

**STRESS INOCULATION TRAINING:
A PREVENTATIVE AND TREATMENT APPROACH**

Donald Meichenbaum

**Distinguished Professor Emeritus
University of Waterloo
Waterloo, Ontario
Canada N2L 3G1**

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Clinicians who seek to provide help to stressed individuals, either on a treatment or on a preventative basis, are confronted with a major challenge. As Elliott and Eisdorfer (1982) observed, stressful events come in diverse forms that include exposure to:

- 1) acute time-limited stressors, including such events as preparing for specific medical procedures (e.g., surgery, dental examination) or for invasive medical examinations (e.g., biopsies, cardiac catheterization) or having to confront specific evaluations (e.g., a PhD defense)
- 2) a sequence of stressful events that may follow from the exposure to traumatic events, such as a terrorist attack, a rape, a natural disaster that results in a major loss of resources, or exposure to stressors that require transitional adjustments due to major losses (e.g., death of a loved one, becoming unemployed), each of which gives rise to a series of related challenges
- 3) chronic intermittent stressors that entail repeated exposures to stressors such as repetitive evaluations and ongoing competitive performances (e.g., musical or athletic competitions), recurrent medical tests or treatments, or episodic physical disorders such as recurrent headaches, as well as the exposure to intermittent stress that accompanies certain occupational roles, such as military combat
- 4) chronic continual stressors such as debilitating medical or psychiatric illnesses, physical disabilities resulting from exposure to traumatic events (e.g., burns, spinal cord injuries, traumatic brain injuries), or exposure to prolonged distress, including marital or familial discord, urban violence, poverty, and racism, as well as exposure to persistent occupational dangers and stressors in professions such as police work, nursing and teaching.

These varied stressful events may range from those that are time-limited and require situational adjustments to those chronic stressful events that are persistent and that require long-term adaptation. Stressors may also differ between those that are potentially controllable (i.e., can be lessened, avoided, or eliminated by engaging in certain behaviors) and those judged to be uncontrollable (i.e., an incurable illness, exposure to ongoing threats of violence, caring for a spouse with severe dementia) and whether they are predictable or unpredictable; of short duration (i.e., an examination) or chronic (i.e., living in a racist society, being exposed to poverty, having a stressful job); intermittent or recurrent; current versus distant in the past. Distant stressors are traumatic experiences that occurred in the distant past yet that have the potential to continually affect on one's well-being and even modify the individual's immune system because of the long-lasting emotional, cognitive, and behavioral sequelae (Segerstrom & Miller, 2004).

In some instances, individuals are exposed to multiple features of such stressful events. As an example, I was asked to consult in the possible application of cognitive-behavioral stress inoculation techniques for a highly distressed population. In July 2002, the Canadian government established a treatment team to address the clinical needs of a native Inuit people in the newest Canadian province of Nunavut. The Inuit people had been dislocated, being forced to shift from a nomadic existence to confined resettlements with accompanying economic deprivations (substandard living conditions, overcrowding, poverty) and disruptions to traditional roles and relationships. On top of having to cope with all of these chronic stressors, a subset of young male Inuit youths experienced a prolonged period of victimization. Over a period of 6 years in the early 1980s, in three native Inuit communities, a self-confessed male pedophile schoolteacher, who was

appointed by the government, sexually abused 85 male Inuit youths. The aftermath of this exposure to multiple stressors has been a high rate of depression, substance abuse, and domestic violence. Most telling is the high suicide rate among the Inuit, who are twice as likely to commit suicide as other native populations and four times as likely to engage in self-destructive behaviors. They also have the highest completion rate of suicide attempts (some 38% of attempters; Brody, 2000, Meichenbaum, 2005).

What clinical tools exist to help individuals and communities cope with the diversity of such stressors (acute, sequential and chronic)? What empirically based stress management procedures exist that can be used in a culturally sensitive fashion to aid individuals in their adaptation processes? How can clinicians help individuals prepare for and prevent maladaptive responses to stressors and help them build on the strengths and resilience that they bring to such challenging situations?

For the past 30 years, I have been involved in the development of stress prevention and reduction procedures to address these challenging questions, under the label of Stress Inoculation Training (SIT; Meichenbaum, 1975, 1976, 1977, 1985, 1993, 1996, 2001; Meichenbaum & Deffenbacher, 1988; Meichenbaum & Fitzpatrick, 1993; Meichenbaum & Fong, 1993; Meichenbaum & Jaremko, 1993; Meichenbaum & Novaco, 1978; Meichenbaum & Turk, 1976, 1987; Turk, Meichenbaum & Genest, 1983).

In this chapter, I bring together these clinical experiences and research from this 30-year journey, highlighting the work of other clinical researchers who have adapted SIT or who have developed related cognitive-behavioral stress management interventions. In lieu of the multiple ongoing stressors that society now confronts, including possible terrorist attacks, wars, AIDS, increasing poverty, and urban and family violence, the need

for effective empirically based interventions is all the more pressing. This need is more evident to me since I retired from the University of Waterloo in Ontario, Canada, and have become the research director of the Melissa Institute for Violence Prevention and Treatment of Victims of Violence in Miami, Florida. (*see www.melissainstitute.org*).

The discussion of stress reduction interventions begins with a consideration of the concept of inoculation that gave rise to the SIT treatment approach. I then consider the theoretical underpinnings of SIT and provide a detailed description of the clinical procedural steps involved in conducting SIT. Illustrative applications of how SIT has been applied on both a treatment and a preventive basis are offered. For a detailed summary of the empirical status and meta-analytical review of SIT, the interested reader is directed to reviews by Maag and Kotlash (1994) who examined SIT with children and adolescents; by Saunders, Driskell, Johnston and Salas (1966), who reviewed patients with anxiety; by Meichenbaum (1993), who provided a 20-year update of some 200 SIT case studies, demonstration projects, and clinical research outcome studies; and by Meichenbaum (1996, 2001), who offered a review of SIT with adults with posttraumatic stress disorder (PTSD) and adults with anger-control problems and aggressive behaviors.

The primary focus of this chapter is on the “clinical wisdom” that has been garnered over 30 years of applying SIT on both a treatment and a preventive basis.

The Concept of Inoculation

A central concept underlying SIT is that of inoculation which has been used both in medicine and in social-psychological research on attitude change. In 1796 Edward Jenner noted that inoculation of humans with cowpox conferred immunity against the more deadly smallpox virus. In medicine, vaccinations often involve exposure to weaker

forms of a disease so as to ward off more severe reactions. In such cases, the earlier exposure is generally to a more moderate form of the stress or disease to be guarded against. Such exposure produces antibodies and physically prepares the body for future attacks.

Consistent with the concept of inoculation, Aldwin and Levenson (2004) highlight an area of biology called *hormesis* that studies the positive results that derive from exposure to small amounts of toxins that in larger amounts might prove lethal. A series of studies on animals indicated that small and brief exposure to stressors can contribute to the development of repair mechanisms that protect against the impact of subsequent, more intense stressors (Calabrese & Baldwin, 2002). In a comparable fashion SIT, which is designed to intervene with humans at the psychosocial level, provides individuals with experience with minor stressors that fosters psychological preparedness and promotes resilience.

Similarly, in the area of attitude change, McGuire (1964) has observed that prior exposure to attitudinal information can protect or “inoculate” individuals from subsequent, more intense efforts at persuasion. Such prior exposure to persuasive efforts mobilizes counter attitudinal strategies that can be used in subsequent conversion efforts. In both medical and attitudinal inoculations, a person’s resistance is enhanced by exposure to a stimulus strong enough to arouse defenses and coping processes without being so powerful that it overwhelms the individual. SIT is based on the notion that exposing clients to milder forms of stress can bolster both coping mechanisms and the individual's (group’s, community’s) confidence in using his or her coping repertoire. SIT is designed to bolster individual’s preparedness and develop a sense of mastery.

Theoretical Underpinnings

SIT adopts a transactional view of stress and coping as espoused by Lazarus and Folkman (1984). Their model proposed that stress occurs whenever the perceived demands of a situation tax or exceed the perceived resources of the system (individual, family, group, or community) to meet those demands, especially when the system's wellbeing is judged or perceived as being at stake. This relational process-oriented view of stress emphasizes the critical role of cognitive affective appraisal processes and coping activities. According to the transactional perspective, stress is neither a characteristic of the environment alone nor a characteristic of the person alone. Instead, stress is defined as a particular type of transactional, bidirectional, dynamic relationship between the person and the environment in which the individual or group perceives the adaptive demands as taxing or exceeding their perceived available coping resources to meet those demands. Like beauty, stress is in large part, "in the eye of the beholder."

Another related literature that has influenced the development of SIT is that deriving for a constructive narrative perspective (CNP). The CNP views individuals, groups, and communities as story telling entities who construct narratives about themselves, others, the world, and the future. The nature and content of the "stories" that individuals tell themselves, and to others play a critical role in influencing the coping processes. A growing literature on the roles that cognitions and emotions play in the maintenance of stress reactions, especially in the case of persistent PTSD has highlighted the potential usefulness of a CNP (Brewin & Holmes, 2003; Ehlers & Clark, 2000; Harvey, 2000; Howard, 1991; Janoff-Bulman, 1990; McAdams, Reynolds, Lewis, Patten & Bowman, 2001; Neimeyer, 2001; Smucker, Grunet & Weis, 2003). At both the personal and

cultural levels, the narratives are organized around identifiable episodes, including intelligible plots and characters, and they convey goals and themes. In the case of traumatic stressful events, the narratives often highlight the perceived “defining moments” of the life stories. Meichenbaum (2005) has summarized the features of clients’ narratives and behaviors that contribute to persistent stress reactions. These elements are enumerated in Table 1.

INSERT TABLE 1 ABOUT HERE

How distressed individuals and communities try to make sense of and transform their emotional pain can influence their coping processes. The more individuals and communities engage in the cognitions and behaviors enumerated in Table 1, the greater the likelihood that they will have persistent stressful reactions. SIT can be viewed as an engaging way to help clients become aware of the impact of their narratives and maladaptive stress-engendering behaviors (e.g., avoidance, rumination and brooding, catastrophizing, safety-seeking behaviors, absence of self-disclosure, and failure to access and employ social supports). SIT helps distressed individuals become aware of how they can engage in behaviors that maintain and exacerbate their distress. SIT helps clients construct a more adaptive narrative, find “meaning”, and engage in more adaptive direct-action problem solving and palliative, emotional-regulation, accepting and coping skills. SIT trainers are not only in the business of teaching coping skills and enhancing the clients’ confidence and sense of efficacy in applying these coping skills; the SIT trainer is also in the business of helping clients construct new life stories that move them from

perceiving themselves as “victims” to becoming “survivors,” if not indeed “thrivers.”

How does SIT help clients achieve these challenging and laudable goals?

What is SIT?

SIT is a flexible, individually tailored, multifaceted form of cognitive-behavioral therapy. Given the wide array of stressors that individuals, families, and communities experience, SIT provides a set of general principles and clinical guidelines for treating distressed individuals, rather than a specific treatment formula or a set of “canned” interventions. SIT is not a panacea, and it is often used as a supplemental tool to other forms of interventions, such as prolonged exposure with traumatized patients or environmental and community supports with individuals confronting chronic stressors, as described later.

SIT consists of three interlocking and overlapping phases:

1. A conceptual educational phase
2. A skills acquisition and skills consolidation phase
3. An application and follow-through phase.

The ways that these SIT phases are implemented will vary depending on both (1) the nature of the stressors (e.g., acute time-limited stressors, such as a medical procedure, vs. prolonged ongoing repetitive stressors, such as working in a highly stressed occupation or living in a high-risk violent environment) and (2) the resources and coping abilities of the clients.

The treatment goals of SIT are to bolster the clients’ coping repertoire (intra- and interpersonal skills), as well as their confidence in being able to apply their coping skills in a flexible fashion that meets their appraised demands of the stressful situations. Some

stressors lend themselves to change and can be altered or avoided, whereas other stressors are not changeable (e.g., irreversible loss, incurable illness). Thus some stressful situations do not lend themselves to direct-action problem solving coping efforts, because resolutions are not always attainable. In such instances, an emotionally palliative and accepting set of coping responses are most appropriate (e.g., mindfulness training, reframing, attention diversion, adaptive engaging in spiritual rituals, adaptive affective expression, and humor). SIT demonstrates that there is no one “correct” way to cope with the diversity of stressors. What coping efforts may work in one situation or at one time may not be applicable at other times or in other situations.

In the initial conceptual education phase of SIT, a collaborative working relationship and therapeutic alliance are established between the clients and the trainer. This relationship provides the basis, or the “glue,” that allows and encourages clients to confront stressors and implement the variety of coping skills, both within the training sessions and *in vivo*, that constitute the needed “inoculation” exposure trials. Norcross (2004) has underscored the critical importance of therapy relationship factors that contribute to the change processes. Besides working on the formulation and maintenance of a therapeutic alliance, the second objective of this initial phase of SIT is to enhance the clients’ understanding and awareness of the nature and impact of their stress and coping resources. A variety of clinical techniques are used to nurture this educational process. This informational exchange is not a didactic lecture by the trainer/therapist but rather a by-product of a discovery-oriented inductive Socratic exchange (i.e., the SIT trainer uses “curious” questions to promote the clients’ processing). Moreover, this educational process is ongoing throughout the course of SIT training. Although at the outset of SIT,

the focus may be on possible warning signs or triggers and on the chain analyses of clients' accounts, later on in SIT training the education process may focus on relapse prevention and self-attributional processes (i.e., how to ensure that clients take "personal credit" for changes they have brought about).

A variety of clinical techniques, including Socratic discovery-based interviewing; psychological testing with constructive feedback about deficits, styles of responding and "strengths" or signs of resilience; self-monitoring activities; bibliotherapy; and exposure to modeling films are used to foster the clients' increased awareness and sense of personal control and mastery. Table 2 provides an enumeration of the informational content that is covered over the course of various phases of SIT.

INSERT TABLE 2 ABOUT HERE

In a collaborative fashion, a more facilitative reconceptualization of the clients' stressful experiences and reactions is formulated. Rather than conceiving their stressors as being overwhelming, uncontrollable, unpredictable, debilitating, and hopeless, the SIT trainer helps clients develop a sense of "learned resourcefulness."

The second phase of SIT, which follows naturally from the reconceptualization process, focuses on helping clients acquire coping skills and on consolidation of those coping skills that they already possess, and on removing any intra- and interpersonal and systemic barriers that may exist. The intra- and interpersonal coping skills are taught and practiced in the clinical or training setting and then gradually practiced *in vivo*. A major focus of this skills-training phase is the emphasis placed on following guidelines to

achieve generalization and maintenance of the treatment effects. Therapists cannot merely “train and hope” for generalization. SIT trainers need to explicitly build the technology of generalization training into the treatment protocol, as is later noted.

The final application and follow-through phase of SIT includes opportunities for clients to apply the variety of coping skills on a graduated basis across increasingly demanding levels of stressors (that is, following the “inoculation” concept). Such techniques as imagery and behavioral rehearsal, modeling, role playing, and graded *in vivo* exposure are employed. A central feature of this application phase is the use of relapse prevention procedures (Marlatt & Gordon, 1988; Witkiewitz & Marlatt, 2004). The SIT trainer explores with clients the variety of possible high-risk stressful situations that they may reexperience (e.g., reminders, anniversary effects, dysphoric emotions, interpersonal conflicts and criticisms, and social pressures). Then the clients rehearse and practice in a collaborative fashion with the trainer (and with other clients in a group setting or with significant others) the various intra- and interpersonal coping techniques that might be employed. As part of the relapse prevention intervention, clients are taught how to view any lapses, should they occur, as “learning opportunities” rather than as occasions to “catastrophize” and relapse. The follow-through features of SIT are designed to extend training into the future by including booster training sessions, active case management, engagement of significant others, and environmental manipulations.

Consistent with a transactional model of stress that SIT embraces, and consistent with the recognition that the stress clients experience may be endemic, societal, institutional and unavoidable, SIT often goes beyond the clients to involve significant others. For example, in preparing patients for stressful medical examinations, the SIT trainer can

focus on teaching coping skills to distressed medical patients but can also attempt to work with hospital staff in order to reduce the nature and level of hospital and medical stress. (see Kendall, 1983 for a description of work with catheterized patients and Wernick, Jaremko, & Taylor, 1981; and Wernick, 1983 for work with burn patients.) In competitive sports, an SIT trainer can help athletes develop their coping skills in order to handle the stress of competition (Long, 1980; Mace, & Carroll, 1986; Mace, Eastmen, & Carroll, 1986, 1987), but as Smith (1980) observes, a trainer can also attempt to influence the behaviour of the athlete's coaches', and parents', thus reducing a major source of competitive stress. Similarly, in work with victims of rape or terrorist attacks, the unfortunate "secondary victimization" of the distressed individuals from community agents (doctors, police, judges, teachers, administrators, health care providers, parents, and peers) can exacerbate the stress responses (see Ayalon, 1983; Veronen & Kilpatrick, 1983). It would be short-sighted to delimit SIT interventions to just the targeted victims or distressed clients and not to attempt to influence the stress-engendering behaviors and attitudes of significant others and community members. SIT has adopted the dual-track strategy of working directly with stressed clients, as well as with significant others and community agents who may inadvertently, and perhaps even unknowingly, exacerbate stress. SIT trainers search for and enlist "allies" to support the ongoing coping efforts of clients.

How Is SIT Conducted?

One of the strengths of SIT is its flexibility. SIT has been carried out with individuals, couples, families, and small and large groups. The length of the SIT intervention has varied, from as short as 20 minutes in preparing patients for surgery (Langer, Janis, &

Wolfer, 1975) to 40 1-hour weekly and biweekly sessions administered to psychiatric patients with recurrent mental disorders and to individuals with chronic medical problems (Turk et al., 1983). In most instances in the clinical domain, SIT consists of some 8 - 15 sessions, plus booster and follow-up sessions conducted over a 3 - 12 month period.

Obviously, the manners in which the three phases of SIT (conceptualization, skills acquisition and consolidation, application and follow-through) are conducted will vary, depending on the nature of the clients and the length of SIT training. The content of the conceptualization phase, the specific skills that will be emphasized and trained, and the nature of the application phase (inoculation trials) will each be specifically geared to the targeted population. There is, however, sufficient congruence across SIT application that a procedural flowchart of the SIT treatment procedure can be outlined, as shown in Table 3.

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More detailed clinical presentations of SIT are offered by Meichenbaum (1996; 2001).

Illustrative Applications of SIT

SIT has been employed in both a treatment and a preventive manner with a wide variety of medical and psychiatric populations and with a variety of diverse professional groups who experience high rates of job-related stress. Elsewhere (Meichenbaum, 1993, Wertkin, 1985), these diverse applications have been reviewed, and more recent reviews are also available (Maag, & Kotlash, 1994; Saunders et al., 1996). On a treatment basis,

SIT and closely aligned cognitive-behavioral stress management procedures (Antoni et al., 2001; Antoni, 2003; Cruess et al., 2000), anxiety management approaches (Suinn, 1999), coping skills training (Folkman et al., 1991), and cognitive-affective stress management training (Smith & Rohsenow, 1987) have been employed with a wide variety of clients. These clinical applications have been with:

1. medical patients who have various acute and chronic pain disorders, patients with breast cancer and those with essential hypertension, burn patients, ulcer patients, and patients with rheumatoid arthritis, on preventive basis, SIT has been employed with medical and dental patients who are preparing for surgery or invasive medical examinations, with Type A individuals, adult patients who are medically ill, and with the caretakers of both child and adult patients who are medically ill.
2. psychiatric patients with PTSD as a result of sexual assault; adults and adolescent patients with severe problems of anxiety (e.g., panic attacks) and those with anger-control problems and aggressive behaviors, such as in the case of abusive parents; aggressive individuals who are developmentally delayed and chronically distressed outpatients with mental illnesses.
3. individuals with performance anxiety, such as public-speaking and dating anxiety or debilitating anxiety in athletic competitions; and with individuals with circumscribed fears (animal phobias, fear of flying).
4. professional groups, such as probation officers, nurses, teachers, military personnel, psychiatric staff members, and disaster and safety workers.

5. individuals who have to deal with stress of life transitions, including coping with unemployment or who are transitioning into new settings, such as high school or reentering college, overseas placement, and joining the military.

In short, since its origin in 1976, SIT has been employed on both a treatment and a preventive basis with a wide variety of diverse clinical populations and with highly stressed occupational groups. The following description provides examples of some of these diverse applications.

Patients With Medical Problems

The SIT interventions with medical patients have a heavy educational component in which patients and often their caretakers receive procedural and sensory information and are then afforded opportunities to practice coping skills. SIT highlights ways in which patients can use their own preferred idiosyncratic coping strategies. The coping training may include the use of coping-modeling films, both imaginal and behavioral rehearsal, and *in vivo* graded exposure. Such behavioral practice is accompanied by corrective feedback; personal attribution training in which patients “take credit” for the changes they have been able to bring about; and relapse prevention strategies should lapses occur. The manner in which SIT is conducted needs to be individually tailored to the age of the patient and to the patient’s preferred mode of coping. Finally, the research on the application of SIT to medical patients has underscored the need to ensure that the length of SIT treatment should be performance-based rather than time-based (an arbitrarily set number of sessions). Instead of all medical patients receiving treatment of a prescribed length, the length of treatment or the number of multiple practice and “inoculation” trials should be tailored to some behavioral criteria of mastery and accompanying expressed

self-efficacy, especially for patients with intense and chronic medical problems. The following three examples illustrate the varied applications of SIT to medical problems.

1. Langer et al. (1975) provided 20 minutes, worth of coping skills training to medical patients prior to their surgeries. The conceptualization phase of SIT highlighted the manner in which stress can be affected by selective attentional and cognitive processes, how to focus on the benefits that can accrue from the surgery, and immediate coping efforts (relaxation, self-guided rethinking efforts, imaginal rehearsal). The SIT group, relative to both the informational and assessment control groups, evidenced significantly less preoperative anxiety and fewer postoperative requests for pain relievers and sedatives. The SIT-treated patients also stayed in the hospital for a shorter period of time. Siegal and Peterson (1980) have used a similar multifaceted coping skills package of relaxation training, calming self-talk, and guided imagery to help young dental patients reduce stress.
2. Jay and Elliott (1990) developed an SIT videotape film for parents of 3- to 12-year-old children with pediatric leukemia who have to undergo bone marrow aspirations and lumbar punctures. One hour prior to each child's medical procedure, the parents were shown a brief film of a model parent who employed coping self-statements, relaxation efforts, and coping imagery rehearsal. The parents were then given an opportunity to practice these coping skills. Relative to parents who received a child-focused intervention, the SIT-treated parents evidenced significantly less anxiety and enhanced coping skills. Videotaped SIT modeling films have been used in a variety of clinical settings, including anger-

control with rape victims, preparing them for forensic examination, and parenting (see Meichenbaum, 1996, 2001).

3. Finally, cognitive-behavioral stress management (CBSM), which overlaps with many of the features of SIT, has been used most impressively with female early-stage breast cancer patients. Like SIT, this 10-week group CBSM comprises (1) educational component that debunks myths about breast cancer, enhances patients' awareness of stress and of ways to reduce it, and nurtures hope; (2) a skills acquisition and practice phase in which patients learn ways to use intra- and interpersonal coping skills that range from emotional expression of concerns and feelings and acceptance skills to relaxation, problem solving benefit finding, and ways to preserve and augment the patients' social support networks; and (3) an application phase in which patients are given opportunities and encouraged to practice the learned coping skills. Moreover, the patients are encouraged to take credit for the changes they are able to bring about in order to further promote a positive self-image. The CBSM not only resulted in improved behavioral adjustment and posttraumatic growth, but CBSM also continued to improve immune functioning (i.e., greater lymphocyte proliferative responses at a 3-month follow-up) relative to a control group (Cruess et al., 2000).

Psychiatric Patients

SIT has been employed with a variety of psychiatric groups on both an inpatient and an outpatient basis. In most studies, SIT has been compared or combined with other multifaceted psychoeducational and pharmacological interventions; for example, Holcomb (1986) has examined the relative efficacy of eight 1-hour SIT sessions with and

without psychotropic medications in the treatment of psychiatric inpatients. In terms of anxiety, depression, and overall subjective distress, Holcomb reported that SIT with and without medication was superior to pharmacological interventions alone; impressively, this relative improvement was evident at a 3-year follow-up, as indicated by fewer patient readmissions for psychiatric problems.

SIT and related cognitive-behavioral interventions have been applied to psychiatric patients who have specific disorders such as panic attacks, PTSD, and anger-control problems and aggression. In many instances, these patients have overlapping comorbid disorders.

In the anxiety domain, the panic-control treatment procedures of Barlow (1988), Clark and Salkovskis (1989), and Rapee (1987) have extended the SIT treatment model to patients with anxiety disorders. During the initial conceptualization phase, the patients are offered an explanatory and conceptual model, based on their symptoms, that highlights the interactive role that hypervigilance about bodily cues, their “catastrophic” misinterpretations of their physiological arousal, and their hyperventilation play in eliciting and exacerbating their anxiety reactions. Such a reconceptualization of panic attacks readily leads to the second phase of treatment, which is the acquisition and practice of a variety of coping responses that include (1) relaxation skills in order to control physical tenseness and hyperventilation, (2) cognitive coping skills in order to control “catastrophic” misrepresentation, and (3) cognitive restructuring procedures in order to alter the patients’ appraisal attributions, expectations, and avoidance behaviors.

Following the SIT model, the final application and follow-through phase provides the patients with “inoculation” trials by means of imaginal and behavioral rehearsal, both

in the clinic and *in vivo*. The behavioral coping trials include opportunities to cope with self-induced hyperventilation and the symptoms of panic attacks, coping imagery to anxiety-producing scenes, and, finally, graduated exposure to panic-inducing situations. Relapse prevention and self-attribution treatment components are included in this last phase of treatment. Michelson and Marchione (1991) have documented the relative efficacy of this three-phase cognitive-behavioral intervention.

Another anxiety disorder that has been treated by means of SIT is PTSD. For instance, Veronen and Kilpatrick (1982) used SIT to successfully treat rape victims. The SIT intervention consisted of a psychoeducational component concerning the nature and impact of rape and the acquisition and practice of coping skills aimed at management of assault-related anxiety and post assault problems. The coping skills that were taught included cue-controlled relaxation, thought stopping, cognitive restructuring, guided self-dialogue, covert modeling, and role playing. Homework assignments consisted of patients practicing the various coping skills *in vivo*. Foa and her colleagues have also found that SIT can reduce PTSD symptoms that result from sexual assaults. These reductions were maintained at follow-up assessments conducted up to 1 year post-treatment (Foa, Rothbaum, Riggs, & Murdock, 1991; Foa, et al, 1999). In two well-controlled studies, SIT demonstrated more improvement in PTSD symptoms than supportive counselling and wait-list conditions (Foa et al., 1991; Foa et al., 1999). In a study comparing SIT, prolonged exposure (PE), and PE/SIT, SIT demonstrated significant reduction in PTSD and related symptoms. There was a trend, however, for clients who received PE to obtain higher levels of overall functioning, as evident in a composite reduction of PTSD, anxiety, and depressive symptoms (Foa et al., 1999).

In evaluating the relative efficacy of PE and SIT in these studies, it is important to keep in mind that, in the original SIT treatment protocol, clients were confronted with anxiety-engendering situations, either imaginally or by means of role playing and graded *in vivo* exposure. In the Foa et al. comparative studies, this exposures/rehearsal component that fosters inoculation was eliminated because of the possible overlap with the exposure comparison condition. Thus the SIT was delimited to only the initial two phases of psychoeducational and coping skills training. The critical exposure and accompanying self-attribution and relapse prevention components that constitute the final phase were omitted from the SIT comparison group.

The results of these studies (Foa et al., 1991; Foa et al., 1999) underscore the additional therapeutic benefits that accrue from including the third, experiential practice component of SIT. Educating clients and teaching coping skills are necessary but insufficient components to lead to sustained improvement. Similar conclusions have been drawn by other clinical researchers who have used variations of cognitive therapy to treat clients with PTSD (Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Resick & Schnicke, 1992; Tarrrier et al., 1999). The results of these studies have also highlighted the fact that various forms of cognitive-behavioral therapies, such as SIT, prolonged exposure, and cognitive restructuring, have broad effects in reducing associated negative emotional states such as anger, depression, and anxiety, as well as PTSD symptomatology. For example, Cahill, Rauch, Hembree, and Foa (2003) report that SIT, but not PE, produced a greater decrease in anger in female assault victims than did the combination treatment of PE/SIT. Thus those interventions that included SIT seem particularly well suited for treating clients with issues of anger control.

Cahill et al. (2003) caution that several clinical studies, both theirs and others, have also demonstrated that combining treatments (e.g., SIT with PE and cognitive restructuring) did not result in better outcomes and sometimes resulted in slightly worse outcomes than those obtained by individual treatments (Foa et al. 1999; Marks et al., 1998; Paunovic & Ost, 2001). Such attempts to combine various interventions within a time-limited treatment protocol may dilute the effectiveness of the respective interventions.

Anger is an often overlooked emotional disorder in the psychiatric community, although it overlaps with some 19 different psychiatric conditions. Anger is often experienced among various survivors of sexual assault, motor vehicle accidents, torture, and combat and among refugees. A number of clinical researchers, including Jerry Deffenbacher, Eva Feindler, Arthur Hains, and Ray Novaco and their colleagues, have applied SIT with adolescents and adults who have problems with anger control and aggressive behaviors (see Deffenbacher & McKay, 2000; Feindler & Ecton, 1986; Hains, 1992; Novaco, 1975). Novaco has also applied SIT to several occupational groups for whom anger control is an important part of their job (namely, law enforcement officers, probation officers, and Marine drill instructors; Novaco, 1977a, 1977b, 1980; Novaco Cook, & Sarason, 1983).

The potential usefulness of SIT and related cognitive-behavioral interventions with adolescents and adults who have anger-control problems and who manifest aggressive behaviors was highlighted by DiGuiseppe and Tafrate (2001). They conducted a meta-analytic review and concluded that the cognitive-behavioral treatments

“seem to work equally well for all age groups and all types of populations and are equally effective for men and women. The average effect sizes across all outcome measures ranged from .67 to .99 with a mean of .70” (p. 263).

The results of this meta-analysis revealed that the cognitive-behavioral SIT was “moderately successful”. Patients in the SIT group were better off than 76% of the control group of untreated patients and that 83% of the treated patients improved in comparison to their pre test scores. This level of improvement was maintained at a follow-up period that ranged from 2 to 64 weeks. These findings are similar to conclusions drawn by Beck and Fernandez (1998), who conducted a similar meta-analysis of 50 SIT and cognitive-behavioral interventions that involved 1,640 participants across the full age range. In both meta-analytic reviews, they found that those treatment programs that used standardized manuals and treatment fidelity checks were found to be most effective.

An example of SIT with individuals with anger-control problems was offered by Chemtob, Novaco, Hamada, and Gross (1997), who targeted the treatment of anger among a group of veterans who experienced both PTSD and elevated levels of anger. They added SIT to routine Veterans Administration clinical care and found that, adding SIT relative to a control group that only continued to receive routine care, was effective in significantly reducing state anger, increasing anger control and coping skills, decreasing general anxiety, and found that, relative to a control group that continues to receive only routine care, adding SIT was effective in decreasing PTSD symptoms of reexperiencing. The SIT treatment of anger not only decreased the targeted level of anger

but also decreased PTSD symptoms, highlighting the robustness of SIT. See Meichenbaum (2001) for a detailed description of how to apply SIT on both a treatment and preventative basis with individuals who have problems controlling their anger and their accompanying aggressive behaviors.

Individuals with Evaluative Anxiety and Those Requiring Transitional Adjustment

From its origin, SIT has been employed with individuals who experience debilitating anxiety in evaluative situations. This may take the form of treating individuals with anxiety in such areas as testing, speech, math, computer use, dating, writing and performance in an athletic competition (see Hembree, 1988; and Meichenbaum, 1993, for reviews of these studies). In most of these treatment studies, SIT was combined with population-specific skills training, such as public-speaking training, writing, and study skills. In each domain, SIT has been adapted to and “packaged” in ways that would make SIT most appealing. For instance, Smith (1980) has characterized the stress management features of SIT as a form of “mental toughness training” for athletes and their coaches. SIT was designed to help athletes “control their emotional responses that might interfere with performance and is also designed to help athletes focus their attention on the task at hand” (Smith, 1980, p. 157). The rationale of “mental toughness training” is more likely to be acceptable than the rationale of “reducing stress,” as if stress is something to be avoided. Many athletes and coaches believe that athletes need to experience stress in order to achieve peak performance. Under the aegis of “mental toughness training”, Smith (1980) has developed a cognitive-behavioral group-training program that is offered in six twice-weekly, 1-hour sessions. The initial educational/conceptualization phase orients the participants to the nature of stress and emotions, the role mental processes

play, and various ways to develop an “integrated coping response.” The skills acquisition phase focuses on cue-controlled relaxation, imagining stressful situations, and cognitive rehearsing of “antistress” coping self-statements. The goal of training is not to eliminate emotional arousal but rather to give athletes greater control over their emotional responses. The athletes are given an opportunity to rehearse their coping skills under conditions of trainer-induced high arousal and strong affect, which are stimulated by the trainer’s offering of highly charged imagery scenes. In this inoculation fashion, the athletes are taught to focus their attention on intense feelings and then to practice reframing, accepting, and/or turning them off again in order to reduce and prevent high arousal levels from getting out of hand. The trainer also attends to the excessively high performance standards and distorted fear of the consequences of possible failure that distressed athletes, their coaches, and their parents may hold. In addition, the trainer, in collaboration with a coach and an athlete, can set up *in vivo* practice trials and can implement a training program to improve relevant sports skills. In short, SIT with athletes is packaged as an educational program in self-control, not as a form of psychotherapy.

Another anxiety-producing situation in which SIT has been employed successfully is that accompanying the transitional adjustment to unemployment. A randomized field experiment conducted by Caplan, Vinokur, Price, and van Ryan (1989) provides encouraging data. As part of a comprehensive intensive intervention, eight 3-hour sessions were conducted with the unemployed over a 2-week period. Following the educational phase on the impact of the stress of being laid off and the acquisition and practice of job-seeking and problem solving skills, the participants were given

inoculation trials concerning how to cope with possible rejection and setbacks. This comprehensive cognitive-behavioral intervention contributed to higher rates of reemployment, higher motivation, and greater job satisfaction in the SIT treatment group relative to a matched attention-control group.

Meichenbaum (1993) reviewed the literature on the potential usefulness of SIT in helping individuals adjust to entry into the military, senior students reentering a university, and individuals taking up overseas assignments.

Conclusions

These past 30 years have witnessed a broad application of SIT to a variety of stressed populations, in both a treatment and a preventative manner. In each instance, the clinical application of SIT has been individually tailored to the specific target population and circumstances. It is the flexibility of the SIT format that has contributed to its robust effectiveness. It should also be apparent that SIT is a complex, multifaceted cognitive-behavioral intervention that comprises incorporates key elements of nurturing a therapeutic working alliance with clients; psychoeducational features that include inductive Socratic discovery-oriented inquiry, collaborative goal setting that nurtures hope, and direct-action problem solving and acceptance-based-coping skills training that incorporates training generalization guidelines; relapse prevention; and self-attributional training procedures. In those instances in which clients have been victimized, SIT can be readily supplemented with symptom-specific interventions (e.g., cognitive-behavioral coping techniques to address physiological arousal, dissociation, emotional dysregulation, and physical pain) and “memory work” such as imaginal and *in vivo*

exposure-based techniques. From an SIT perspective, the treatment goal is not merely to have clients relive and retell their abuse histories but rather to have them consider the nature of the “stories” they tell both themselves and others as a result of such trauma exposure. SIT is designed to help clients consider the conclusions that they draw about themselves, the world, and the future as a result of such trauma experiences. SIT is designed to help clients construct a more adaptive narrative, and to change their view of themselves from “victims” to “survivors” to “thrivers.” The SIT concludes with a consideration of how to help clients find meaning or to transform their emotional pain into healing processes and activities and to learn how to reclaim their lives. Finally, SIT focuses on ways to ensure that such victimized individuals are not revictimized.

In short, SIT is more than a mere collection and application of a variety of coping techniques. The coping-skills features of SIT are critical, but without the other contextual features of SIT, especially the “inoculation” trials and application opportunities, the skills-training components are unlikely to prove effective or sufficient. SIT is not a chapter heading for a collection of cognitive-behavioral coping techniques but rather a client sensitive, highly collaborative intervention that is as much concerned about working with clients as it is about working with significant others and agencies who may inadvertently, and unknowingly engender and help maintain even more stress. As noted, the SIT model embraces both the transactional model of stress and coping and the mandate for clinicians and trainers to be involved in assessing both the clients, and their environments. Such an SIT treatment plan will go a long way toward helping individuals and communities cope more effectively in the stressful post-September 11 environment in which we live.

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TABLE 1

**SUMMARY OF BEHAVIORS AND COGNITIONS THAT LEAD TO
PERSISTENT PTSD AND PROLONGED STRESS RESPONSES: A
CONSTRUCTIVE NARRATIVE PERSPECTIVE**

A. SELF-FOCUSED COGNITIONS THAT HAVE A “VICTIM” THEME

1. Seeing oneself as being continually vulnerable
2. Seeing oneself as being mentally defeated
3. Dwelling on negative implications
4. Being preoccupied with others’ views
5. Imagining and ruminating about what might have happened (“near miss experience”)

B. BELIEFS

1. Changes are permanent.
2. The world is unsafe, unpredictable, untrustworthy.
3. The future will be negative.
4. Life has lost its meaning.

C. BLAME

1. Blaming others, with accompanying anger.
2. Blaming oneself, with accompanying guilt, shame, and humiliation.

D. COMPARISONS

1. Oneself with others
2. Before with now
3. Now with what might have been

E. ACTIONS TAKEN

1. Being continually hypervigilant.

2. Being avoidant cognitive level (*suppressing unwanted thoughts, dissociating, engaging in “undoing” behaviors*).
3. Being avoidant behavioral level (*avoiding reminders, using substances, withdrawing, abandoning normal routines, engaging in avoidant safety behaviors*).
4. Ruminating and engaging in contrafactual thinking (*“Only if”*).
5. Delaying change behaviors.
6. Fail to resolve and share trauma story (keeping secrets).
7. Putting oneself at risk for revictimization.

F. ACTIONS NOT TAKEN

1. Believing that anything positive could result from trauma experience.
2. Retrieving, and accepting data of positive self-identity.
3. Seeking social supports.
4. Protecting oneself from negative, unsupportive stress-engendering environments (*indifference, criticism, “moving on” statements*).
5. Using faith as means of coping, as a way of imposing meaning.

TABLE 2
ONGOING EDUCATIONAL COMPONENTS OF SIT

SIT helps clients:

1. Appreciate that the stress they experience is not abnormal and not a sign that they are “going crazy”, or “losing their minds.” Rather, their distressing reactions may be a “normal” reaction to a difficult and challenging stressful situation.
2. Appreciate that many of their reactions may be the “wisdom of the body,” or “nature’s way” of coping with overwhelming stressors. For example, intrusive ideation may be a way of trying to make sense of what has happened; denial may be a way to “dose oneself” in order to handle so much stress at a given time. (In fact, each of the symptoms of PTSD could be reframed as a coping efforts; see Meichenbaum, 1996).
3. View their current coping efforts as a reflection of being “stuck”, namely using (or overusing) a coping pattern such as dissociation that at one time was adaptive (e.g., when being repeatedly raped in an incestuous situation) or being hypervigilant (i.e., continually being on “sentry duty” even when it is no longer required). The problem is that clients are “stuck” (not “crazy,” “inadequate,” or “weak”) using coping efforts that at one time were adaptive but are now being overemployed.
4. Recognize how they may inadvertently and perhaps even unknowingly employ intra personal coping efforts (avoidance, suppression, rumination and brooding, contrafactual thinking, and safety behaviors) that make the stressful situation worse; educate clients about the transactional nature of stress.

5. Appreciate that their stress reactions are made up of different components (biopsychological perspective, physiological arousal, plus cognitive appraisals) and that these reactions go through different phases (namely, the phase of preparing for a stressor, the phase of confronting the stressor, the phase of being truly tested or overwhelmed, and the phase of reflecting on how they handled or did not handle the stressor). In this way, their stress reactions are differentiated into several phases that are made up of different components. Patients are educated about how each phase can trigger appropriate coping efforts.
6. Notice the “cycle” by which internal and external triggering events (12 o’clock on an imaginary clock) elicit primary and secondary emotions (3 o’clock) and accompanying thoughts (automatic thoughts, thinking processes and schemas or beliefs; 6 o’clock), which , in turn, lead to specific behaviors and resultant consequences (9 o’clock). Clients can be asked to self-monitor if, indeed, they engage in such “vicious” (stress-engendering) cycles. Moreover, if they do, clients can be asked , “What is the impact, what is the toll, what is the price of engaging in such a cyclical pattern? Moreover, what can be done to break the cycle?” The various coping efforts follow naturally from such probes.
7. Appreciate the distinction between the changeable and unchangeable aspects of stressful situations and to match (select and choose) either problem-focused or emotional focused coping efforts to meet the perceived demands of the stress-engendering situation.

8. Break down or disaggregate global stressors into specific short-term, intermediate, and long-term coping goals. Such goal-directed thinking nurtures a sense of hopefulness.
9. Debunk any myths held by the client or significant others concerning their presenting problems (e.g., myths concerning rape, sexual abuse) and challenge so-called stage models of reactions to stress. Also address any myths concerning stress and coping, such as: (1) people need to go through uniform emotional stages of reactions in response to stress; (2) there is a “right” way to cope’ (3) distressed people cannot experience positive emotions in the aftermath of traumatic stress; and (4) people should not expect to experience stressful reactions well after stressful life events occur.

TABLE 3

A FLOW CHART OF SIT

Phase 1: Conceptualization

- In a collaborative fashion, identify the determinants of the presenting problem or the individual's stress concerns by means of (1) interviews with the client and significant others; (2) the client's use of an imagery-based reconstruction and assessment of a prototypical stressful incident; (3) psychological and environmental assessments; and (4) behavioral observations. (As Folkman et al., 1991, suggest, have the client address "who, what, where", and "when" questions: "Who is involved?" "What kind of situations cause stress?" "When is this kind of situation likely to occur?" "When did it occur last?" Also see interviews in Meichenbaum, 1996, 2001)
- Permit the client to tell his or her "story" (solicit narrative accounts of stress and coping and collaboratively identify the client's coping strengths and resources). Help the client to transform his or her description from global terms into behaviorally specific terms.
- Have the client disaggregate global stressors into specific stressful situations. Then help him or her break stressful situations and reactions into specific behaviorally prescriptive problems. Have the client consider his or her present coping efforts and evaluate which are maladaptive and which are adaptive.
- Have the client appreciate the differences between changeable and unchangeable aspects of stress situations.

- Have the client establish short-term, intermediate, and long-term behaviorally specifiable goals.
- Have the client engage in self-monitoring of the commonalities of stressful situations and the role of stress-engendering appraisals, internal dialogue, feelings, and behaviors. Help the client appreciate the transactional nature of his or her stress. (Use the clock metaphor of a “vicious cycle”, in Table 2). Train the client to analyze problems (e.g., to conduct both situational and developmental analyses and to seek disconfirmatory data – “check things out”).
- Ascertain the degree to which coping difficulties arise from coping-skills deficits or are the result of “performance failures” (namely, maladaptive beliefs, feelings of low self-efficacy, negative ideation, secondary gains).
- Collaboratively formulate with the client and significant others a reconceptualization of the client’s distress. Socratically educate the client and significant others about the nature and impact of stress and the resilience and courage individuals manifest in the face of stressful life events. Using the client’s own “data”, offer a reconceptualization that stress consists of different components (physiological, cognitive, affective, and behavioral) and that stress reactions go through different “phases,” as described in Table 2. The specific reconceptualization offered will vary with the target population; the plausibility of the reconceptualization is more important than its scientific validity. In the course of this process, facilitate the discovery of a sense of meaning, nurture the client’s hope, and highlight the client’s strengths and feelings of resourcefulness.
- Debunk any client myths, as noted in Table 2.

Phase 2: Skills acquisition and consolidation

A. *Skills training* (tailor to the needs of the specific population and to the length of training)

- Ascertain the client's preferred mode of coping. Explore with the client how these coping efforts can be employed in the present situation. Examine what intrapersonal or interpersonal factors are blocking such coping efforts.
- Train problem-focused instrumental coping skills that are directed at the modification, avoidance, and minimization of the impact of stressors (e.g., anxiety management, cognitive restructuring, self-instructional training, communication, assertion, problem solving, anger control, applied cue-controlled relaxation training, parenting, study skills, using social supports). Select each skill package according to the needs of the specific client or group of clients. Help the client to break complex, stressful problems into more manageable subproblems that can be solved one at a time.
- Help the client engage in problem solving by identifying possibilities for change, considering and ranking alternative solutions and practicing coping behavioral activities in the clinic and *in vivo*.
- Train emotionally focused palliative coping skills, especially when the client has to deal with unchangeable and uncontrollable stressors (e.g., perspective taking; selective attention-diversion procedures, as in the case of chronic pain patients; adaptive modes of affective expression such as humor, relaxation, reframing the situation, acceptance skills, and spiritual rituals).

- Train clients how to use social supports effectively (i.e., how to choose, obtain, and maintain support). As Folkman et al. (1991) observe, help clients identify what kind of support is needed (informational, emotional, tangible), from whom to seek such support, and how to maintain support resources.
- Aim to help the client develop an extensive repertoire of coping responses in order to facilitate flexible responding. Nurture gradual mastery.

B. Skills rehearsal and consolidation

- Promote the smooth integration and execution of coping responses by means of behavioral and imagery rehearsal.
- Use coping modeling (either live or videotape models). Engage in collaborative discussion, rehearsal, and feedback of coping skills.
- Use self-instructional training to help the client develop internal mediators to self-regulate coping responses.
- Solicit the client's verbal commitment to employ specific efforts.
- Discuss possible barriers and obstacles to using coping behaviors and ways to anticipate and address such barriers.
- Follow treatment guidelines to enhance the likelihood of transfer or generalization of coping. (see Meichenbaum, 1996, 2001).

Phase 3: Application and Follow-through

A. Encouraging application of coping skills in the form of stress inoculation trials

- Prepare the client for application by using coping imagery, together with techniques in which early stress cues act as signals for coping.

- Expose the client in the session to graded stressors via imagery, and behavioral exposure to stressful and arousing scenes.
- Use graded exposure and other response induction aids to foster *in vivo* responding.
- Employ relapse prevention procedures: Identify high-risk situations, anticipate possible stressful reactions, and rehearse coping responses.
- Use counterattitudinal procedures to increase the likelihood of treatment adherence (i.e., ask and challenge the client to indicate where, how, and why he or she will use coping efforts).
- Bolster self-efficacy by reviewing both the client's successful and unsuccessful coping efforts. Ensure that the client makes self-attributions ("takes credit") for success or mastery experiences (provide attribution retraining).

B. *Maintenance and generalization.*

- Gradually phase out treatment and include booster and follow-up sessions.
- Involve significant others in training (e.g., parents, spouse, coaches, hospital staff, police, administrators), as well as peer and self-help groups.
- Have the client coach someone with a similar problem (i.e., put client in a "helper" or consultative role).
- Help the client to restructure environmental stressors and develop appropriate escape routes. Ensure that the client does not view the desire for escape or avoidance, as a sign of failure but rather as a sign of taking personal control.
- Help the client to develop coping strategies for recovering from failure and setbacks, so that lapses do not become relapses.

- Work with clients to avoid revictimization.