Evaluating Traumatic Incident Reduction Therapy With Female Inmates: A Randomized Controlled Clinical Trial

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Objective: An experimental outcome study with trauma-related symptoms was conducted to examine the effectiveness of traumatic incident reduction (TIR). It is a brief, memory-based, therapeutic intervention and was used to treat symptoms of post-traumatic stress disorder (PTSD), depression, anxiety, and low expectancy of success (i.e., low self-efficacy). Method: A randomized pretest-posttest control group design with 123 female inmates in a federal prison was used to evaluate the efficacy of the interventive procedure. The Post-Traumatic Symptom Scale, the Beck Depression Inventory, the Clinical Anxiety Scale, and the Generalized Expectancy of Success Scale were administered at pretest, posttest, and 3-month follow-up time intervals. Results: A repeated-measures MANOVA showed significant differences between the treatment and comparison control conditions on all measures at posttest and follow-up time intervals except for the PTSD Intrusion subscale at the posttest interval. Conclusion: The marked improvement of the treatment condition by comparison to those in the control condition supports the contention that TIR is an effective intervention with female inmates. The significant results on all measures at the follow-up time interval provide persuasive evidence of the stability of the interventive effects. The significance of this therapy model for use by practitioners with social work populations is highlighted.

The purpose of this study was to examine the effects of traumatic incident reduction (TIR) (Gerbode, 1989)—a client-respectful, therapist-directed, memory-based therapeutic intervention aimed at the reduction of trauma-related symptoms—on incarcerated women who were victims of interpersonal violence. A client-respectful technique is one wherein the client's perception of the traumatic incident takes precedent over any other perception of

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the incident. For example, should a female client have multiple traumatic events in her past, she decides on which event to focus, and her version of the event goes undisputed. In addition, in a client-respectful approach, an event is considered traumatic if the client so deems it, and this determination is acknowledged by the practitioner.

A therapist-directed technique implies that the therapist acts as a facilitator, ensuring that the session has structure and focus, but the therapist does not act as interpreter, evaluator, or problem solver. A memory-based intervention refers to one in which the current symptoms are believed to be related to a past event and that lasting resolution of those symptoms involves focusing on the memory versus merely focusing on management of current symptoms. Trauma-related symptoms are, among others, those generally associated with post-traumatic stress disorder (PTSD). Symptoms of PTSD include intrusion, avoidance, and arousal (American Psychiatric Association, 1994). Intrusion involves nightmares, recurring thoughts, and flashbacks. Avoidance speaks of numbing of feelings, avoiding places associated with the event, and attempts to not think about the event. Arousal, among other things, pertains to an exaggerated startle response and hypervigilance. The diagnosis of PTSD means that the symptoms are more present after the traumatic event than they were before the event and that the symptoms have existed for at least 4 weeks. Other symptoms associated with trauma are low self-esteem and a reduced sense of being in control. Interpersonal violence is any act of violence that one person commits against another. Interpersonal violence would include rape, incest, battery, assault, holding one as hostage, and making threats on another's life and/or health.

Although advocates of TIR suggest that it is a highly effective and cost-efficient brief treatment modality, there is little research to justify such claims. Most of what has been written about TIR is anecdotal. A case study (Valentine, 1995), a multisite clinical debriefing study (Valentine & Smith, 1998), a dissertation based on a quasi-experimental design (Coughlin, 1995), and another dissertation, a true experimental study based on victims of crime in England (Bisbey, 1995), comprise the body of TIR studies.

The studies by Valentine (1995) and Valentine and Smith (1998) used ethnographic methods and were qualitative and discovery oriented. The client perspectives gathered in these studies expanded and clarified the existing theory base of TIR. The former study provided a vivid case study of the application of TIR in an outpatient setting. The latter study employed extensive phone interviews of the experiences of four clients living in three states who were treated by three certified TIR practitioners. Although the research designs did not allow conclusions about the efficacy of the interventive protocol, clients' and clinicians' enthusiasm about their experiences led the authors

to conduct a controlled clinical trial of TIR. The dissertation by Coughlin (1995) employed a pretest-posttest design with a self-referred sample of 20 clients with anxiety symptoms as measured by the State-Trait Anxiety Inventory. The significant reductions in state anxiety reported by clients were not seen in clients with trait anxiety. Coughlin's study was flawed in terms of sample size, sample characteristics, quasi-experimental design, and a limited measurement strategy. A more impressive study was conducted by Bisbey (1995). With a sample of 57 crime victims, she conducted a true experimental design with three conditions: muscle relaxation/imaginal flooding (MRIF), TIR, and waiting-list control blocked into two categories, committed relationship or no relationship. She measured the participants on relationship satisfaction, job satisfaction, PTSD, and general psychological symptoms. In general, none of the participants reported significant improvements in relationship or job satisfaction measures. MRIF and TIR condition participants improved significantly on PTSD measures by contrast to the control condition participants who did not show improvements. When directly comparing MRIF and TIR participants, the latter group fared significantly better on the PTSD and psychological symptom measures. Although Bisbey's study had a methodologically credible design and measurement strategy, it still suffered from a small sample with uncertain characteristics that resulted in small cell sizes and limited generalizability.

The current study employed a credible design with a 3-month follow-up and relied on multiple published measures of anxiety, depression, PTSD, and general satisfaction. Furthermore, the sample consisted of female inmates who represented different ethnic groups and diverse socioeconomic classes. Finally, it used an analytic strategy that allowed conclusions about whether the treatment and control conditions differed after treatment and at a follow-up interval. Although the study was not intended to be a definitive test of TIR, it provides a rigorous examination of its efficacy with women of color from varied socioeconomic classes.

METHOD

Clients

Average age of inmates in the treatment condition was 32.8 years (*SD* = 9.1), and the average age of those in the control condition was 34.9 (*SD* = 9.8). The means did not differ significantly across conditions, suggesting that age would not threaten internal validity. The majority of participants were

Black (50%), 38.5% of the participants were White, and 24% of all participants identified themselves as Hispanic. The racial distribution did not differ significantly between the treatment and control groups, $\chi^2(1) = 3.48$, *ns*. Thirty-two percent of participants had never been married, and the treatment and control conditions did not differ significantly on marital status, $\chi^2(1) = 1.55$, *ns*. Of treatment condition participants, 36.6% were never married as compared to 28.6% of the control participants. Of the treatment condition participants, 17.1% were married at the time of the study as compared to 35% of control condition participants. Thirty-five percent of the participants had no high school degree, whereas another 35% had some college or vocational training. The treatment and control condition participants did not differ significantly on this variable, $\chi^2(4) = 5.27$, *ns*.

Data on the type of trauma experienced and degree of injury associated with trauma were collected at intake. Ten inmates reported a non-interpersonal-type trauma, 17 inmates had reported having experienced a robbery or assault, and 22 inmates had experienced sexual abuse in some form. The difference between the two conditions was not statistically significant, $\chi^2(4) = 5.21$, *ns*. Twenty-seven inmates reported having sustained an injury. Nine inmates in the treatment condition had sustained an injury from the trauma compared to 18 inmates in the control condition.

Treatment program. All TIR practitioners were female; had graduate degrees in social work ($n = 3$), marital and family therapy ($n = 2$), or psychology ($n = 2$); had mean age of 35; averaged 7.2 years of clinical experience; and were given 16 hours of training in TIR by a certified TIR instructor. Practitioners delivered TIR using a standardized protocol in 3- to 4-hour blocks to every client in the treatment condition. As stated earlier, a description of the interventive protocol is given in some detail in Valentine (1995) and Valentine and Smith (1998).

Research Design

Study participants were recruited from a federal correctional institute located in Florida. In May 1996, the prison was converted to a low- to medium-security women's prison. At the time of the study, 730 inmates had arrived. Inmates were randomly assigned to conditions using the following protocol. First, inmates were given a battery of psychological tests that were a standard part of the prison's intake procedure. Included in this battery was an instrument to screen inmates' suitability for the study. The questionnaire elicited information pertaining to whether inmates (a) had experienced a prior trauma

in their lives; (b) if so, the nature of the trauma; (c) had experienced one or more symptoms associated with PTSD, depression, or anxiety; and (d) were willing to further discuss their traumatic experience with a mental health professional.

Two hundred and forty-eight inmates reported experiencing trauma and were interested in hearing a presentation on the study. Inmates were told that their participation would differ depending on the condition to which they were assigned. Participants were told that they would be randomly assigned to either treatment or wait-list control conditions. To participate in the treatment condition, inmates were required to (a) give informed consent, (b) complete pretest measures, (c) have a one-on-one orientation interview to learn the nature of TIR and the roles that they and the mental health practitioner would play, (d) receive a session of TIR, (e) complete a debriefing session, and (f) complete posttest and follow-up measures.

The following exclusion criteria were used: inmates who were on antipsychotic medication; inmates who had been hospitalized within the last 3 years with a diagnosis of bipolar disorder or schizophrenic disorder; inmates experiencing a severe depressive episode that required immediate psychiatric hospitalization; inmates experiencing hallucinations, delusions, or bizarre behavior; inmates with an alcohol or drug abuse disorder; or inmates who were victimized within 3 months prior to participation in the study. These criteria were in part modeled after the Foa and associates 1991 study (Foa, Rothbaum, Riggs, & Murdock, 1991) and followed the recommendations of clinicians in the correctional facility. In general, exclusion criteria represented acute situations that would be counterproductive to the process of TIR. Having signed an informed consent and having passed the mental health screening, 148 inmates were then randomly assigned to either treatment or control conditions. Of that number, 25 subsequently withdrew from the study, thus leaving 123 in the sample. The reasons for withdrawal varied and included work-assignment constraints, disinterest, self-reevaluation of their level of traumatization, and/or a change of heart.

This study used a true experimental design with a pretest-posttest control condition and a 3-month follow-up. One hundred and twenty-three people met the criteria for inclusion in the study and were randomly assigned either to a treatment or a control condition. In the experimental condition, 56 inmates were pretested, received TIR, and were posttested a week after treatment. In the control condition, the remaining 67 inmates were pretested and posttested but did not receive TIR treatment during the study period. Despite efforts to ensure that all participating inmates would complete all measures at every measurement period, the exigencies of prison life resulted in some inmates

not completing the entire battery of measures. To ensure that no one measure was systemically excluded because of time constraints, the order of how the measures were administered differed from inmate to inmate. To control for differing practitioner skills, a comprehensive treatment manual was created. Random sessions were audiotaped, and an independent observer who was well versed in the TIR protocol reviewed sections of the tapes to ensure treatment integrity. Alpha was set at .05, beta was set at .20, and the effect size was estimated at .50.

Outcome Measures

Four measures comprised a multidimensional measurement battery of PTSD.

Beck Depression Inventory (BDI) (Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961). The BDI is a frequently used measure of depression and has been employed in countless studies over the past 30 years. The BDI, a 21-item measure of depression, had a split-half reliability of .93, with correlations with clinician ratings of depression ranging from .62 to .66 (Foa et al., 1991).

Clinical Anxiety Scale (CAS) (Westhuis & Thyer, 1989). The scale consists of 25 items that provide a clinical measure of anxiety, with higher scores suggesting higher anxiety. Internal consistency was excellent with an alpha of .94. Known-groups error rate was 6.9%. Scores were not affected by age, sex, or education.

PTSD Symptom Scale (PSS) (Rothbaum, Dancu, Riggs, & Foa, 1990). The scale consists of 17 questions that correspond to symptoms of PTSD from the *DSM-IV* (American Psychiatric Association, 1994). The PSS clusters symptoms into intrusive, avoidance, and arousal categories. Severity of PTSD was scored by summing the ratings on each item (0 to 3 scale) of each symptom. The PSS has .97 interrater reliability and is strongly associated with Intrusion (r = .73) and Avoidance (r = .63) subscales of the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979) and Kilpatrick, Veronen, and Best's (1988) Rape Aftermath Symptom Test (r = .79).

Generalized Expectancy for Success Scale (GESS) (Fibel & Hale, 1978). The scale consists of 30 items that measure individuals' perceptions of whether they can attain their personal goals. It is related to anxiety, negative

cognition, depression, and suicidal ideation. Consistency was excellent; Cronbach's alpha was .90. Test-retest reliability was .83. The scale was negatively correlated with depression, hopelessness, and suicidal ideation.

RESULTS

Outcome Measures

A repeated-measures MANOVA was performed to assess whether the overall effects of the treatment package resulted in significant changes. Pillai's Trace ($F = 3.1$; $p < .05$; $df = 12, 57$; proportion of variance explained (PVE) = .395) allowed the null hypothesis to be rejected. Post hoc F tests were performed to assess whether individual outcome measures were significant at both the posttest and follow-up periods.

Beck Depression Inventory. Table 1 depicts the means of the treatment and control conditions when pretest, posttest, and follow-up measures were made. Here again, one finds that the depression scores of participants in the treatment condition fell, whereas those in the control condition remained about the same. These trends show that TIR is effective in reducing symptoms of depression. Not only was the mean of the treatment condition participants lower at posttest, but the mean actually fell further by the 3-month follow-up testing date. This is encouraging because the lower depression scores found in the treatment group at posttest not only were sustained at the 3-month follow-up test but had continued decreasing throughout the 3 months.

A post hoc test showed the scores of the Beck Depression Scale and statistically significant differences were found between the conditions at the posttest, $F(1) = 16$; $p < .05$; PVE = .191. An additional post hoc test was conducted, and significant differences were found at the follow-up measurement period, controlling for pretest differences between groups, $F(1) = 9.4$, $p < .05$; PVE = .122.

Clinical Anxiety Scale. The means of the treatment and control conditions at pretest, posttest, and follow-up measurement periods are depicted in Table 1, showing that the anxiety level in participants in the treatment condition was higher at pretest than those in the control group, yet the anxiety level became lower at posttest and lower still at follow-up. Again, the reduction of anxiety scores for those in the treatment condition gives a preliminary indication about the effectiveness of the TIR intervention. The differences between the anxiety scores of those in the treatment and control conditions were found to

TABLE 1: Analysis of Covariance of Posttest and Follow-Up Scores With Pretest Scores as the Covariate

	Pretest Mean (SD)		*Posttest Mean* (SD)		*Follow-Up Mean* (SD)				
Measure	*Experimental*	*Control*	*Experimental*	*Control*	*Experimental*	*Control*	df	F *Test of Posttest Score*	F *Test of Follow-Up Score*
Beck Depression Inventory	21.1 (11.1)	20.2 (11.0)	12.6 (11.4)	16.4 (9.3)	9.7 (11.2)	17.5 (16.1)	1	16.0**	9.4**
Clinical Anxiety Scale	61.1 (15.1)	56.2 (16.7)	52.7 (13.1)	56.0 (16.6)	46.3 (15.6)	55.0 (21.9)	1	11.7**	8.3**
Post-Traumatic Stress Disorder Symptom Scale: Global	24.6 (11.9)	20.3 (12.5)	14.1 (9.2)	18.2 (12.6)	8.5 (9.7)	15.8 (13.9)	1	8.3**	14.2**
Post-Traumatic Stress Disorder Symptom Scale: Intrusion	5.1 (3.4)	4.1 (3.6)	3.5 (2.9)	3.6 (3.6)	1.8 (2.5)	3.5 (3.6)	1	1.6 (*ns*)	13.6**
Post-Traumatic Stress Disorder Symptom Scale: Avoidance	9.8 (5.3)	8.2 (5.6)	5.9 (4.4)	7.8 (5.9)	3.1 (3.8)	5.9 (6.1)	1	5.3*	11.6**
Post-Traumatic Stress Disorder Symptom Scale: Hyperarousal	9.7 (5.7)	8.1 (5.0)	4.7 (3.5)	7.4 (5.0)	3.7 (4.2)	6.4 (5.0)	1	13.5**	11.9**
Generalized Expectancy for Success Scale	104.8 (17.7)	110.6 (18.3)	112.2 (16.7)	108.6 (18.9)	122.0 (33.8)	106.1 (21.2)	1	5.1*	10.1**

*$p < .05$. **$p < .01$.

be statistically significant. Here, a post hoc test controlling for the pretest scores was conducted on the follow-up scores, $F(1) = 8.3$, $p < .05$, PVE = .11. A post hoc test controlling for the pretest scores was done on the postttest scores, and once again, significant differences were found between the treatment and control conditions, $F(1) = 11.7$, $p < .05$, PVE = .15.

PTSD Symptom Scale. The mean scores of persons in the treatment and control conditions at pretest, posttest, and follow-up measurement periods are shown in Table 1. The data show that those persons in the treatment condition were more depressed at pretest than those in the control condition but the treatment conditions scores fell below those of the control condition at posttest. This trend continued between posttest and the 3-month follow-up measurement period. The reader should note that the downward movement of the means over time indicates lower levels of PTSD in control condition participants than those in the treatment condition. It should also be noted that the mean scores of those who did not receive the TIR intervention stayed approximately the same over time. These trends suggest that TIR was effective at reducing PTSD.

Post hoc tests were done on the PSS scores, and statistically significant differences were found between the conditions at the posttest, controlling for pretest differences, $F(1) = 8.3$, $p < .05$, PVE = .11. Univariate post hoc tests conducted on the follow-up scores controlling for pretest differences between groups also showed significant differences, $F(1) = 14.2$, $p < .05$, PVE = .17.

The PSS has three subscales: intrusion, anxiety, and hyperarousal. Table 1 shows the PSS intrusion mean of each condition at pretest, posttest, and follow-up measurement periods. The mean for the treatment condition decreased over time, indicating that for the treatment condition, intrusive thoughts were less problematic at posttest and at follow-up than at pretest. The decrease in intrusive thoughts did not occur for those in the control condition. A univariate post hoc test was conducted on the PSS Intrusion subscale scores. A statistically significant difference was not found between the treatment and control conditions at the posttest, $F(1) = 1.6$, $p > .05$, PVE = .02. An additional post hoc test controlling for pretest differences was conducted, examining the follow-up measurement period. Results show that the two groups differed (see Table 1), $F(1) = 13.6$, $p < .05$, PVE = .17.

Table 1 shows that the mean scores for the PSS Avoidance subscale for the treatment condition decreased at posttest and again at follow-up, whereas the avoidance score for the control condition remained about the same. Conducting post hoc tests that controlled for pretest differences revealed significant differences between the treatment and control condition scores at posttest,

$F(1) = 5.3$, $p < .05$, PVE = .07. Likewise, at the follow-up measurement period, a significant difference was found between the two conditions, $F(1) = 11.5$, $p < .05$, PVE = .15.

The means of the two conditions at pretest, posttest, and follow-up for the final subscale, hyperarousal, is illustrated in Table 1. The mean of treatment condition participants declined during posttest and follow-up measurement periods, whereas those of the control condition participants remained the same. Univariate post hoc tests controlling for pretest differences were conducted at the posttest, and significant differences were found between conditions, $F(1) = 13.5$, $p < .05$, PVE = .16. Similarly, an additional post hoc test revealed statistically significant differences at the follow-up period, $F(1) = 11.9$, $p < .05$, PVE = .15.

Generalized Expectancy for Success Scale. Whereas the means of the PSS, the BDI, and the CAS decreased over time, the means of the GESS rose. This suggests that TIR was an effective intervention against feelings of low expectancy of success (i.e., low self-efficacy). The means of each condition at pretest, posttest, and follow-up measurement periods are depicted in Table 1. Again, the higher level of expectancy found in the treatment condition at post- test was sustained through the follow-up measurement period.

Univariate post hoc tests controlling for pretest differences revealed a statistically significant difference between the posttest scores of the treatment and control conditions, $F(1) = 5.1$, $p < .05$, PVE = .07. Furthermore, an additional post hoc test controlling for pretest difference between the groups showed significant differences at the follow-up measurement period, $F(1) = 10.1$, $p < .05$, PVE = .13.

DISCUSSION AND APPLICATIONS FOR SOCIAL WORK PRACTICE

The efficacy of TIR in alleviating PTSD, depression, anxiety, and low expectancy of success received support from this study: Statistically significant results were observed on all measures at both posttest and follow-up measurement periods except for the Intrusion subscale of the PTSD Symptom Scale at the posttest interval. However, differences were found at the follow-up testing interval. It appears that the control group's scores remained stable across all three testing periods, whereas the treatment condition's scores decreased steadily. At first glance, it may appear odd that differences between the two conditions did not exist at posttest but did exist at follow-up testing intervals. The explanation lies in an examination of the pretest scores

of both conditions. The treatment condition inmates scored higher on the pretest than did the control condition inmates. The treatment condition inmates' decrease continued over time, and the control condition's mild decrease stabilized. Although the decrease in both conditions at the posttest may have been a testing artifact, the follow-up differences demonstrate the marked differences between them.

Ideally, a longer follow-up period that included postrelease data would provide a conclusive test of the intervention protocol. However, the protocol adopted here followed the research design of leading trauma researchers (e.g., Foa et al., 1991). Another ideal addition would be a placebo condition that would provide assurance that the inmates' responses were not due simply to the concern shown to them by the TIR practitioners. However, different institutional review boards that reviewed this study recommended against the use of placebos with these inmates. Finally, a design that controlled for testing would provide assurance that the results were not due to testing effects. Although we considered the use of a Solomon four-group design, we opted against it to maximize the statistical power of the design.

There is a scarcity of outcome research on inmates in correctional facilities. Because the population in such facilities represents an underserved population with multiple needs, this study provides an easily learned, brief treatment model that can be used by social workers. In addition, past studies of TIR and the authors' clinical work with other populations suggest that this practice model is a valuable addition to practitioners. Because TIR follows a specific treatment protocol, it is likely that social workers from diverse backgrounds will be able to use it in their practice. Furthermore, because the symptoms of PTSD, depression, anxiety, and a low expectancy of success were significantly reduced after one session of TIR, it represents a cost-effective practice modality. Finally, the comments given by inmates suggest that they were highly appreciative of the client-respectful nature of TIR. For many of them, this was their first experience with a treatment provider who was both effective and respectful. Given the histories of victimization cited by inmates, this feature represents one of the most important contributions of this intervention protocol.

Social work educators continually search for effective practice modalities that can be taught to students. Because TIR follows a detailed treatment protocol, it represents a practice model that can be easily taught to students in schools of social work. Furthermore, because it is brief and client respectful, it is a practice modality that shows promise for its use with many different client populations and settings. Although the outcome research that details its

efficacy is still emerging, TIR represents a new wave of brief treatment models that is consonant with the demands of managed care.

It is an oft-repeated axiom that social work researchers should conduct research that can be used by practitioners. The current study sought to follow that axiom. By evaluating the efficacy of a treatment model with an underserved client population, this study was designed to be both rigorous and clinically relevant. Because the study used practitioners of differing educational backgrounds, disciplines, and clinical experiences, the ability to generalize this practice modality to other settings and practitioners received support. The use of psychometrically validated measures ensured that the outcome results would be generalizable to other settings. Although controlled clinical trials are notoriously difficult to implement, they represent a consumer's report for practitioners in field settings. This report is by no means a last word on TIR but does represent a carefully planned and executed attempt to fairly evaluate its efficacy.

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