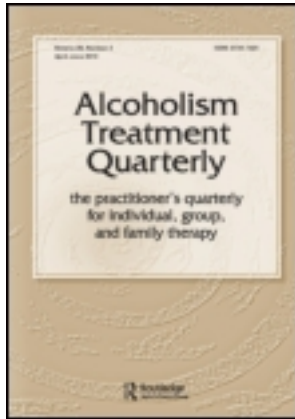


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The Effectiveness of Seeking Safety on Reducing PTSD Symptoms in Clients Receiving Substance Dependence Treatment

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An evaluation of the Seeking Safety (SS) program was conducted in a 28-day substance abuse treatment facility. The evaluation included 12 male and 28 female participants with a mean age of 33 years. The Trauma Symptom Checklist-40 was utilized as an outcome measure to statistically compare posttest to pretest group means. Results showed significant decreases, from pretest to posttest, on the total score and on several subscales of the measure. Effect sizes were large ($d < 0.80$) across all scales with the exception of Male Sexual Problems ($d = .46$). Overall, results suggest that incorporating SS as an adjunct to treatment as usual can help lower trauma symptoms in those receiving substance dependence treatment.

KEYWORDS *Seeking Safety, treatment, PTSD symptoms, substance abuse, substance dependence, addiction*

Studies find that large percentages of men and women in substance abuse treatment (Hien, Cohen, Miele, Litt, & Capstick, 2004), prisons (Heath, 2010; Zlotnick, Johnson, & Najavits, 2009; Zlotnick, Najavits, Rohsenow, & Johnson, 2003), psychiatric hospitals (Brown, Stout, & Mueller, 1999), and Veteran's hospitals (Norman, Wilkins, Tapert, Lang, & Najavits, 2010) have co-occurring substance use disorders (SUD) and posttraumatic stress disorder (PTSD). Zlotnick et al. (2009) reported that the rate of incarcerated women, exhibiting PTSD and SUD symptoms, is rising. Approximately 50% of incarcerated women were intoxicated at the time of their criminal offense. A majority (78%–85%) of incarcerated women have experienced at least one traumatic event (Zlotnick et al., 2009; Zlotnick et al., 2003). One fourth to one half of these events occurred as childhood abuse (Zlotnick et al., 2003). Some researchers and practitioners, therefore, emphasize the importance of screen-

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ing for, and providing treatment for, comorbid PTSD and SUD in substance abuse treatment facilities (Back, Waldrop, Brady, & Hien, 2006; Brown et al., 2007). This article presents findings from an evaluation of a Seeking Safety (SS) program offered at a residential treatment facility.

LITERATURE REVIEW

Research suggests that people diagnosed with co-occurring SUD and PTSD have more problems than those diagnosed with SUD alone (Najavits, Gastfriend, et al., 1998). Najavits, Gastfriend, et al. (1998) studied men and women who were cocaine dependent comparing those with and without PTSD. The researchers found that individuals who were cocaine dependent with PTSD symptoms scored higher on several measures of substance use, post-traumatic stress, and psychopathology (e.g., the Trauma History Questionnaire (Green, 1996), the PTSD Checklist (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996), the Addiction Severity Index (McLellan, Kushner, Metzger, & Peters, 1992), the Beck Depression Inventory (Beck, Steer, & Brown, 1996), the Beck Anxiety Inventory (Beck & Steer, 1993)) than individuals who were cocaine dependent without PTSD symptoms. Of the many variables that were assessed, there were several that were significantly higher than others. These included the following: number of traumas reported, number of physical and sexual experiences, number of avoidance symptoms, number of arousal symptoms, number of depression symptoms, and number of anxiety symptoms. Individuals diagnosed with PTSD were significantly younger, at the time of their first trauma, than those not diagnosed with PTSD.

Clients entering substance abuse treatment facilities, however, are rarely assessed and treated for co-occurring mental disorders (Brown et al., 1999). Some reasons for this may include discomfort by treatment staff in discussing mental disorders and a tendency to place anxiety or depression symptoms as secondary to SUD (Brown et al., 1999). According to Grupp (2008), many substance abuse facilities are not adequately equipped to treat people with co-occurring disorders, and many people with PTSD symptoms are referred elsewhere for psychiatric treatment. Without adequate treatment, however, many dually diagnosed (i.e., PTSD and SUD) women will be vulnerable to continued relapse and trauma exposure (Brown et al., 1999; Brown et al., 2007; Grupp, 2008).

Seeking Safety

Najavits (2002) developed the SS model for treating co-occurring PTSD symptoms and SUD. This approach is based on a combination of cognitive-behavioral therapy (CBT) and psychodynamic psychotherapy. A manual detailing a complete treatment program was published in 2002 (Najavits). The

treatment content was gathered from “traditions of literature on substance abuse treatment, PTSD treatment, CBT, women’s treatment, and educational research” (Najavits, p. 15). SS was designed to be an effective treatment model for busy clinicians. It comprises 25 topics across cognitive, behavioral, and interpersonal domains emphasizing coping skills that pertain to each disorder (i.e., PTSD and SUD; Najavits). Flexibility is a key feature of the SS program because the topics are all independent of each other, and each session can be delivered in either group or individual format (Najavits; Najavits, Weiss, Shaw, & Muenz, 1998). Sessions can be tailored to focus on a topic the counselor and client decide is most needed.

Effectiveness of Seeking Safety

SS has been studied with many different populations including female prisoners (Zlotnick et al., 2009; Zlotnick et al., 2003), adolescent females (Najavits, Gallop, & Weiss, 2006), females in community treatment (Brown et al., 2007; Grupp, 2008; Hien et al., 2009; Najavits, Weiss, et al., 1998), and male and female Veterans (Cook, Walser, Kane, Ruzek, & Woody, 2006; Norman et al., 2010). Study designs range from multisite randomized controlled trials (RCTs; e.g., Hien et al., 2009) to uncontrolled pilot studies with very small samples (Najavits, Schmitz, Gotthardt, & Weiss, 2005). Results of these studies indicate that the SS program is better than no intervention, but comparisons with other treatments yield mixed results.

One large-scale multisite RCT that compared SS with women’s health education showed that the two conditions did not significantly differ over time (Hien et al., 2009). In that study, women’s health education and SS yielded significant decreases in PTSD symptom scores but no significant between-groups differences were observed. In another RCT, however, Najavits et al. (2006) determined that SS was more effective on several measures from the treatment as usual group. Specifically, the SS group had significantly lower scores, at the end of treatment, on all but three of the chemical involvement problem severity subscales on the Personal Experiences Inventory (PEI; Winters & Henly, 1989; i.e., Personal Consequences of Drug Use, Social-Recreational Drug Use, and Personal Involvement with Chemicals). At the 3-month follow-up, however, only the Loss of Control subscale of the PEI remained significant. The full-intent-to-treat (FITT) analysis showed significantly lower scores for the SS group on the Effects from Drug Use, Social Benefits of Drug Use, Polydrug Use, Psychological Benefits of Drug Use, Transitional Drug Use, Preoccupation with Drugs, and Loss of Control subscales of the PEI. Additional differences favoring SS were noted on cognitive measures (i.e., Reasons for Using and the Benevolence subscale of the World Assumptions Scale; Kaler et al., 2008). Additionally, Sexual Concerns and Sexual Distress subscales of the Trauma Symptom Checklist for Children (TSCC; Briere, 1996b) significantly favored the SS group in the FITT analysis.

Although the results of RCTs are mixed, several quasi-experimental outcome studies support the effectiveness of SS. Zlotnik et al. (2003) evaluated 17 women from a voluntary residential substance abuse treatment program within a minimum-security wing of a women's prison who completed the SS program. Overall, the client satisfaction score was very high, and nine women at posttreatment no longer met criteria for PTSD. Six weeks after release, seven women no longer met the criteria for PTSD, and seven women no longer met the criteria at 3 months postrelease. All three posttreatment and follow-up tests showed significant decreases in PTSD symptoms. Substance use from pretest to 6 weeks after release, and 3 months after release, significantly decreased (Zlotnick et al., 2003).

Najavits, Weiss, et al. (1998) studied a group of 27 females who met diagnostic criteria for PTSD and substance dependence. Of the 27 participants who began the study, 10 dropped out leaving 17 who completed all phases of the study. Treatment protocol included 90-minute sessions that met twice weekly for 12 weeks. Analysis of scores from the Weekly Substance Use Inventory (as cited in Najavits, Weiss, et al., 1998) revealed a significant increase in substance abstinence over time. Results also indicated significant decreases in subtle trauma symptoms, depression, and drug use. Additionally, ratings of satisfaction with treatment were consistently high throughout the intervention and follow-up phases of the study.

A pilot study of a 10-session SS intervention with nine Veterans indicated that eight of nine decreased in PTSD symptoms; with 50% reporting a clinically significant decrease. Furthermore, five of the nine (62.5%) participants had marked decreases in depression scores, and five out of the nine (62.5%) participants decreased their number of drinking days, the number of drinks consumed per drinking event, or both (Norman et al., 2010).

As the brief literature review above suggests, results from RCTs that evaluate the effectiveness of SS are few, and results are mixed. Quasi-experimental and preexperimental outcome studies are greater in number and generally support the effectiveness of SS. Preexperimental studies are often the best research design for establishing the effectiveness of interventions in settings where random assignment to experimental and control conditions is not feasible (Rubin, 2008; Rubin & Babbie, 2011). One-group pretest–posttest designs help to establish time order and statistical association between independent and dependent variables (Rubin & Babbie, 2011). This study, therefore, offers a preexperimental evaluation of the effectiveness of the SS program.

METHOD

A student completing requirements for a master of science program in social work (MSSW) conducted this research. The MSSW program required students

to complete 500 practicum hours and do a thesis project related to the field placement. The purposes of the thesis include demonstration of the ability to identify and use evidence-based interventions, and demonstration of competency in evaluating the effectiveness of interventions. To gain practice experience, using an evidence-based intervention, the student researcher was expected to observe and, when allowed, participate in delivery of the intervention. Although the researcher's involvement with the clients makes covert coercion possible, the student researcher took precautions to minimize coercion (e.g., informing participants of their right to choose not to participate). This study was reviewed and approved by the Institutional Review Board of the university that the student was enrolled in.

Participants

All participants were recruited for this study through personal contact with residents in a substance abuse treatment facility. The facility is a 28-day intensive-residential substance abuse treatment center offering a variety of educational and therapeutic services (e.g., medically supervised detoxification from substance intoxication, individual counseling, group counseling, lectures covering the 12 steps of Alcoholics Anonymous, educational classes covering reproductive issues and sexually transmitted diseases, and referral to crisis counseling and anger management counseling). The majority of clients are state supported, though some are private pay and others are covered by insurance. Clients were self-referred, probation referred, or Child Protective Services (CPS) referred.

Participants consisted of adult men and women, age 18 years and older, seeking treatment for substance dependence. Recruitment began in early December 2010 and ended in late March 2011. Because, research suggests that significantly more women, in substance abuse treatment, present with PTSD symptoms than do men (Najavits, Gastfriend, et al., 1998; Najavits, Weiss, et al., 1998), the policy of this treatment center is to assign all entering women to a SS group. All women who entered treatment during the study period were asked to participate. Male clients, however, were screened to determine if they had symptoms of PTSD by completing the Primary Care Posttraumatic Stress Disorder Screen (PC-PTSD; Prins et al., 2003). Those men scoring positive on at least three of the four PC-PTSD questions were assigned to a SS group. A total of 40 participants (i.e., 28 females and 12 males) completed the pretest, the intervention, and the posttest.

Design

This study used a preexperimental, pretest–posttest design. The purpose of the study was to evaluate the effectiveness of the SS program in reducing PTSD symptoms in clients in treatment for substance dependence. Par-

ticipants completed a pretest–posttest self-report questionnaire rating their trauma symptoms. Baseline demographic comparisons were conducted on all clients with demographic variables including age, gender, ethnicity, education level, employment status, marital status, and drug of choice.

Procedure

Each Wednesday, beginning in December 2010 and ending at the end of February 2011, a list was made available to the researcher that contained the names of newly admitted clients. Each new client was approached by the researcher and asked to participate in a study of a program called Seeking Safety. All individuals who expressed interest in participating in the study reported to a classroom and were given further information about the study. Participants were informed of their right to decline, or discontinue, participation at any time during the study without their treatment being affected in any way. An informed consent form was provided and was signed by each participant before administering the pretest. There was no compensation, monetary or otherwise, given for participation. Clients wrote their names on the paper instruments to help the researcher collecting data to pair the posttest data with the pretest data. To protect participant confidentiality, physical data were stored in a locked briefcase when not in use. Electronic data were stored in a password-protected database. Only the student conducting the research had access to either of these locations.

SS participants met twice weekly, for one hour, on Tuesdays and Wednesdays for the duration of the 28-day stay. To allow for smaller, more personal association, groups were divided into two men's groups and two women's groups. Sizes of groups ranged from four to five males and eight to 10 females per group. Master's-level counselors who were employees of the treatment facility led SS groups. The student-researcher coled the women's groups (once a week for both groups) but only observed in the men's groups (once a week for both groups). On each Tuesday, throughout the month of March, the student-researcher approached participants who were preparing to complete treatment that week. Participants completed the posttest in an environment similar to the one in which the pretest was completed.

Measurement

Directly after signing the consent form, participants were given the 40-item Trauma Symptom Checklist (TSC-40; Briere & Runtz, 1996) to complete (see the Appendix). The TSC-40 is a 40-item instrument intended to measure trauma symptoms in adults (Briere, 1996a; Briere & Runtz, 1996). Six subscales on the TSC-40 include Anxiety, Depression, Dissociation, Sexual Abuse Trauma, Sexual Problems, and Sleep Disturbance. The TSC-40 is designed as a rating scale assessment with scores ranging from 0 to 3, with 0 (*never*) and

3 (*often*). Koopman, Gore-Felton, and Spiegel (1997) found the TSC-40 to have “good internal consistency and predictive validity regarding childhood sexual victimization” (p. 71). Follette, Polusny, Bechtle, and Naugle (1996) also reported good reliability ($\alpha = .90$) and validity of the total TSC-40 score. The mean internal consistency for the subscales was at .69 (Follette et al.). Although internal consistency values higher than .69 are desirable for diagnostic purposes, scales with lower internal consistency values can be used for monitoring progress (Rubin, 2008).

The TSC-40 was designed to assess trauma symptoms occurring during the previous 2 months. Because participants in this study are only in treatment for 28 days, it was necessary to modify the original TSC-40 instructions by asking participants “How often have you experienced each of the following in the past month?” Reliability analysis indicated strong internal consistency (i.e., Cronbach’s alpha), for the total scale, at pretest ($\alpha = .90$) and at posttest ($\alpha = .86$).

Several items on the TSC-40 ask about sexual behavior. The policy of this treatment center, however, is to disallow any sexual contact during the 28-day residential stay. This created a validity problem with those items because they did not apply, at posttest, to the study participants. A decision was made, therefore, to exclude some items from computation of the TSC-40 total and subscale (Sexual Abuse Trauma Index and Sexual Problems) scores. Items excluded were 5, 17, 23, and 29 (see the appendix). These validity issues are discussed more fully in the discussion section of this article.

Data Analysis

To test the hypotheses, three sets of paired-samples *t* tests were performed using PASW version 18 software (SPSS: An IBM company). First, males and females were grouped together and the paired-samples *t* tests were performed. Second, paired-samples *t* tests were conducted on the male group. Third, paired-samples *t* tests were performed on the female group. The analyses tested for statistically significant changes in pretest to posttest scores on the total scale and each of the six subscales of the TSC-40. To correct for increased probabilities of making Type I errors due to running multiple *t* tests on the same data set, a Bonferroni adjustment was made. This correction involved multiplying the probability values (*p*) by the number of *t* tests (21) to yield a Bonferroni adjusted *p* value (p_{Bonf} ; Rubin & Babbie, 2011; Wright, 1992).

RESULTS

Table 1 displays demographic information, and Table 2 displays information about substance-dependence-related issues. Of the participants, 28 were

TABLE 1 Demographic Characteristics of Sample ($N = 40$)

Variable	Frequency	Percent
Gender		
Male	12	30.0
Female	28	70.0
Marital Status		
Married	1	2.5
Never Married	26	65.0
Divorced	9	22.5
Separated	3	7.5
Widowed	1	2.5
Education		
Below 9th grade	6	15.0
High school (no graduation or General Equivalency Diploma [GED])	13	32.5
Graduated or GED	9	22.5
Some college	2	5.0
Four years or more of college	8	20.0
12 years + technical training	2	5.0
Information unavailable	6	15.0
Employment status		
Currently employed	8	20.0
Currently unemployed	31	77.5
Information unavailable	1	2.5

female, 12 were male, and the mean age was 33.7. Seven of these participants were referred to substance abuse treatment by a legal system or CPS, with 33 being self-referred. The participant's drug of choice is displayed in Figure 1, with stimulants preferred by more females (39.3%), and alcohol being preferred by more males (41.7%). Males and females used opiates equally (25%) with marijuana the least used substance for both genders.

Table 3 presents a comparison of males and females on pretest TSC-40 scores. As the table shows, females scored significantly higher on several of the TSC-40 subscales. This is consistent with the literature that shows that females with substance dependence very frequently have PTSD or symptoms

TABLE 2 Substance-Abuse Related Issues (Data in Percentages)

Question	Yes	No
Do/have members of your immediate family use/used substances	65.8	17.8
Are you taking a prescription medication prescribed by a doctor for a diagnosed physical condition	21.9	76.7
Are you taking a prescription medication prescribed by a doctor for a diagnosed mental condition	35.6	64.4
Do you have any past or current legal issues involving substances	68.5	26.0
Any past or current cps involvement with your children	17.8	82.2
Have you ever attempted suicide	21.9	76.7

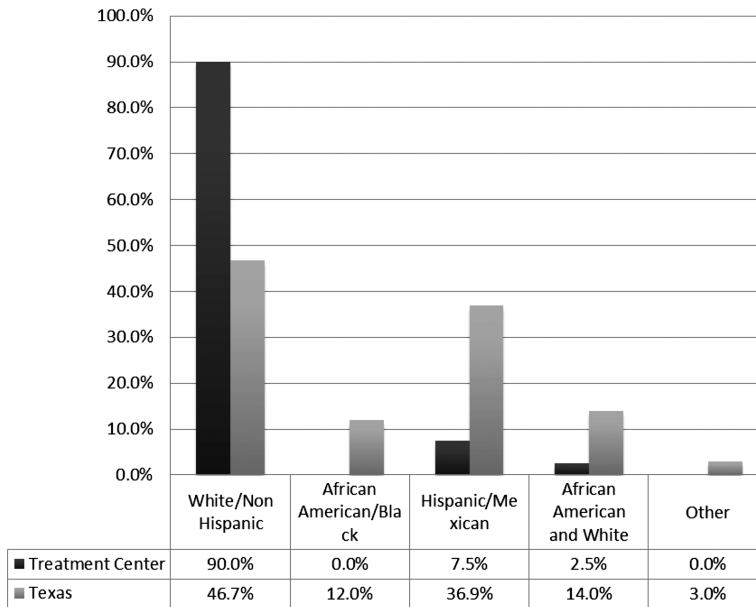


FIGURE 1 Ethnic population comparison: Treatment center versus State of Texas (%).

of PTSD. Although the purpose of this research was not to make comparisons between male and female groups, the finding suggests the groups are dissimilar with respect to TSC-40 scores at pretest (i.e., females in this sample experience more severe trauma symptoms).

Paired-samples *t* test results are shown in Table 4. As a whole (i.e., males and females combined), *t* test results indicate statistically significant pretest to posttest decreases on the total scale and on all six subscales of the TSC-40. Decreases in male symptoms on the Anxiety, $t(11) = 3.87$; $p = .055$, Sexual Abuse Trauma Index, $t(11) = 3.61$; $p = .08$, and Sexual Problems, $t(11) =$

TABLE 3 Comparison of Males and Females on Trauma Symptom Checklist (TSC)-40 Pretest Scores

TSC-40 scale	Male	Female	<i>t</i>	<i>df</i>	<i>p</i>
Dissociation	7.58 (5.02)	9.86 (3.36)	-1.44	15.4	0.171
Anxiety	8.50 (4.85)	12.86 (4.96)	-2.56	38	0.015*
Depression	11.92 (5.09)	15.60 (3.85)	-2.52	38	0.016*
Sexual Abuse Trauma Index	5.67 (3.45)	8.00 (2.96)	-2.18	38	0.036*
Sleep Disturbance	10.50 (4.48)	12.57 (4.61)	-1.31	38	0.197
Sexual Problems	1.83 (1.40)	4.29 (2.45)	-3.24	38	0.003**
Total	46.00 (21.50)	63.18 (16.98)	-3.11	38	0.010*

Note. Corrected *t* values and *df* were on the dissociation subscale because Levene's test results indicated that the homogeneity of variance assumption was not met.

* $p < 0.05$, ** $p < 0.01$.

TABLE 4 Pretest/Posttest Comparison Scores

	Pretest <i>M (SD)</i>	Posttest <i>M (SD)</i>	<i>t</i>	<i>df</i>	<i>p</i> _{Bonf}	Cohen's <i>d</i>
Male and female						
Dissociation	9.18 (4.01)	4.05 (3.15)	8.46	39	0.000***	1.42
Anxiety	11.55 (5.27)	5.08 (3.66)	9.17	39	0.000***	1.43
Depression	14.5 (4.53)	6.43 (3.83)	10.11	39	0.000***	1.93
Sexual Abuse Trauma Index	7.3 (3.25)	3.48 (2.49)	7.92	39	0.000***	1.32
Sleep disturbance	11.95 (4.62)	6.58 (4.51)	5.73	39	0.000***	1.18
Sexual problems	3.55 (2.45)	1.55 (1.74)	5.28	39	0.000***	0.94
Total score	58.02 (19.84)	27.15 (14.63)	10.13	39	0.000***	1.78
Male only						
Dissociation	7.58 (5.02)	3.00 (2.70)	4.20	11	0.031*	1.14
Anxiety	8.50 (4.85)	3.33 (2.57)	3.87	11	0.055	1.33
Depression	11.92 (5.09)	4.92 (3.68)	4.47	11	0.020*	1.58
Sexual Abuse Trauma Index	5.67 (3.44)	2.50 (1.73)	3.61	11	0.084	1.16
Sleep disturbance	10.50 (4.48)	4.75 (2.18)	4.39	11	0.022*	1.63
Sexual problems	1.83 (1.40)	1.17 (1.47)	1.88	11	1.827	0.46
Total score	46.00 (21.50)	19.67 (11.14)	4.72	11	0.021*	1.54
Female only						
Dissociation	9.86 (3.36)	4.50 (3.27)	7.27	27	0.000***	1.62
Anxiety	12.86 (4.96)	5.82 (3.84)	8.54	27	0.000***	1.59
Depression	15.61 (3.85)	7.07 (3.77)	9.20	27	0.000***	2.24
Sexual Abuse Trauma Index	8.00 (2.95)	3.89 (2.67)	7.08	27	0.000***	1.46
Sleep disturbance	12.57 (4.61)	7.36 (5.03)	4.24	27	0.005**	1.08
Sexual problems	4.29 (2.45)	1.71 (1.84)	5.32	27	0.000***	1.19
Total score	63.18 (16.98)	30.36 (14.94)	9.02	27	0.000***	2.05

Note. p_{Bonf} = Bonferroni adjusted p values.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

1.88; $p = 1.83$, subscales of the TSC-40 were not statistically significant. For women, however, the total scale and all six subscales showed statistically significant pretest to posttest decreases at the .05 level.

Effect sizes were calculated using the formula for Cohen's d (see Cohen, 1988) on a Microsoft Excel spreadsheet. Values for Cohen's d are reported in Table 4. According to Cohen (1988), an effect size of .80 and above represents a strong effect, and those effect sizes around .50 are considered medium effects. As Table 3 indicates, all effect sizes are strong with the exception of the Sexual Problems subscale for males ($d = .46$) that shows a small to medium effect size. Effect-sizes for the total TSC-40 scale were very strong for the entire sample as well as for both sexes. These results indicate that there was close to a two standard deviation ($d = 1.78$) pretest to posttest change on the entire TSC-40 scale for the group as a whole. This effect was even larger for women ($d = 2.05$) indicating that women's pretest to posttest scores changed more than the men's. The subscale with the greatest decrease in symptoms for females ($d = 2.24$) was Depression with Dissociation the second greatest decrease ($d = 1.62$). Males Sleep Disturbance scores decreased the most ($d = 1.63$) and Depression, for males, was a close second ($d = 1.58$).

DISCUSSION

The findings of this study suggest that SS may be beneficial for individuals suffering with SUD and PTSD symptoms. The trauma symptoms present in the participants at the pretest stage were significantly decreased posttreatment. This study shows SS may be beneficial to reducing trauma symptoms in those seeking substance abuse treatment. According to the SS manual, the reduction of trauma symptoms is most likely due to replacing old coping skills (e.g., substance use) with new, safer coping skills (Najavits, 2002). These new coping skills can be useful to the clients in multiple areas of their lives.

Limitations

This study has several limitations. Because no control group was used, it is not possible to rule out threats to internal validity (Rubin & Babbie, 2011). The extent to which the SS intervention was responsible for the changes in trauma symptoms, versus other plausible explanations, is, therefore, unknown. This particular treatment facility offers an intensive and multifaceted treatment regimen that includes psychoeducation, individual psychotherapy, group counseling, and 12-Step meetings. Each of these facets of treatment encourages change and provides clients with skills needed to achieve and sustain this change. Additionally, trauma symptoms can be and are addressed in these treatment components (i.e., outside of SS).

Another limitation of this study is the low representation of persons belonging to ethnic minority groups present in the sample. Figure 2 shows the different ethnicities in the study and how they compared in proportion to the population of Texas. According to this data, White/Non-Hispanics in the treatment facility were overrepresented compared to White/Non-Hispanics in

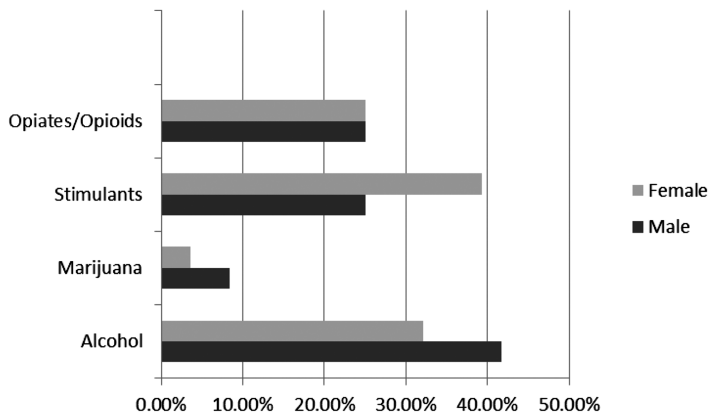


FIGURE 2 Comparison of participant's drug of choice by gender.

Texas (U.S. Census Bureau, 2010). African Americans and Hispanic/Mexicans were extremely underrepresented compared to African Americans and Hispanic/Mexicans in Texas. The percentage reporting more than one ethnicity was similar to the Texas population of individuals reporting the same (U.S. Census Bureau, 2010).

Another limitation stems from the policy of the treatment center to assign all females to SS groups whereas males are assigned only after completing the PC-PTSD (Prins et al., 2003). The assumption is that all females enter treatment experiencing symptoms of PTSD whereas males may or may not experience such symptoms. Because of this assumption, all women are assigned to SS without any formal assessment for PTSD. This limits the scope of the analysis to women's PTSD symptoms. In contrast, males were required to complete the PC-PTSD (Prins et al., 2003) and only those males who answered three of the four questions of the PC-PTSD affirmatively are referred to SS. According to a validation study of the PC-PTSD, using three affirmative responses as a cutoff score results in a specificity value of .90 (Bliese et al., 2008). From an empirical standpoint, therefore, one could argue that males meet criteria for PTSD whereas females received no a priori assessment for PTSD. Stated differently, one could argue that the scope of the analysis for males was males with PTSD whereas the scope of the analysis for females is limited to females with PTSD symptoms.

Although not part of the original analysis plan, an independent samples *t* test comparison of male and female pretest TSC-40 scores was performed to determine if the groups were significantly different at the beginning of treatment. The results of the *t* test indicated that females had significantly higher TSC-40 scores (with the exceptions of the Dissociation and Sleep Disturbance subscales). Consistent with research (e.g., Najavits, Gastfriend, et al., 1998; Najavits, Weiss, et al., 1998), and consistent with the assumption the treatment center makes, the females in this sample entered treatment experiencing more severe PTSD symptoms than the males. This finding is interesting in light of the fact that males were screened for PTSD whereas females were not. What affect grouping males and females together had on the combined groups paired samples *t* test is unknown.

Measurement Validity Issues

As originally designed and evaluated, the TSC-40 asked participants "How often have you experienced each of the following in the last two months?" (Briere & Runtz, 1996). Because the treatment facility is a 28-day program, and access to participants was implausible following completion, the instruction was modified to "How often have you experienced each of the following in the past month?" Although this instruction differs from the instructions used in every known validation study of the TSC-40 (e.g., Briere, 1996a; Elliott & Briere, 1992; Gold & Cardeña, 1998; Whiffen, Benazon, & Bradshaw,

1997; Zlotnick, Shea, Begin & Pearlstein, 1996), the only way to measure for change across the 28-day treatment period was to change the instruction. For consistency, this instruction was used at pretest and posttest measurements.

As discussed above, an additional problem was noted with the Sexual Abuse Trauma Index and Sexual Problems subscales of the TSC-40. Facility policy strictly forbids sexual contact during the 28-day treatment period. Some items on these subscales of the TSC-40, however, inquired about current sexual practices (e.g., having sex that you didn't enjoy, bad thoughts or feelings during sex). Such items are not applicable to participants at posttest because they have not had sex in the previous 28 days. Because those items are not applicable at posttest, they are invalid. For this reason, Items 5, 17, 23, and 29 were excluded from calculation of pretest and posttest subscale (i.e., Sexual Abuse Trauma Index and Sexual Problems) and TSC-40 total scores. What affect removal of those items has on the overall validity of the TSC-40 is unknown; however, there is no reason to believe such a change substantially alters the ability of the instrument to measure pretest and posttest trauma symptoms. Reliability remained strong at pretest and at posttest (i.e., Cronbach's alpha values of .90 and .86, respectively).

Implications for Research

This study could be enhanced in a number of ways. Use of a control or comparison condition would greatly enhance internal validity and increase confidence in the effectiveness of the SS program. Randomization to treatment and control conditions is very difficult in agency settings; however, making preexperimental designs more feasible (Rubin & Babbie, 2011). Possibly, a future study could make use of males not participating in SS as a nonequivalent comparison condition. Such would not be without problems, however, as there would be selection bias.

A larger sample of males is also desirable to increase statistical power. Increasing the time frame for the study would permit the inclusion of more male study participants. Although effect sizes were strong with the current number of participants, a larger sample could potentially increase those effect sizes. A larger sample would also make possible comparison of different demographic groupings. Because of the small sample size and small numbers of demographic variations (i.e., small representation by ethnic minorities) no comparisons were made to determine how participants vary according to such characteristics. Epidemiologic studies indicate that some ethnic minorities experience higher rates of PTSD than the White majority (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). Given that ethnic minorities (i.e., Black and Hispanic people) were underrepresented in this study, it would be interesting to determine how well they respond to SS. Additionally, research suggests that higher rates of PTSD, in a community sample, are associated with parental poverty (Davidson, Hughes, Blazer, & George, 1991). A larger

sample size would permit comparison of the effectiveness of SS among differing socioeconomic groups.

Implications for Practice

There is good reason to believe that the SS program benefits those people receiving residential substance dependence treatment who are experiencing PTSD symptoms. These results are congruent with other effectiveness studies on SS (e.g., Brown et al., 2007; Cook et al., 2006; Grupp, 2008; Hien et al., 2009; Najavits et al., 2006; Najavits, Gastfriend, et al., 1998; Najavits, Weiss, et al., 1998; Norman et al., 2010; Zlotnick et al., 2009; Zlotnick et al., 2003). This existing research provides strong evidence that SS is an effective intervention. Although this study may differ from others in that no diagnosis of PTSD was used as inclusion criteria, the results provide support that SS may be useful for reducing PTSD symptoms in people receiving residential treatment for substance dependence.

CONCLUSION

In conclusion, the findings of this study show that including SS in a substance abuse treatment program is positively linked with reduction of trauma symptoms in those suffering with SUD. Reduction of trauma symptoms concurrent with treatment for substance dependence will likely increase the probability that substance dependence treatment will be successful. SS is still a considerably new program, and further research is needed to establish such claims. Because the majority of participants in this study were White/Caucasian females, further research is needed to demonstrate the effectiveness of SS in substance dependence treatment centers with different population groups (i.e., males, ethnic minorities, etc.).

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APPENDIX

Trauma Symptom Checklist-40

Name _____ Code # _____

TSC-40

How often have you experienced each of the following in the last month?

0 = Never 3 = Often

- | | | | | |
|---|---|---|---|---|
| 1. Headaches | 0 | 1 | 2 | 3 |
| 2. Insomnia (trouble getting to sleep) | 0 | 1 | 2 | 3 |
| 3. Weight loss (without dieting) | 0 | 1 | 2 | 3 |
| 4. Stomach problems | 0 | 1 | 2 | 3 |
| 5. Sexual problems | 0 | 1 | 2 | 3 |
| 6. Feeling isolated from others | 0 | 1 | 2 | 3 |
| 7. "Flashbacks" (sudden, vivid, distracting memories) | 0 | 1 | 2 | 3 |
| 8. Restless sleep | 0 | 1 | 2 | 3 |
| 9. Low sex drive | 0 | 1 | 2 | 3 |
| 10. Anxiety attacks | 0 | 1 | 2 | 3 |

11. Sexual overactivity	0	1	2	3
12. Loneliness	0	1	2	3
13. Nightmares	0	1	2	3
14. “Spacing out” (going away in your mind)	0	1	2	3
15. Sadness	0	1	2	3
16. Dizziness	0	1	2	3
17. Not feeling satisfied with your sex life	0	1	2	3
18. Trouble controlling your temper	0	1	2	3
19. Waking up early in the morning and can’t get back to sleep	0	1	2	3
20. Uncontrollable crying	0	1	2	3
21. Fear of men	0	1	2	3
22. Not feeling rested in the morning	0	1	2	3
23. Having sex that you didn’t enjoy	0	1	2	3
24. Trouble getting along with others	0	1	2	3
25. Memory problems	0	1	2	3
26. Desire to physically hurt yourself	0	1	2	3
27. Fear of women	0	1	2	3
28. Waking up in the middle of the night	0	1	2	3
29. Bad thoughts or feelings during sex	0	1	2	3
30. Passing out	0	1	2	3
31. Feeling that things are “unreal”	0	1	2	3
32. Unnecessary or over-frequent washing	0	1	2	3
33. Feelings of inferiority	0	1	2	3
34. Feeling tense all the time	0	1	2	3
35. Being confused about your sexual feelings	0	1	2	3
36. Desire to physically hurt others	0	1	2	3
37. Feelings of guilt	0	1	2	3
38. Feelings that you are not always in your body	0	1	2	3
39. Having trouble breathing	0	1	2	3
40. Sexual feelings when you shouldn’t have them	0	1	2	3