Somatic Experiencing Treatment with Social Service Workers Following Hurricanes Katrina and Rita

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In a disaster, social service workers are often survivors themselves. This study examines whether somatic intervention using a brief (one to two session) stabilization model now called the Trauma Resiliency Model™ (TRM), which uses the skills of Somatic Experiencing® (SE), can reduce the postdisaster symptoms of social service workers involved in postdisaster service delivery. The study was implemented with a nonrandom sample of 142 social service workers who were survivors of Hurricanes Katrina and Rita in New Orleans and Baton Rouge, Louisiana, two to three months after the disasters. Ninety-one participants received SE/TRM and were compared with a matched comparison group of 51 participants through the use of propensity score matching. All participants first received group psychoeducation. Results support the benefits of the brief intervention inspired by SE. The treatment group showed statistically significant gains in resiliency indicators and decreases in posttraumatic stress disorder symptoms. Although psychological symptoms increased in both groups at the three to four month follow-up, the treatment group's psychological symptoms were statistically lower than those of the comparison group.

KEY WORDS: *natural disaster; posttraumatic stress; resilience; Somatic Experiencing; Trauma Resiliency Model*

In August and September of 2005, Hurricanes Katrina and Rita inflicted a devastating toll on U.S. Gulf Coast communities, leaving in the aftermath vast numbers of suffering adults and children. Disasters like these that cause massive devastation and prolonged community and economic disruption have been termed *atypically strong disasters*. Such strong disasters are frequently characterized by severe to very severe impairment of individual victims and survivors (Norris, 2001).

In response to the devastation caused by the hurricanes, in October 2005 the administrators for a nationally based social services organization requested help from the Foundation for Human Enrichment in treating the disaster-related and vicarious trauma their staff had experienced as a result of these hurricanes. Agency administrators were concerned about the post disaster symptoms they were seeing in themselves and their staff. Many staff had fled Louisiana, leaving the agency shorthanded to face mounting needs. Most of the agency staff from New Orleans were relocated to trailers in Baton Rouge, where they often conducted their work out of their cars or in local restaurants. The population of Baton Rouge tripled in a matter of days.

UNTREATED WORKERS

Social service providers and other professional helpers are often thought to be immune from typical traumatic responses that characterize "ordinary people" (Bamber, 1994). However, even when an individual has not experienced trauma directly, listening to the emotional aftereffects of traumatic events as described by clients can result in what is commonly referred to as *vicarious traumatization* or *secondary traumatic stress* (STS) (Blair.& Ramones, 1996; Figley, 1999; Schauben & Frazier, 1995; Sexton, 1999) and can in some instances result in traumatic stress (Lerner, 2005) and the development of posttraumatic stress disorder (PTSD) (Zimering, Gulliver, Knight, Munroe, & Keane., 2006). Bride's (2007) study of STS symptoms in 282 social workers found that 25 percent of the sample reported

experiencing the following STS symptoms occasionally to very often: intrusive thoughts about clients, avoidance of clients, diminished activity level, emotional numbing, perceptions of foreshortened future, irritability, and difficulty concentrating. A study by Luce, Firth-Cozens, Midgley, and Burges (2002) found that individuals who experience a trauma both as a civilian and as a professional have higher levels of symptomatology than do those who experience the traumatic event solely as a civilian or as a professional. The traumatic stress reactions that often follow a catastrophic event can hinder the ability of local caregivers to function at predisaster levels with their constituencies.

EFFECTS OF DISASTERS AND TRAUMA

Carr and colleagues (1997) described two sets of psychological consequences that arise from a disaster: *threat effects* (those occurring in the immediate aftermath) and *disruption effects* (those extending weeks, months, and sometimes years beyond the disaster). Disruption effects included constant exposure to debris, disillusionment with governmental agencies, long delays for Federal Emergency Management Agency trailers, fear of the next hurricane season, property loss, displacement, fragmentation of families, financial stress, and the array of emotional symptoms associated with each effect. The Carr et al. study highlights the fact that natural disasters are not circumscribed events with a defined endpoint.

When left untreated, traumatic stress reactions have been found to lead to long-term negative mental health effects (Bower & Sivers, 1998; Brady, Killeen, Brewenton, & Lucerini, 2000; Mayou, Bryant, & Ehlers, 2001). Furthermore, symptoms from a traumatic event can still be present after many years and may not spontaneously remit (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Levels of symptoms found early in the post disaster period have been found to be strong prognosticators of later symptomatology (Norris, 2001).

TRAUMA TREATMENT

Gibson's (2005) review of the trauma intervention literature indicated that no intervention is consistently effective and because of the lack of disaster treatment studies she had to broaden her review to traumatic stress. However, to date, cognitive–behavioral therapy (CBT) and eye movement desensitization and reprocessing (EMDR) appear to have the most success. Both the duration and intensity of psychological symptoms can often be shortened for survivors if appropriate mental health treatment is provided after a traumatic event (Harvey, Bryant, & Tarrier, 2003). The most widely practiced and studied form of treatment following trauma is CBT (Ellis, 1962). CBT is a therapeutic intervention focused on helping individuals gain personal control over negative, internal thought processes. CBT studies that use three to 10 session interventions have the greatest empirical support as measured by decreases in PTSD sequelae, according to Gibson's (2005) review of empirical studies. Bradley and colleagues' (2005) meta-analysis of psychotherapy outcome studies on PTSD found that more than half the patients who completed treatment with various forms of CBT improved.

Grainger and colleagues (1997) assessed the benefits of EMDR, an intervention that uses bilateral stimulation linked with cognitions and emotions, several months after Hurricane Andrew. Recipients of EMDR had greater reductions in PTSD symptoms compared with a wait-listed control group. However, Devilly and Spence's (1999) study that compared the CBT and EMDR interventions with adults who had experienced several traumas found CBT to be more effective at reducing symptoms of PTSD.

THE BODY AND TRAUMA

There is substantial evidence indicating that in addition to psychological trauma, survivors of trauma also suffer significant and often debilitating physical or somatic symptoms resulting from their experience. Thus, traumatic stress causes both mental health problems and a variety of serious somatic symptoms, including loss of bowel and bladder control (Solomon, Laor, & McFarlane, 1996); shaking, trembling, and increased heart rate (Bernat, Ronfeldt, & Calhoun, 1998; Shalev et al., 1998); myofascial pain (Scaer, 2006); diabetes (Golden, Williams, & Ford, 2004); heart disease (Musselman & Nemeroff, 2000); and a continuum of stress-related diseases (Green, Grace, & Glesser, 1985; Scaer, 2006).

Knowledge of biological responses to fear and helplessness has been incorporated into trauma intervention strategies by such interventions as EMDR, CBT, and other exposure therapies. However, the trauma field is now seeing the arrival of body-focused interventions such as the one used in this study, Somatic Experiencing®/Trauma Resiliency Model™ (SE/TRM), in which the primary

emphasis is on traumatic symptoms as patterns of dysregulation in the nervous system rather than on cognitions and emotions. Research that has used neuroimaging (Mujica-Parodi, Greenberg, & Kilpatrick, 2004) has shown that even under relatively mild emotional challenges negative emotion significantly affects many components of cognitive functioning. Somatic models focus on brain stem survival responses and dysregulation in the autonomic nervous system (ANS) rather than on neocortical cognition.

Patterns of dysregulation increase the risk of physical and psychological illnesses such as immune system disorders, depression, anxiety, and cognitive impairment (Gunnar & Vazquez, 2001; McEwen, 1998; Sapolsky, 1994). Studies such as these highlight the importance of the use of interventions that target regulation of the ANS. Somatic interventions specifically target the way posttraumatic responses have been stored or patterned in the body, in addition to working with cognitions and emotions (Levine, 1997; Ogden & Minton, 2000; Rothschild, 2000).

SE/TRM: AN INTEGRATIVE APPROACH

SE is an integrative (mind–body) approach developed by Peter A. Levine (1997, 2005) that focuses on the biological basis of trauma and the reflexive, defensive ways the body responds to threat and fear. The approach draws on neuroscience research, including neuroimaging studies (Bryant, Harvey, Guthrie & Moulds, 2000; Lanius, Blum, Lanius, & Pain, 2006), which shows how trauma affects cortical and subcortical processing of information and the resolution of posttraumatic stress activation through the completion of thwarted fight and flight responses and skills of self-regulation (Levine, 1996). TRM, developed by Laurie Leitch and Elaine Miller-Karas, is the brief, early intervention form inspired by SE, used for stabilization in disaster and emergency settings. SE/TRM emphasizes that human responses to threat are primarily instinctive and biological and are only secondarily cognitive and psychological. SE/TRM treatment focuses on identifying the psychophysiological patterns that underlie a wide variety of traumatic responses. The focus of treatment is on unlocking the somatized "stress memories" and movement impulses that remain bound in the body and restoring balance to the nervous system (Levine, 2005) by working with small gradations of traumatic activation alternated with the use of somatic resources. Working with small increments of traumatic material is a key component of SE/TRM treatment as is the development of somatic resources. Together they reduce the likelihood of escalation of arousal, flooding, and retraumatization and help clients to develop a sense of mastery and self-management over intense somatic states. Cognitions and emotions are addressed in SE/TRM but are not the primary focus of intervention.

An SE/TRM session draws on the clinician's observations of such client characteristics as skin coloration and muscle tone, breath, posture, gesture, and facial expression as well as client self-reports of internal sensations. These elements are considered reflections of the patterns of somatic memory related to the trauma. Many traumatized individuals have learned that "being in their bodies" (that is, having awareness of their physicality and bodily sensations) is unsafe and frightening. SE/TRM develops sensory resources (for example, places in the body that do not feel pain, places that feel strong, alive) that help the client feel safe in developing sensory awareness and the corresponding self-regulation. The clinician then works with small increments of traumatic sensation (the SE skill is called *titration*) alternated (the SE skill is called *pendulation*) with work with resource states in the body. It is believed that the alternating awareness between traumatic sensations and resource sensations helps restore the natural, pretrauma rhythm of the autonomic nervous system. As the work shifts from trauma sensations to resource sensations, blocked traumatic energy that was originally intended for mobilization of the fight or flight response is released (and can be observed as trembling, heat, tingling, stomach gurgling, tears, laughter).

SE/TRM is designed to be used in settings in which brief treatment is appropriate. In many emergency settings, including natural disasters, clinicians may have only brief access to survivors. As survivors attempt to recover from the event, they may change jobs, relocate, or be so consumed with gathering the pieces of their lives that they do not continue in treatment or cannot be located. Interventions that are effective in one to two sessions seem well suited in such circumstances.

METHOD

Participants

Participants in the present study were 142 staff from a social services agency who volunteered to attend the SE/TRM psychoeducation groups in

the Baton Rouge and New Orleans offices and field sites. Staff at every level of the agency participated, including support and maintenance staff, paraprofessionals, and professionals. Approximately 70 percent of the participants were bachelor- or master's-level social workers. The services provided by participants in the main agencies and its field offices included counseling, case management, community outreach, and emergency services. No volunteer social service workers were included in the study. Agency administrators wanted treatment to be available to staff members who felt they could benefit. Of the 272 staff who participated in the group sessions, 110 (40 percent) chose to participate in one to two individual SE/TRM treatment sessions. Of these, 19 participants had missing data on pretreatment variables and thus were removed from the sample, leaving a total of 91 participants in the treatment group, 51 of whom were selected for the comparison sample. Informed consent was obtained from all participants before participation in psychoeducation groups.

Because each social service staff member chose whether to receive treatment, assignment to the treatment and no-treatment conditions was nonrandom. To correct for potential sample selection bias due to nonrandom assignment and to obtain unbiased estimates of the treatment effect, we used propensity score matching to create matched treatment and comparison groups. Propensity score matching is designed to find the best multivariate match for every treatment case from the available pool of comparison cases. For this study, each person who chose treatment was matched with a person who did not choose treatment (that is, a person who had received only the psychoeducation group session) on the basis of a propensity score calculated from nine variables (gender, ethnicity, education level, city, coping, physical symptoms, psychological symptoms, PTSD symptoms, and resiliency). Descriptive statistics for the study participants and the variables we sought to control for and that were included in the propensity score matching procedure are presented in Table 1. The propensity score matching procedure was performed using Painter's (2004) adaptation of Levesque's (2004) propensity matching code.

Table 1: Demographic Characteristics of Sample and Descriptive Statistics for Measures Used in Propensity Score Matching

Characteristic	*n*	%
Site (*N* = 142)		
New Orleans	104	73.2
Baton Rouge	38	26.8
Gender (*N* = 132)		
Female	113	85.6
Male	19	14.4
Age (*N* = 139)		
22 to 39	45	32.4
40 to 54	54	38.8
55 and older	40	28.8
Ethnicity (*N* = 139)		
African American	47	33.8
White and other	92	66.2
Education (*N* = 139)		
High school	11	7.9
Some college	31	22.3
College graduate	44	31.7
Graduate degree	53	38.1

Measure	*M*	*SD*	Range
Coping	2.95	1.00	1–5.0
Physical symptoms	0.57	0.62	0–3.5
Psychological symptoms	1.34	0.99	0–4.0
PTSD	30.73	11.68	17–66
Resiliency	3.18	0.79	1–5.0

Note: PTSD = posttraumatic stress disorder.

Procedure

Individuals who selected to participate in the psychoeducation group first consented orally and in writing, followed by the baseline assessment. Those who chose to continue with the individual treatment attended one to two SE/TRM sessions during a one- to two-week period of time. The psychoeducation groups and the SE/TRM sessions were conducted in November and December 2005. The follow-up assessment for both the treatment and comparison groups was collected three to four months after the psychoeducation group session and was self-administered or completed by means of telephone interviews with trained volunteers.

Treatment

The 90-minute psychoeducation groups consisted of eight to 12 agency staff and two SE/TRM team leaders. The groups provided information about

normal responses to disaster and coping strategies. All participants in the current study participated in the groups.

For the treatment group, individual SE/TRM sessions were held in diverse settings such as food warehouses, walk-in clinics, and offices. The goal was to be as accessible as possible for the agency staff who requested individual treatment. Participants were offered, at no cost, one to two individual sessions that lasted from 40 to 60 minutes. The agency provided employees with release time to attend the sessions.

The individual sessions used SE/TRM, a protocol that provides specific interventions that focus primarily on self-regulation (that is, restoring equilibrium to the nervous system) and secondarily on working with associated emotions and cognitions. SE/TRM teaches participants concrete skills to reduce their hyperarousal and dysregulation through tracking shifts in the nervous system by observing breath (rapid, shallow, panting), heart rate (increase, decrease), muscle tension, shifts in posture, changes in skin color, and involuntary body movements (eyes, head, neck, shoulders, hands, legs); resource use (internal and external); grounding techniques; pendulation (moving between states of relative organization and disorganization within the nervous system); and titration (the process of gradually accessing somatic activation, body sensations, feelings, and thoughts associated with the traumatic experience so that the nervous system can adjust to each increment without becoming overwhelmed) (Levine, 1997). Participants who received individual SE/TRM sessions were encouraged to use the concrete skills on their own after treatment that they experienced in the session.

Clinicians

Thirty-five SE-trained volunteer clinicians from the United States and Canada provided the psychoeducation groups and individual SE/TRM treatment. All the clinicians had completed a minimum of two years of the three-year SE training, including the required hours of their own individual SE treatment and case consultation. Case consultations were provided by each team's SE/TRM clinical supervisor while in the field. Clinicians completed a checklist after each individual SE/TRM session detailing the SE/TRM interventions used. All team members were given an orientation that included information about the stages of disaster, details about the local context, team building, roles and responsibilities, and self-care.

Measures

The instruments collected basic demographic information as well as information about participant coping, symptomatology, and resiliency. Coping was assessed with a four-item scale adapted from a scale used by the agencies ($\alpha = 0.79$) that asked participants to rate how the hurricanes had affected their ability to handle stressful situations; care of their physical health; ability to carry out daily tasks to their usual standards; and relationships with family, friends, and community. Symptomatology was assessed with a 19-item scale based on items from the Symptom Checklist-90-Revised (SCL-90-R) (Derogatis, 1994). The 19 items were selected to reflect the symptoms expected to be most responsive to SE/TRM treatment. Principal component analyses revealed two factors (physical and psychological) within this 19-item scale. Groupings of physical symptoms (six items) and psychological symptoms (seven items) were identified and two scales were created on the basis of these groupings ($\alpha = 0.70$ for the physical symptom scale and $\alpha = .80$ for the psychological symptom scale). PTSD was assessed with the 17-item PTSD Checklist-Civilian version (PCL-C) ($\alpha = 0.92$) (Weathers, Huska, & Keane, 1991; Weathers, Litz, Herman, Huska, & Keane, 1993). Resiliency was measured with a seven-item scale developed in-house ($\alpha = 0.85$) that included frequency of experiencing sense of humor, relaxed breathing, feeling hopeful, feeling peaceful, being well-rested, a positive mood, and smiling.

Data Analysis

Data analyses were conducted to determine whether the treatment and comparison groups were statistically similar at intake. There were significant differences between the treatment and comparison groups at follow-up in self-reported levels of coping, physical and psychological symptoms, PTSD symptoms, and resiliency. Significant treatment effects differed by demographic group.

To test whether the propensity score matching procedure successfully identified a statistically similar comparison group at intake, one-way analyses of variance (ANOVAs) and chi-square analyses were performed. To determine whether there were significant differences between the treatment and comparison groups at follow-up, we calculated

change scores representing the difference in reported symptoms from baseline to follow-up for each participant for the coping, physical and psychological symptoms, PTSD symptoms, and resiliency measures. These scores were calculated by subtracting the baseline scores from the follow-up scores. One-way ANOVAs were then performed to determine whether treatment and comparison group change scores differed significantly at follow-up in average levels of reported coping, physical and psychological symptoms, PTSD symptoms, and resiliency. Multiple post hoc comparisons were performed by using the Tukey procedure (Linton & Gallo, 1975) to explore whether significant ANOVA findings varied by demographic group.

RESULTS

Results from the one-way ANOVAs and chi-square analyses show that the propensity score matching method successfully removed any significant observable differences in the intake measures between the treatment and nontreatment groups, with the exception of some significant age differences between groups. As expected, no significant differences at intake were found between the treatment and comparison groups in average levels of reported change in coping [$F(1, 140) = 1.19$, $p = .28$], physical symptoms [$F(1, 140) = 0.42$, $p = .52$], psychological symptoms [$F(1, 140) = 2.11$, $p = .15$], PTSD symptoms [$F(1, 140) = 0.35$, $p = .56$], or resiliency [$F(1, 132) = 0.61$, $p = .44$].

Also as expected, results from the chi-square analyses showed no significant baseline differences between the treatment and comparison groups for site [$\chi^2(1, N = 132) = 0.47$, $p = .50$], gender [$\chi^2(1, N = 132) = 0.47$, $p = .50$], ethnicity [$\chi^2(1, N = 139) = 0.70$, $p = .40$], or education [$\chi^2(3, N = 139) = 0.51$, $p = .92$]. A significant difference was found between the treatment and comparison groups for age [$\chi^2(2, N = 139) = 7.98$, $p = .02$]. Examination of the cell frequencies showed that among participants ages 40 to 54, about 78 percent were in the treatment group, whereas only 22 percent were in the comparison group, and the percentage of treated participants in the younger group (ages 22 to 39) and older group (ages 55 and older) ranged from 45 percent to 55 percent.

Significant differences between the treatment and comparison group were found for PTSD symptoms (PCL-C), the psychological distress factor of the SCL-90-R, and resiliency, but not for coping or the physical symptoms factor of the SCL-90-R (see Table 2). Both the treatment and comparison groups reported increased levels of psychological symptoms at follow-up, indicating that their symptoms had worsened over the three- to four-month

Table 2: ANOVA Results Showing Posttreatment Differences between Treatment (*n* = 91) and Comparison (*n* = 51) Groups

			M					
Measure	***df***	***F***	**Intake**	**Follow-up**	**Change**	***SD***	***p***	η^2
Coping	141	0.45					.51	.003
Treatment			3.01	2.21	–0.81	1.04		
Comparison			2.82	2.14	–0.69	1.00		
Physical symptoms	141	0.02					.89	<.000
Treatment			0.59	1.20	0.61	0.65		
Comparison			0.52	1.14	0.62	0.54		
Psychological symptoms	141	5.13*					.03	.035
Treatment			1.43	1.52	0.10	1.06		
Comparison			1.18	1.67	0.50	0.90		
PTSD symptoms	141	11.20**					.001	.074
Treatment			31.16	23.48	–7.68	11.01		
Comparison			29.96	28.99	–1.08	11.75		
Resiliency	133	25.77**					<.001	.163
Treatment			3.14	3.84	0.69	1.02		
Comparison			3.25	2.98	–0.26	1.12		

Notes: ANOVA = analysis of variance. PTSD = posttraumatic stress disorder.
*$p < .05$. **$p < .01$.

period between intake and follow-up. However, the psychological symptoms of the treatment group increased, or worsened, significantly less than did the symptoms reported by the comparison group. Both the treatment and comparison groups reported decreased PTSD symptoms at follow-up. However, the treatment group PTSD symptoms decreased more significantly than did the comparison group PTSD symptoms between intake and follow-up. With regard to resiliency, the treatment group improved more significantly than did the comparison group. Specifically, the treatment group reported improved resiliency, whereas the comparison group worsened, reporting lower resiliency at follow-up than at intake.

Multiple post hoc comparisons among the 91 participants who received treatment showed that PTSD change scores at follow-up were found to be significantly different across age groups [$F(2, 87) = 4.07$, $p = .02$]. The two youngest age groups [$M = -.57$, $SD = 0.68$, $N = 24$; $M = -0.56$, $SD = 0.67$, $N = 42$] showed significantly more improvement (lower symptom levels) at follow-up in reported PTSD symptoms than did the oldest age group [$M = -0.12$, $SD = 0.46$, $N = 22$]. No significant post hoc differences in change scores at follow-up in psychological symptoms, PTSD, or resiliency were found between people who received one individual SE/TRM treatment session and two individual SE/TRM treatment sessions.

DISCUSSION

Hurricanes Katrina and Rita caused extreme suffering to the Baton Rouge and New Orleans communities and to the individuals delivering post disaster services. As the literature indicates, individuals who experience trauma both as a civilian and as a professional are likely to have higher levels of symptomatology than those who experience trauma solely as a civilian or as a professional (Luce et al., 2002). Furthermore, in large-scale natural disasters the effects are not circumscribed to a brief period following the event; disruption effects can go on for months and years, contributing to further traumatic stress (Kessler et al., 1995). Early mental health treatment has been found to shorten the period of suffering (Harvey et al., 2003). The results, although tentative because this was not a randomized controlled trial, do suggest that SE/TRM was effective in attenuating the observed emergence of PTSD symptoms and promoted resiliency. Although both groups showed an increase in psychological distress at follow-up, the SE/TRM treatment group reported significantly less severe psychological distress and increased resiliency, relative to the comparison group (whose resiliency scores had decreased at follow-up). The increase in symptoms was not unexpected, given "disruption trauma" in the months (and even years) following a disaster of the scale of Hurricanes Katrina and Rita. However, the treatment group increases were significantly lower than those of the comparison group. No differences were found between groups for physical symptoms of distress or coping. Following the treatment phase of the project, the agencies requested training for staff in SE/TRM. Two hundred staff were subsequently trained.

The promising results of this study raise the interesting question of whether there may be a "window of opportunity" in which an integrative, low-dosage intervention such as SE/TRM can promote stability shortly after a disaster. There is considerable debate about when it is appropriate for mental health interventions to be initiated following catastrophic events. Studies of crisis intervention used immediately following a traumatic event have shown mixed or, as in the case of Critical Incidents Stress Debriefing, negative results. However, traditional models of crisis intervention focus on problem solving and rely on other cognitive skills. Research cited earlier shows that during and immediately after stress, the executive functions of the neocortex are diminished. This may account for the mixed results of traditional early interventions. An early intervention stabilization model such as SE/TRM that focuses primarily on restoring nervous system regulation appears to be effective at relieving distress and PTSD symptoms and increasing resiliency in the early stages of post disaster response when it is often difficult, if not impossible, to provide more than one or two sessions. SE/TRM is also a useful complement to cognitive models.

The lack of significant differences in coping scores between treatments and controls is somewhat puzzling given the significant increase in the treatment group's resiliency scores at follow-up. It may be that the psychoeducation group that was provided to both treatment participants and the comparison group offered enough information on ways to cope with the aftermath of disaster that the two groups remained similar in reported coping abilities at the follow-up point. Alternatively, the ongoing

disruption trauma may have taxed individuals' coping abilities regardless of their resiliency.

Trauma studies seldom assess resiliency data, even though increased resiliency is likely to be an implicit goal of many interventions. SE/TRM includes a treatment focus on the awareness of somatic resources and restoration of nervous system equilibrium, and the findings suggest that whereas there were no statistical differences between the treatment and comparison groups on coping scores, the intervention did bolster resiliency. The study participants were 85 percent women. Carver's (1997) study of gender differences in dispositional and situational coping strategies found that women were more likely to focus on and vent emotions and to seek social support both for emotional and instrumental reasons. The only tendency Carver found that was stronger among men was use of substances for coping. The relationship between coping, which focuses on dealing with daily challenges, and resiliency, which is a broader concept reflecting the ability to maintain a stable equilibrium (Bonanno, 2004) is an important one and beyond the scope of this study. However, resiliency is likely to be an important contributor to ongoing stabilization and future adaptation to individual change in the postdisaster phase. More research is needed on the relationship between coping and resiliency, the factors that promote resiliency, and ways to incorporate these factors into treatment models.

We were also surprised by the lack of findings for physical symptoms, which are targeted in SE/TRM treatment. Integrative models such as SE/TRM focus on treating both psychological and physical symptoms. It is possible that trauma-related physical symptoms from the hurricanes cannot be expected to remit in one to two sessions. However, this unexpected absence raises several questions. Do trauma-related physical symptoms require lengthier treatment than do psychological symptoms? If so, how many more treatments are needed? Which physical symptoms are most amenable to brief treatment? Future studies of the effectiveness of SE/TRM and other integrative approaches to trauma could benefit from the collection of physiological indicators (for example, heart rate, skin conductance) pre- and posttreatment to help close the gap in knowledge as to how arousal in the autonomic nervous system is linked to physical, psychological, and cognitive symptoms.

The major limitation of the current study is that it was not a randomized controlled trial. The project was first and foremost a service-delivery project, designed in accordance with the requests of the agency administrators, who requested that psychoeducation groups and SE/TRM treatment be available to all staff. The participants therefore self-selected into the project. All volunteered to attend the psychoeducation group and then self-selected into either the treatment condition or the no further treatment condition. The implications of this are significant: It is likely that those who requested further treatment were highly motivated to learn and apply coping skills and to reduce their symptoms. The use of propensity score matching, although helping to ensure that treatment and comparison groups are similar on measured covariates, does not ensure that group differences on unmeasured covariates are not present. Future randomized controlled studies are therefore needed to confirm the outcome findings of this exploratory study.

It is also noteworthy that all participants in the study were employed, which sets them apart from many disaster survivors and limits generalization to the broader population of disaster survivors. It can be inferred that participants' employment status means they are likely to be a more stable group overall despite high levels of symptoms at baseline.

The modification of the SCL-90-R may have also limited the study findings by making it impossible to compare them with findings from other studies that have used the measure. The inventory as a whole is too lengthy for use in a disaster setting but has items well suited to this study. The items selected were those expected to be most responsive to SE/TRM; but it is possible that other items may have been better indicators of treatment effect, particularly items related to physical symptoms. Fortunately, the alphas for the psychological and physical symptom categories indicated that both categories had acceptable reliability (αs = .70 and .80, respectively) and provided us the ability to examine psychological and physical distress symptoms separately.

In summary, the study results suggest that integrative, somatic models such as SE/TRM that incorporate "bottom-up," self-regulatory approaches to trauma, have promise. These treatment models, oriented as they are to instinctive and biological responses to threat, may be potent additions to the field of disaster treatment as well as to social work education. Many social workers work with

traumatized populations. Somatic interventions add another tool to the much-needed toolbox for dealing with client trauma as well as with STS. The skills of SE/TRM can be used by clients and service providers alike for self-care and stabilization. This has the potential to reduce burn out and STS among workers and reduce premature departures from the field of social work. SW

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