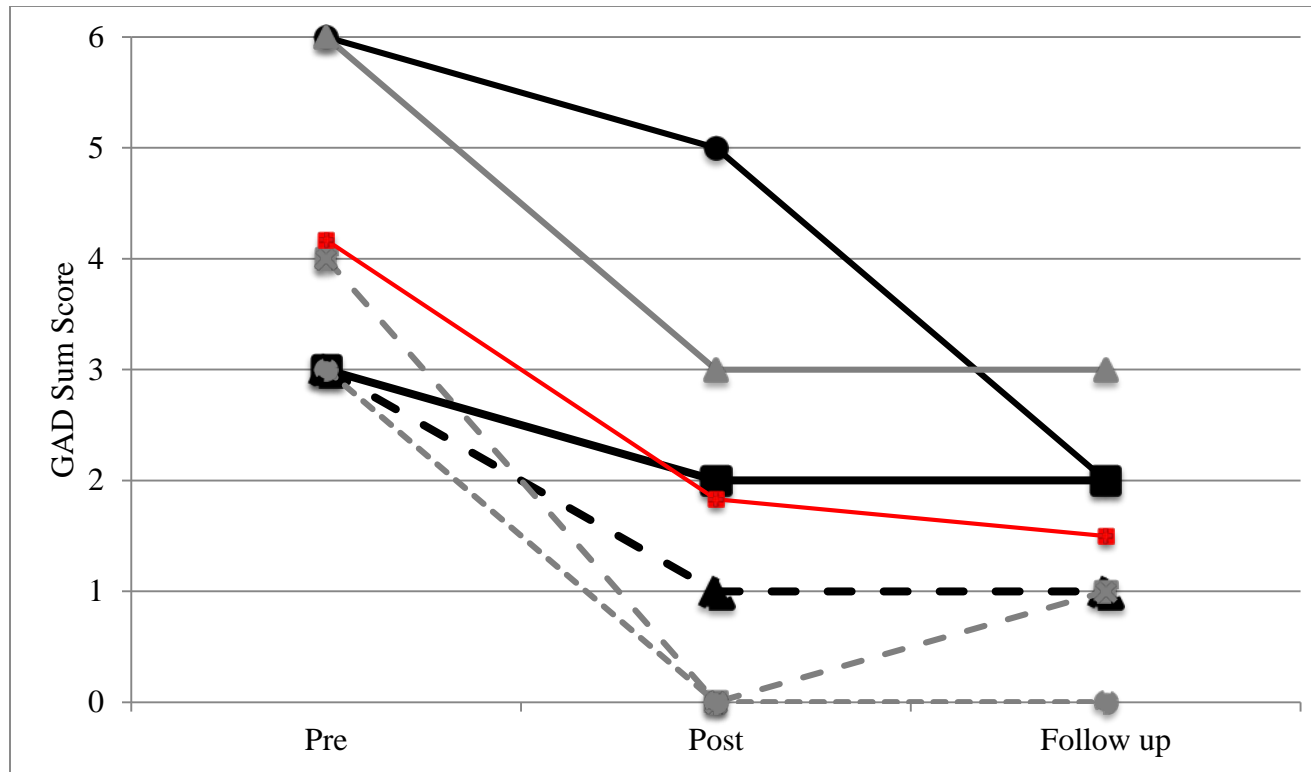


Figure 4. Changes in participants' GAD sum score from pre-treatment to post-treatment and to the follow-up assessment ($n = 6$), as measured by the 2-item Generalized Anxiety Disorder scale (GAD-2; Kroenke et al., 2007). The answer options ranged from 0 (*Not at all*) to 3 (*Nearly every day*) with a maximum score of six. A higher score indicates greater anxiety and worry symptom severity. The red line is the mean score for all participants at the three time points.

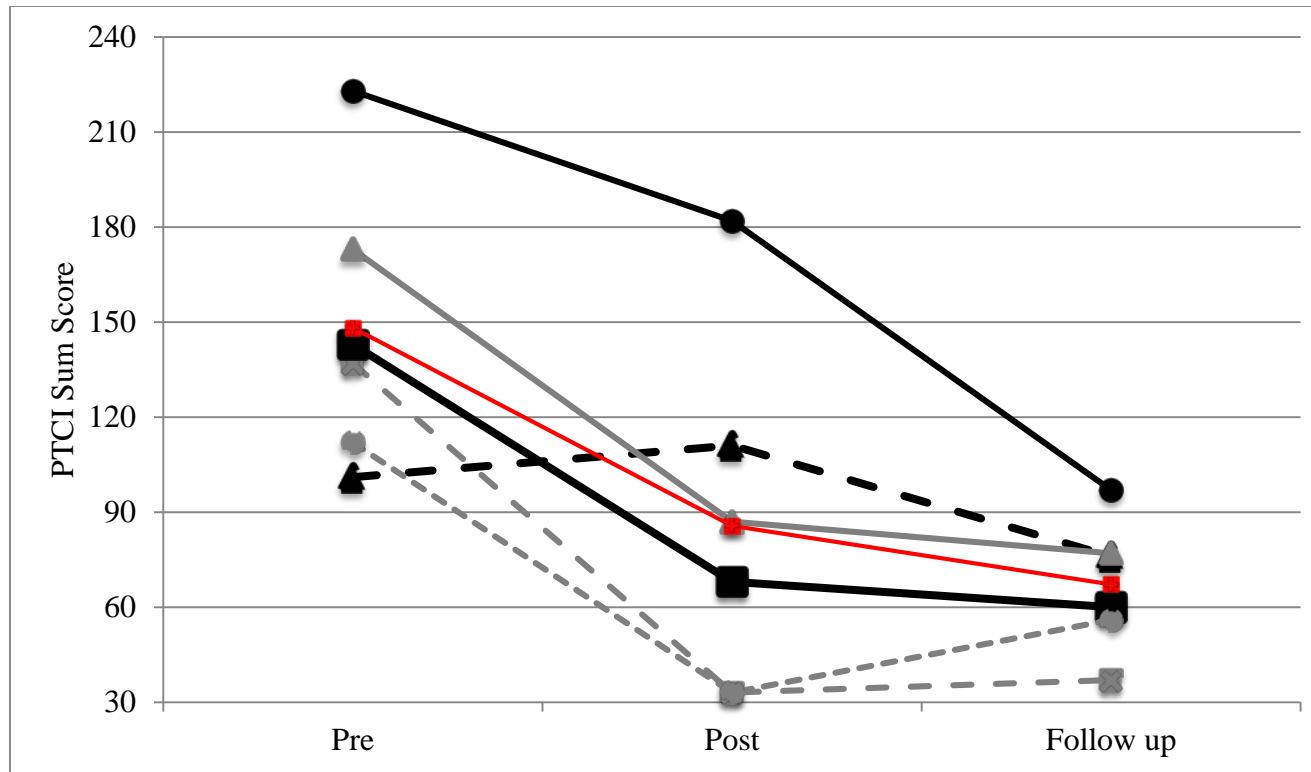


Figure 5. Changes in participants' Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) sum score from pre-treatment to post-treatment and to the follow-up assessment (n = 6). The answer options ranged from 1 (*Totally disagree*) to 7 (*Totally agree*) with a maximum score of 231 (33 items). A higher score indicates a higher level of negative trauma related cognitions. The red line is the mean score for all participants at the three time points.

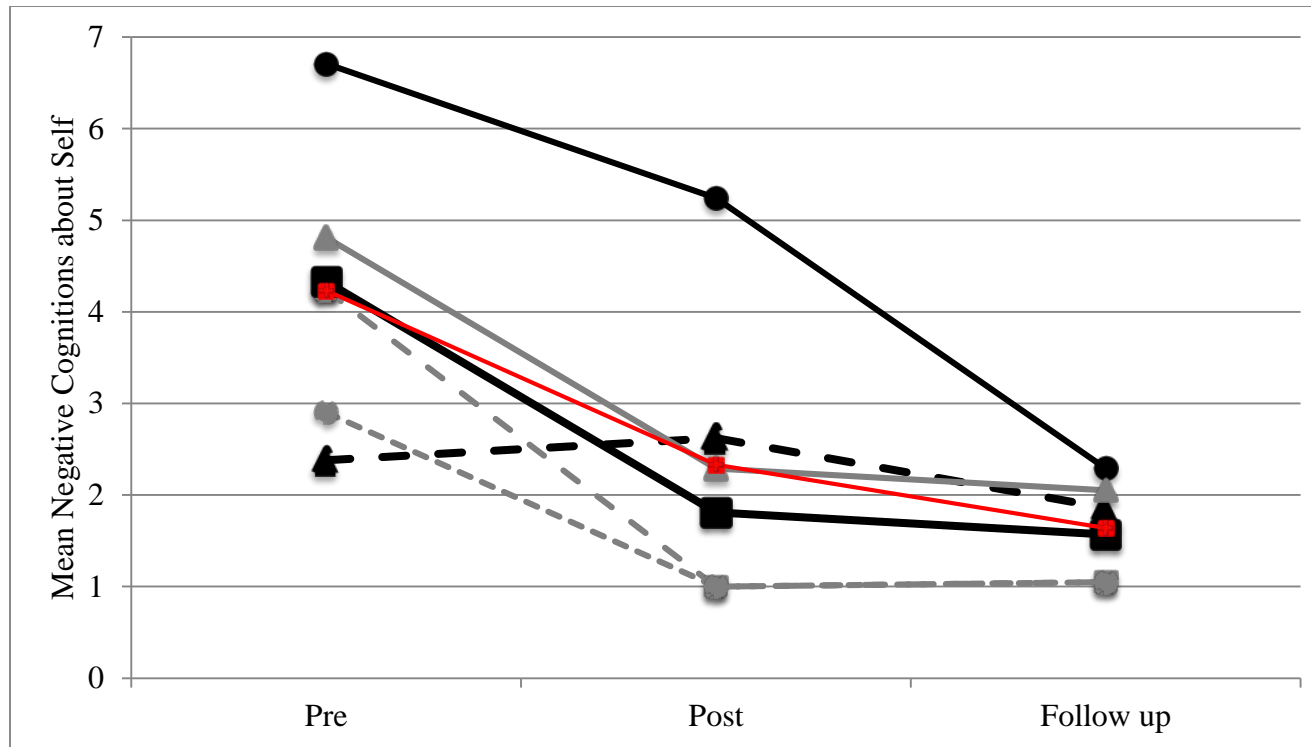


Figure 6. Changes in participants' mean score on the negative cognitions about self subscale (21 items; Posttraumatic Cognitions Inventory; Foa et al., 1999) from pre-treatment to post-treatment and to the follow-up assessment (n = 6). The answer options ranged from 1 (*Totally disagree*) to 7 (*Totally agree*). A higher mean score indicates more negative cognitions about self. The red line is the mean score for all participants at the three time points.

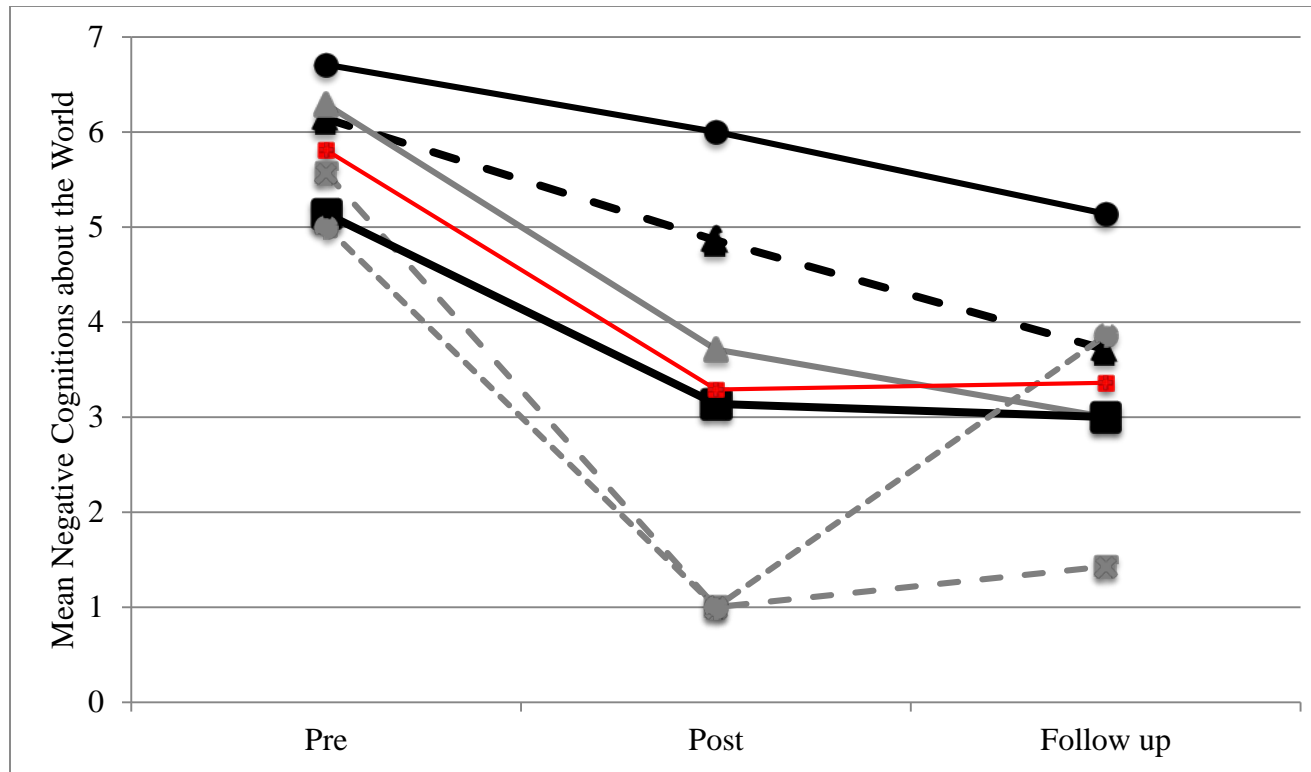


Figure 7. Changes in participants' mean score on the negative cognitions about the world subscale (7 items; Posttraumatic Cognitions Inventory; Foa et al., 1999) from pre-treatment to post-treatment and to the follow-up assessment ($n = 6$). The answer options ranged from 1 (*Totally disagree*) to 7 (*Totally agree*). A higher mean score indicates more negative cognitions about the world. The red line is the mean score for all participants at the three time points.

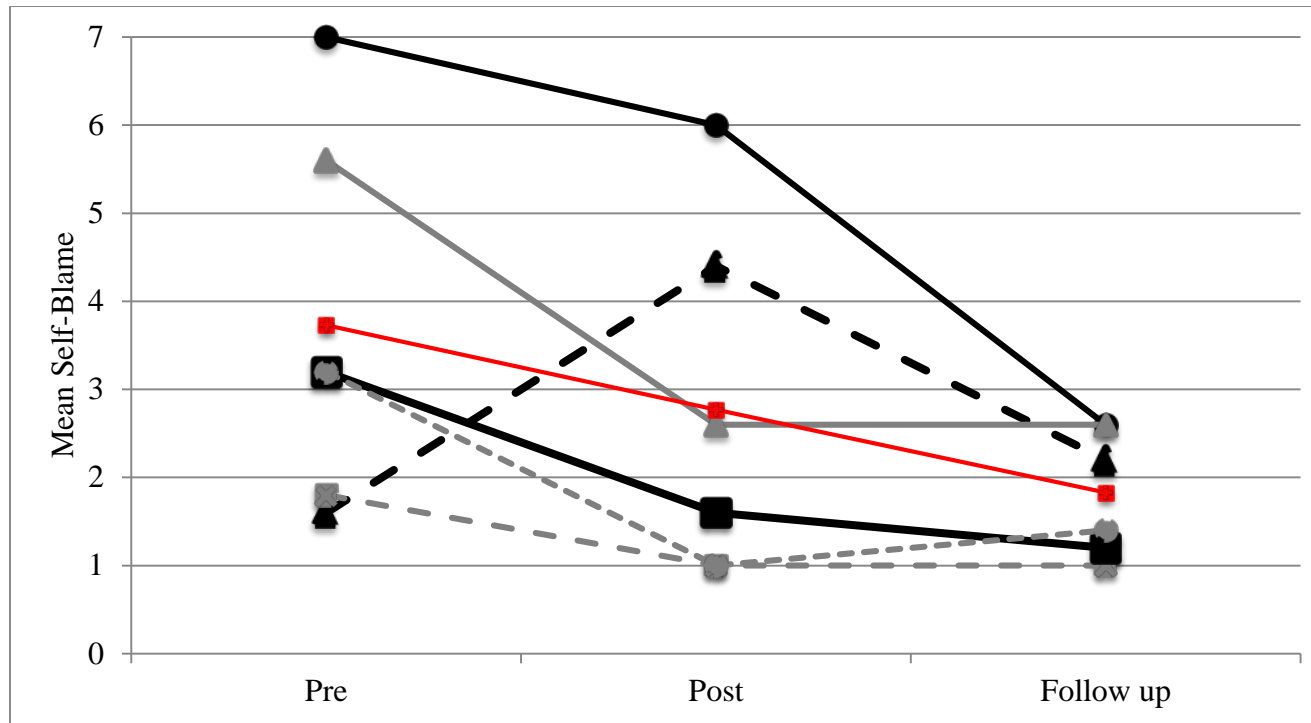


Figure 8. Changes in participants' mean score on the self-blame subscale (5 items; Posttraumatic Cognitions Inventory; Foa et al., 1999) from pre-treatment to post-treatment and to the follow-up assessment ($n = 6$). The answer options ranged from 1 (*Totally disagree*) to 7 (*Totally agree*). A higher mean score indicates a higher level of self-blame. The red line is the mean score for all participants at the three time points.

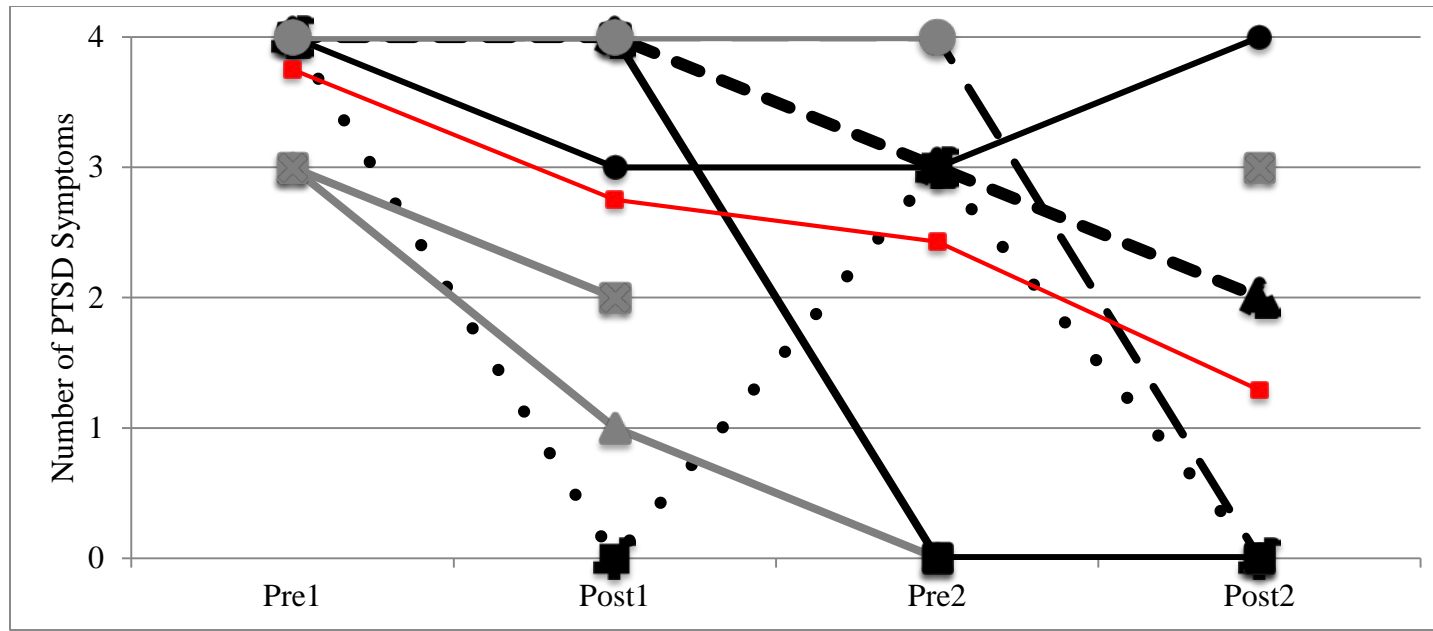


Figure 9. Changes in PTSD symptoms for participants who completed two group treatments ($n = 8$), as measured by the Primary Care PTSD screen (PC-PTSD; Prins et al., 2003). Maximum number of PTSD symptoms is four. The red line is the mean score for all participants at the four time points (pre-treatment and post-treatment assessments from the first and second group the participants completed).

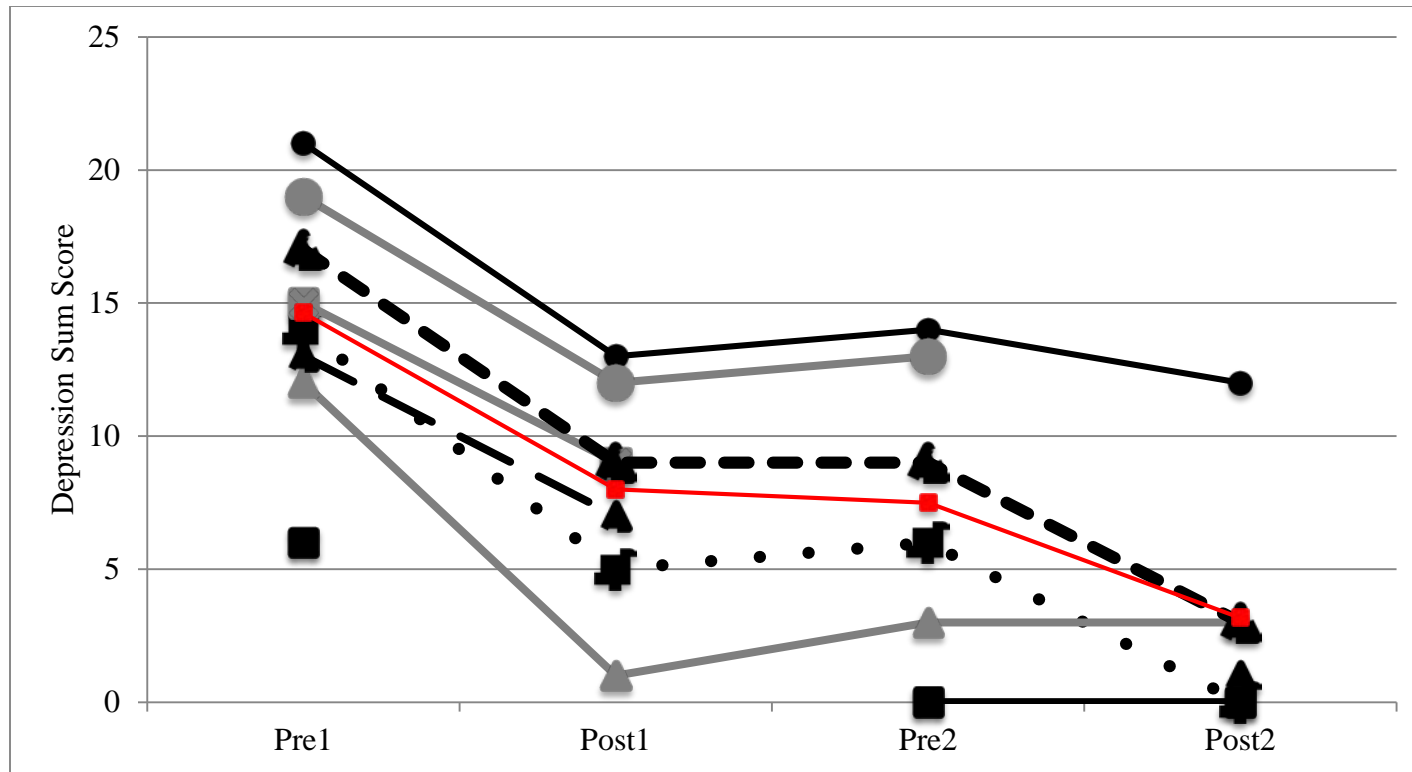


Figure 10. Changes in depression sum score for participants who completed two group treatments ($n = 8$), as measured by the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). The answer options ranged from 0 (*Not at all*) to 3 (*Nearly every day*) with a maximum score of 27. A higher score indicates greater depression severity. The red line is the mean score for all participants at the four time points (pre-treatment and post-treatment assessments from the first and second group the participants completed).

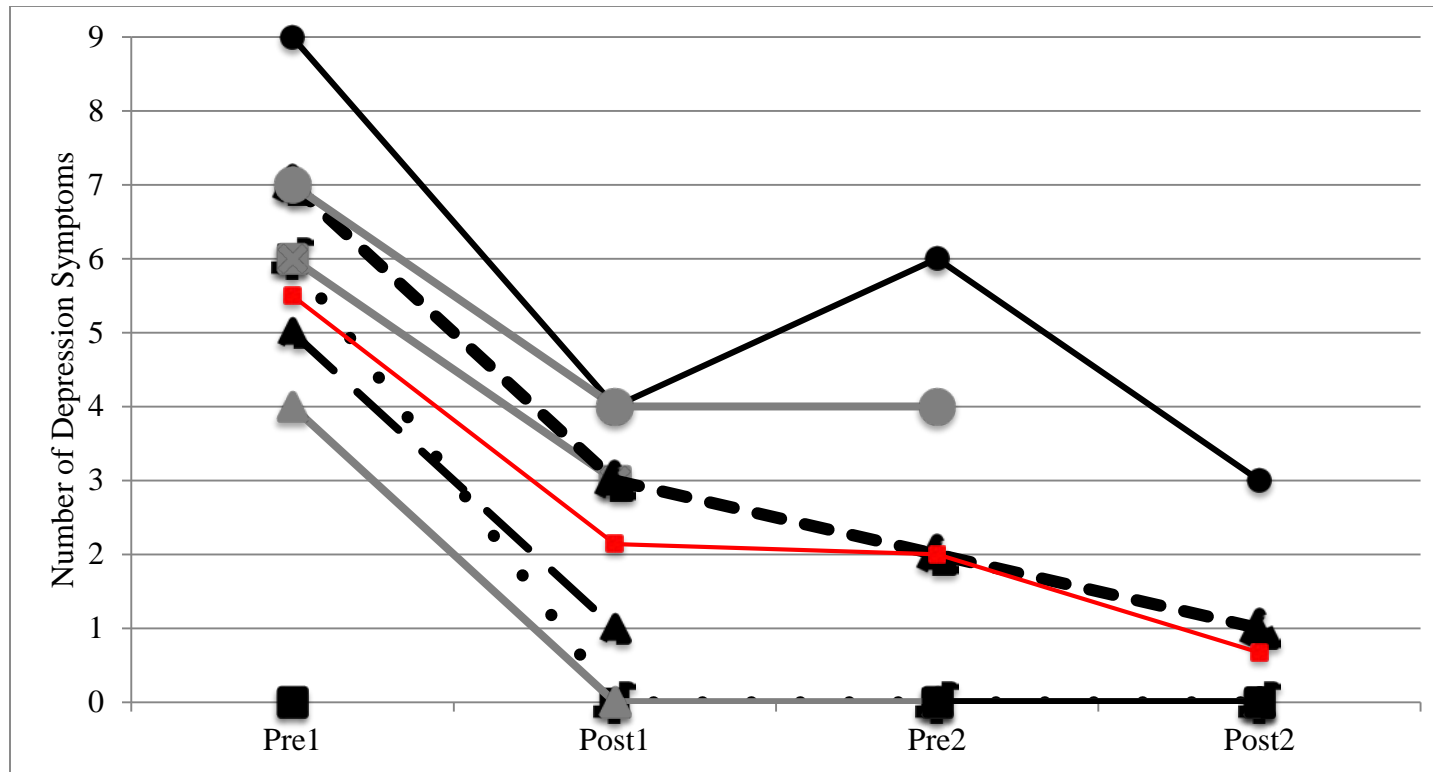


Figure 11. Changes in number of depressive symptoms for participants who completed two group treatments ($n = 8$), as measured by the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). The maximum number of symptoms is nine. The red line is the mean score for all participants at the four time points (pre-treatment and post-treatment assessments from the first and second group the participants completed).

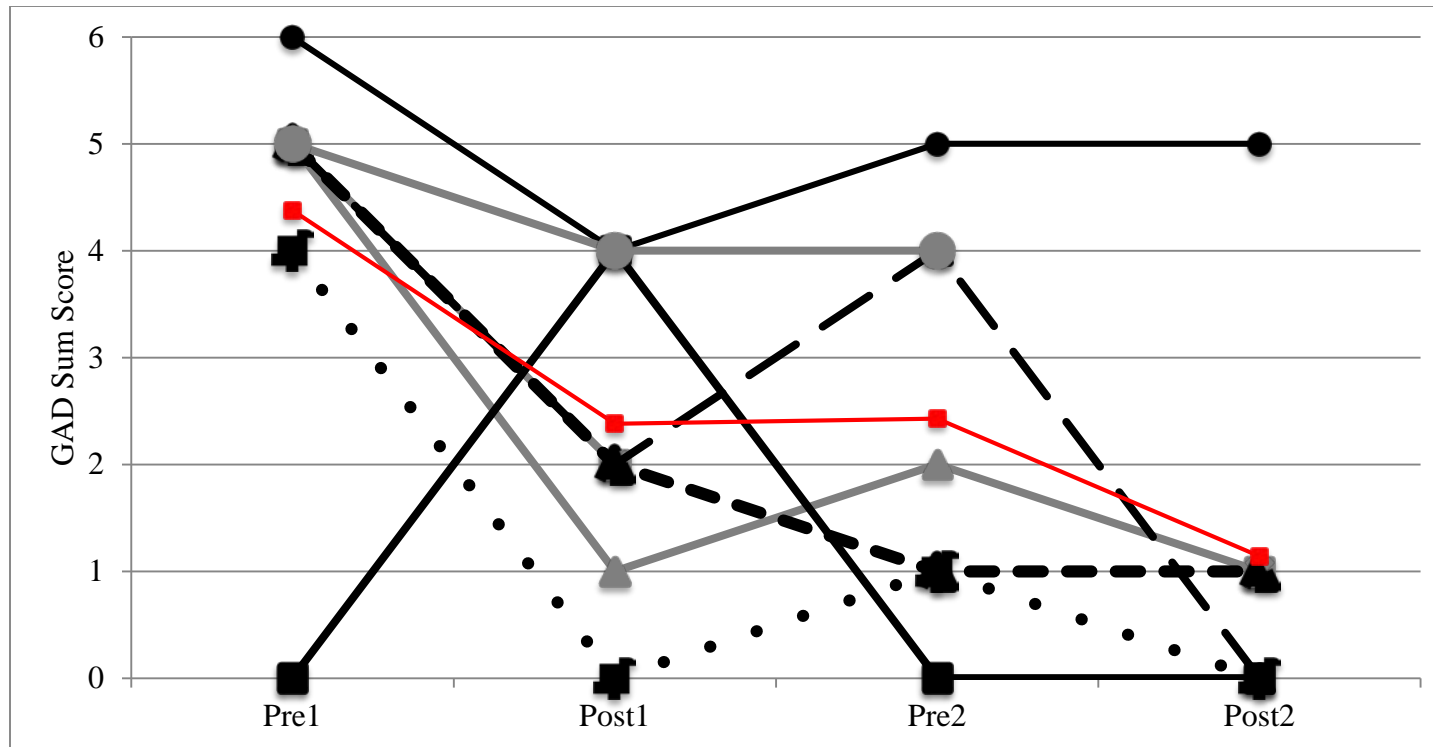


Figure 12. Changes in GAD sum score for participants who completed two group treatments ($n = 8$), as measured by the 2-item Generalized Anxiety Disorder scale (GAD-2; Kroenke et al., 2007). The answer options ranged from 0 (*Not at all*) to 3 (*Nearly every day*) with a maximum score of six. A higher score indicates greater anxiety and worry symptom severity. The red line is the mean score for all participants at the four time points (pre-treatment and post-treatment assessments from the first and second group the participants completed).

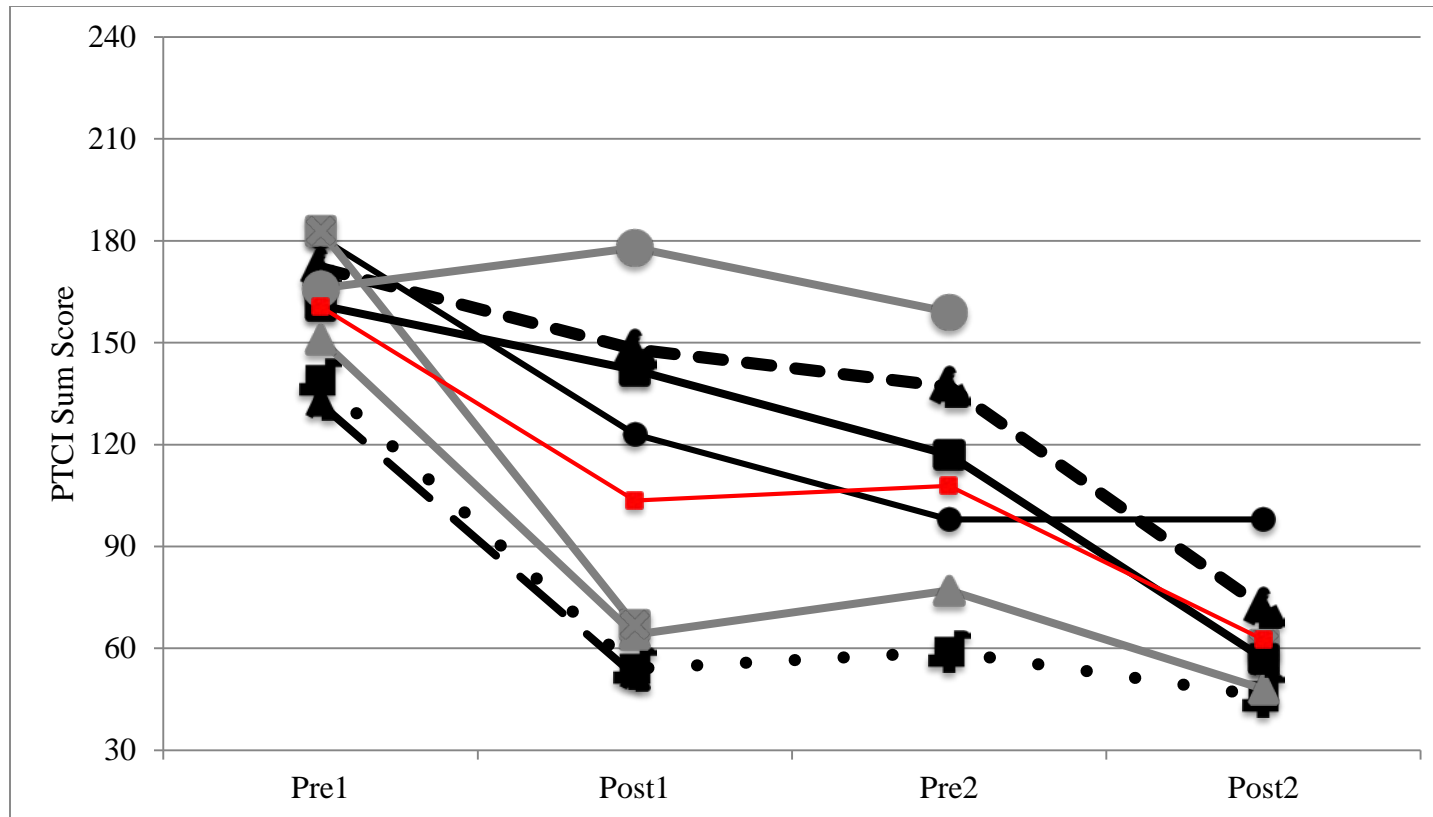


Figure 13. Changes in the Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) sum score for participants who completed two group treatments ($n = 8$). The answer options ranged from 1 (*Totally disagree*) to 7 (*Totally agree*) with a maximum score of 231 (33 items). A higher score indicates a higher level of negative trauma related cognitions. The red line is the mean score for all participants at the four time points (pre-treatment and post-treatment assessments from the first and second group the participants completed).

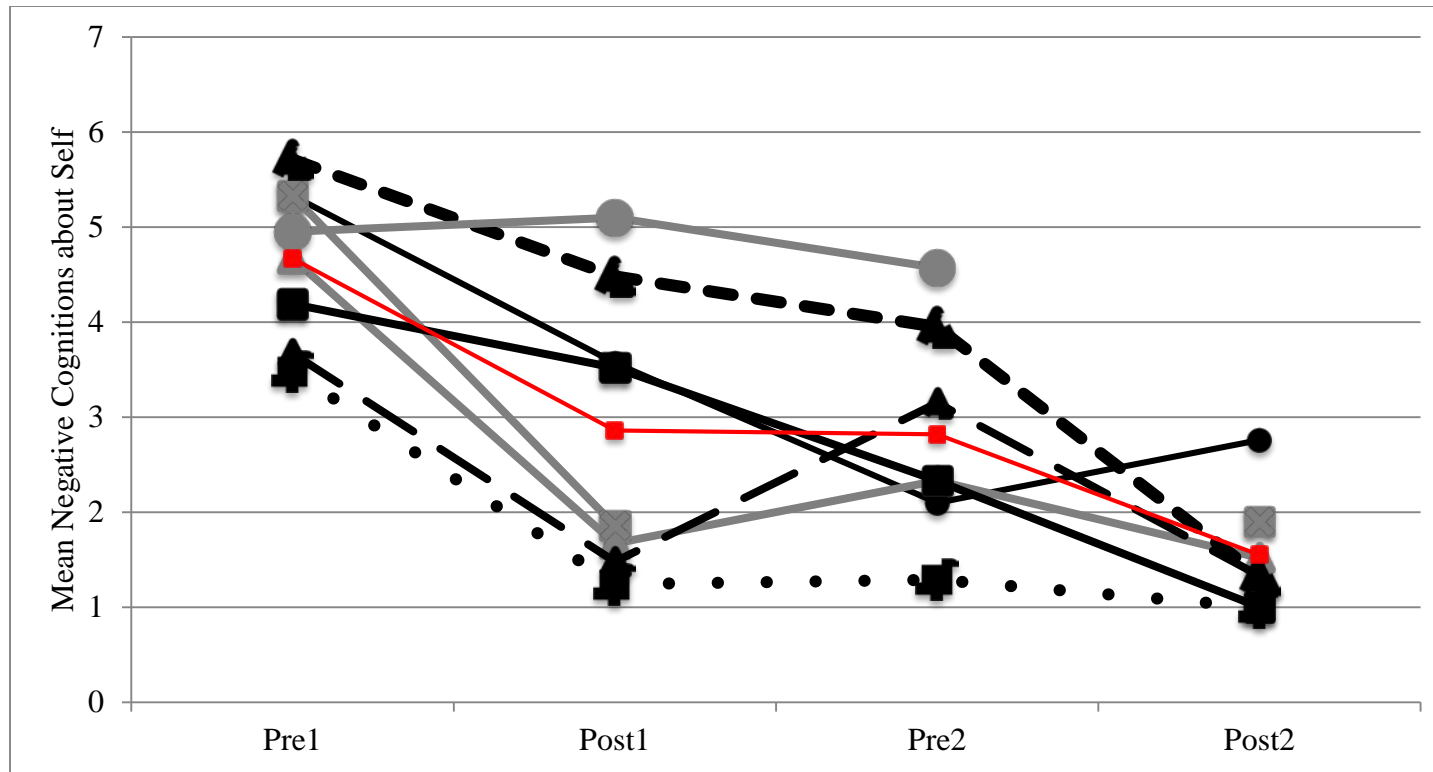


Figure 14. Changes in the mean score on the negative cognitions about self-subscale (21 items; Posttraumatic Cognitions Inventory; Foa et al., 1999) for participants who completed two group treatments (n = 8). The answer options ranged from 1 (*Totally disagree*) to 7 (*Totally agree*). A higher mean score indicates more negative cognitions about self. The red line is the mean score for all participants at the four time points (pre-treatment and post-treatment assessments from the first and second group the participants completed).

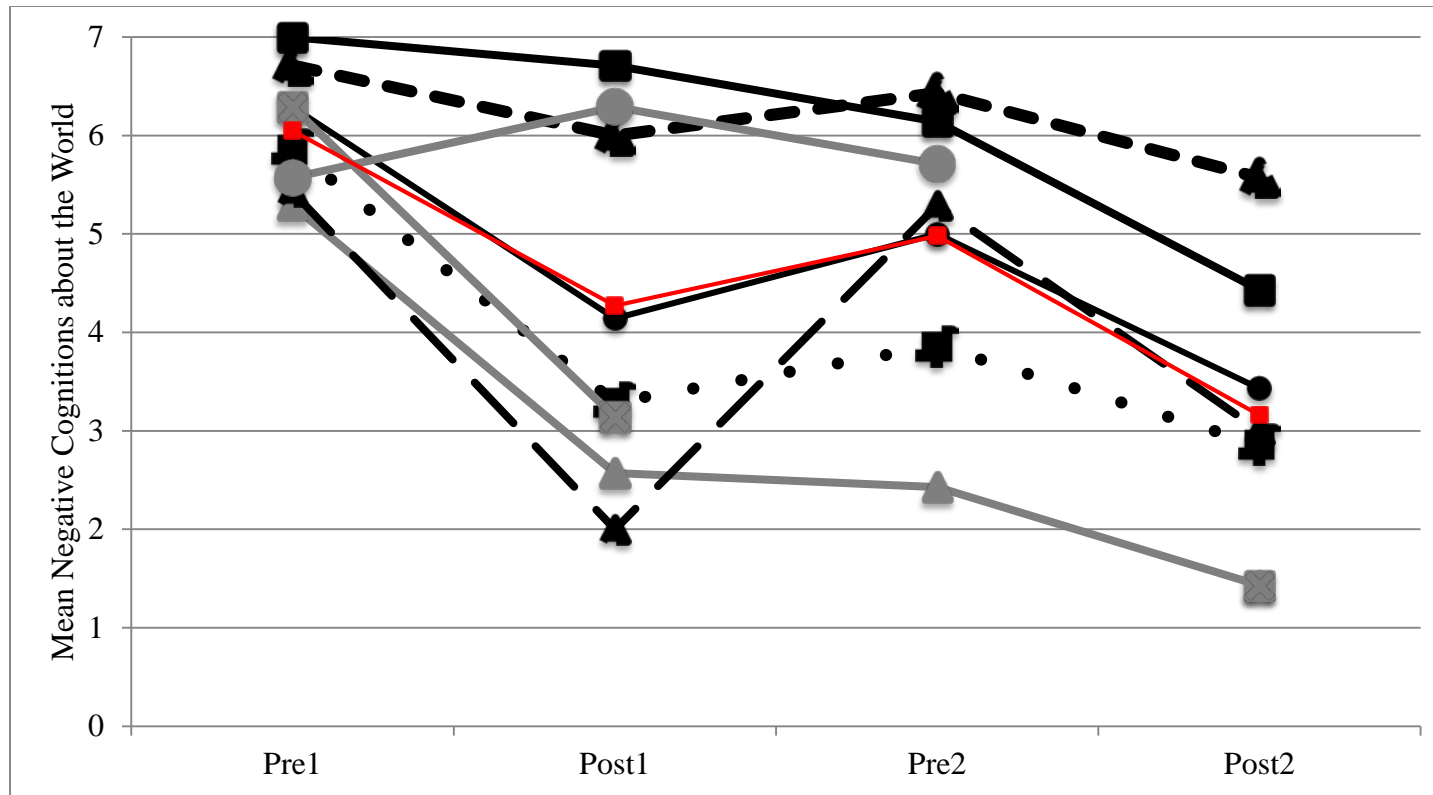


Figure 15. Changes in the mean score on the negative cognitions about the world subscale (7 items; Posttraumatic Cognitions Inventory; Foa et al., 1999) for participants who completed two group treatments (n = 8). The answer options ranged from 1 (*Totally disagree*) to 7 (*Totally agree*). A higher mean score indicates more negative cognitions about the world. The red line is the mean score for all participants at the four time points (pre-treatment and post-treatment assessments from the first and second group the participants completed).

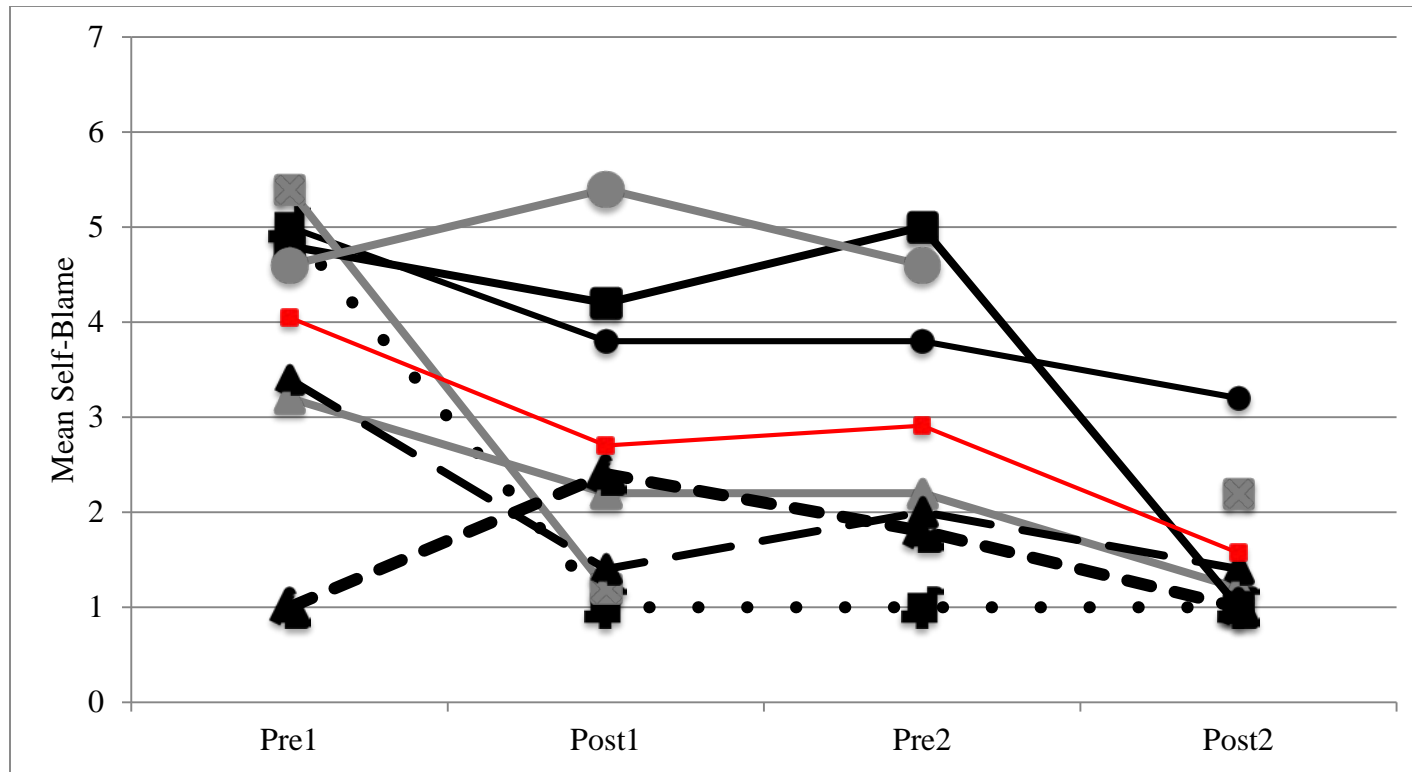


Figure 16. Changes in the mean score on the self-blame subscale (5 items; Posttraumatic Cognitions Inventory; Foa et al., 1999) for participants who completed two group treatments ($n = 8$). The answer options ranged from 1 (*Totally disagree*) to 7 (*Totally agree*). A higher mean score indicates a higher level of self-blame. The red line is the mean score for all participants at the four time points (pre-treatment and post-treatment assessments from the first and second group the participants completed).

VIII. APPENDIX

January 11, 2012

MEMORANDUM

TO: Ana Bridges
Marie Karlsson

FROM: Ro Windwalker
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 11-12-377

Protocol Title: *Evaluating a Sexual Violence Therapy Group with Incarcerated Women*

Review Type: EXEMPT EXPEDITED FULL IRB

Approved Project Period: Start Date: 01/11/2012 Expiration Date: 01/08/2013

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<http://vpred.uark.edu/210.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 70 participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu.