



## Social cognitive theory of posttraumatic recovery: the role of perceived self-efficacy

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### Abstract

The present article integrates findings from diverse studies on the generalized role of perceived coping self-efficacy in recovery from different types of traumatic experiences. They include natural disasters, technological catastrophes, terrorist attacks, military combat, and sexual and criminal assaults. The various studies apply multiple controls for diverse sets of potential contributors to posttraumatic recovery. In these different multivariate analyses, perceived coping self-efficacy emerges as a focal mediator of posttraumatic recovery. Verification of its independent contribution to posttraumatic recovery across a wide range of traumas lends support to the centrality of the enabling and protective function of belief in one's capability to exercise some measure of control over traumatic adversity.

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### 1. Introduction

Millions of people undergo traumatic experiences annually. These traumas take diverse forms, including criminal assaults, terrifying accidents, large-scale terrorist carnage, technological disasters, military combat, and mass destruction by natural disasters wrought by hurricanes, raging fire storms, flash floods, earthquakes and volcanic eruptions. Acute distress is a normative response to trauma. However, a small percent of the people who have undergone traumatic

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experiences continue to exhibit severe stress reactions long after the trauma. The posttraumatic reactions are widely generalized across different modes and spheres of functioning. They include re-experiencing of the traumatic event in flashbacks, recurrent nightmares and intrusive memories, hypervigilant arousal, impaired concentration, depression, sleep disturbances, self-devaluation, avoidance of reminders of traumatic experiences, emotional detachment from others, and disengagement from aspects of life that provide meaning and self-fulfillment. In functional assessments these recurrent reactions seriously impair intrapersonal, interpersonal, and occupational functioning (Van der Kolk, McFarlane, & Wersaeth, 1996).

This article integrates findings from diverse studies of traumatization on the role of perceived coping self-efficacy in recovery from traumatic experiences within the framework of social cognitive theory. In the present context, this self-belief refers to the perceived capability to manage one's personal functioning and the myriad environmental demands of the aftermath occasioned by a traumatic event. For purposes of convenience, this belief system will be referred to with the shortened label, "self-efficacy". It focuses on the chronic and disabling form of stress of traumatic origin rather than common adverse life events. The key features of traumatic stressors include perilousness, unpredictability, and uncontrollability. Unpreventability of the traumatic event is also a feature of many natural disasters, such as earthquakes and volcanic eruptions.

In the DSM-IV-TR diagnostic criteria for PTSD, an individual must have "experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat of the physical integrity of self or others" (p. 467). In addition, the individual must experience a sense of intense fear, helplessness, or horror in response to the traumatic stressor. Diverse lines of research have been conducted to clarify the determinants and processes of posttraumatic stress. These include epidemiological studies of prevalence rates and the temporal course of the disorder (Breslau et al., 1998; Creamer, Burgess, & McFarlane, 2001; Helzer, Robins, & McEvoy, 1987). Other studies have sought to identify vulnerability factors that predispose individuals to develop chronic difficulties following traumatic stress (Paris, 2000; Silva et al., 2000). Other programs of research analyze the psychological processes, such as fear conditioning and dissociation, that may affect the severity and chronicity of the disorder (Foa, 1997; Spiegel, 1993). Another line of research examines information processing activities as reflected in perceptual, attentional, and memory biases (Buckley, Blanchard, & Neill, 2000; Coles & Heimberg, 2002; Witvliet, 1997). And still other studies have investigated the neurobiological changes produced by exposure to traumatic events (Pitman, Shin, & Rauch, 2001; Heim et al., 2000; Newport & Nemeroff, 2000; Yehuda, 2001).

The theories and some of the empirical findings of these different lines of research have been extensively analyzed elsewhere and will not be re-examined here, except as they bear on particular issues addressed in the present article. It focuses on the role of perceived coping self-efficacy in posttraumatic recovery and its independent contribution within constellations of other potential determinants. Before addressing the issue of posttraumatic recovery, the following section provides the theoretical framework for the self-efficacy mechanism, delineates the different processes through which a low sense of coping efficacy contributes to persisting stress reactions, and contrasts the proactive agentic model with the diathesis-stress model.

## 2. Self-efficacy foundation of human agency

Among the mechanisms of human agency, none is more central or pervasive than people's beliefs in their efficacy to manage their own functioning and to exercise control over events that affect their lives (Bandura, 1997, 2001a). A sense of personal efficacy is the foundation of human agency. Whatever other factors serve as guides and motivators, they are rooted in the core belief that one has the power to produce desired effects by one's actions, otherwise one has little incentive to act or to persevere in the face of difficulties.

Self-efficacy beliefs regulate human functioning through cognitive, motivational, affective, and decisional processes. They affect whether individuals think in self-enhancing or self-debilitating ways; how well they motivate themselves and persevere in the face of difficulties; the quality of their emotional life and vulnerability to stress and depression; resiliency to adversity; and the choices they make at important decisional points which set life courses. Through these diverse means, belief in one's capability to exercise some measure of control in the face of taxing stressors promotes resilience to them.

Numerous meta-analyses of self-efficacy effect sizes have been conducted on findings from studies with different experimental designs and analytic methodologies applied across varied modes of self-efficacy enhancement and spheres of functioning (Gully, Incalcaterra, Josi, & Beaubien, 2002; Boyer et al., 2000; Holden, 1991; Holden, Moncher, Schinke, & Barker, 1990; Moritz, Feltz, Fahrback, & Mack, 2000; Multon, Brown, & Lent, 1991; Sadri & Robertson, 1993; Stajkovic & Lee, 2001; Stajkovic & Luthans, 1998). The converging evidence from these variant lines of research verify the predictive generality of efficacy beliefs as significant contributions to the quality of human functioning.

## 3. Perceived coping self-efficacy in stress reactions

Self-efficacy plays a key role in stress reactions and quality of coping in threatening situations (Bandura, 1997). This section provides a conceptual analysis of the different processes through which efficacy beliefs affect the intensity and persistence of stress reactions. We then turn to a review of the series of empirical tests of the pivotal mediational role of self-efficacy in post-traumatic stress disorder arising from diverse types of traumatic experiences. There are four major ways in which self-efficacy exerts its effects on socioemotional functioning. These efficacy-governed processes are briefly reviewed in the sections that follow.

## 4. Attentional and construal processes

Threat is not solely an inherent property of situational events. Nor does appraisal of the likelihood of injurious happenings rely entirely on reading the nature of external signs of danger or safety. Rather, threat is a relational property concerning the match between perceived coping capabilities and potentially detrimental aspects of the environment. The same potential threats are frightful to people beset with doubts they can control them, but relatively benign to those who feel assured they can override them. Self-appraisal of coping capabilities, therefore, determines, in large part, the subjective perilousness of environments (Bandura, 1997).

People's beliefs in their coping efficacy influence vigilance toward potential threats and how they are perceived and cognitively processed. People who believe they can exercise control over threats do not conjure up calamities and distress themselves. But those who believe that potential threats are unmanageable view many aspects of their environment as fraught with danger. They dwell on their coping deficiencies, magnify the severity of possible threats, and worry about perils that rarely if ever happen. Through such inefficacious trains of thought, they distress themselves and constrain and impair their level of functioning (Bandura, 1997; Jerusalem & Mittag, 1995; Lazarus & Folkman, 1984).

In studies in which perceived control is varied experimentally, people who are led to believe they can exercise some control over aversive events display lower physiological arousal and less performance impairment than do those who believe they lack personal control, even though both groups are subjected equally to the aversive events (Geer, Davison, & Gatchel, 1970; Glass, Singer, Leonard, Krantz, & Cummings, 1973; Litt, Nye, & Shafer, 1993; Sanderson, Rapee, & Barlow, 1989).

## 5. Transformative actions

Perceived self-efficacy to manage intense stressors affects not only how threats are construed but how well people cope with them. As previously noted, people are producers of life circumstances not just construers and reactors to them. Those who have a high sense of coping efficacy adopt strategies and courses of action designed to change hazardous environments into more benign ones. In this mode of affect regulation, efficacy beliefs alleviate stress and anxiety by enabling individuals to mobilize and sustain coping efforts. The stronger the sense of efficacy, the bolder people are in taking on the problematic situations that breed stress and the greater their success in shaping them more to their liking (Bandura, Blanchard, & Ritter, 1969; Bandura, Taylor, Williams, Mefford, & Barchas, 1985; and Williams, 1990). Masterly action transforms the threateningness of the environment.

That self-efficacy operates as a cognitive regulator of stress and anxiety arousal is revealed in microlevel relations between different levels of instilled efficacy beliefs and corresponding subjective and biological stress reactions while coping with phobic threats varying in levels of intimidation (Bandura, Blanchard, & Ritter, 1969; Bandura et al., 1985; Bandura, Reese, & Adams, 1982). People remain unperturbed while coping with potential threats they regard with high personal efficacy. But as they confront threats for which they distrust their coping efficacy their subjective distress and autonomic and catecholamine reactivity mounts. After their perceived coping efficacy is raised to the highest level by guided mastery experiences, they manage the different levels of phobic stressors with uniformly low physiological activation.

## 6. Thought control efficacy

People live in a psychic environment largely of their own making. To the extent that they can exercise control over what they think, they can regulate how they feel and behave. Many human distresses are exacerbated, if not created, by failures of thought control. They cannot rid their

mind of perturbing intrusions and remain haunted by posttraumatic events. The self-regulation of thought processes plays a critical role in the maintenance of emotional well-being following the traumatic experience. It is not the sheer frequency of aversive cognitions per se that accounts for anxiety arousal, but rather the sense of powerlessness to rid one's mind of them (Churchill & McMurray, 1989; Kent, 1987; Kent & Gibbons, 1987; Salkovskis & Harrison, 1984).

In sum, a robust sense of coping efficacy is accompanied by benign appraisals of potential threats, weaker stress reactions to them, less ruminative preoccupation with them, better behavioral management of threats, and faster recovery of well-being from any experienced distress over them. These enabling and protective efficacy-governed processes help to weaken the enduring distressfulness and debilitativeness of traumatizing events. The preceding sections provide the theoretical framework for analyzing the role of perceived self-efficacy in posttraumatic recovery. The sections that follow analyze the role of self-efficacy as one of the mechanisms governing the recovery process across different forms of traumatizations. A profound sense of inefficacy to manage various life demands and to exert control over tormenting ruminations becomes a major persisting impediment to successful adaptation. The analysis of multiform traumas provides a stringent test of the generality of the posited self-efficacy mechanism.

## **7. Proactive agentic model and diathesis-stress model of posttraumatic recovery**

The conditions accompanying traumatic events can easily overwhelm coping capabilities. As previously noted, most people rebound from traumatic experiences, which testifies to considerable human resilience. Others remain chronically debilitated. The variable effects indicate that traumatic events alone are insufficient to produce enduring stress and debility. Rather, the disorder is the product of the interplay of environmental stressors and psychosocial factors. Alternative conceptual models have been posited on how these codetermining factors produce enduring stress reactions. One version includes an amalgam of the diathesis-stress model and the epidemiological risk-buffer model. The second version is founded on the agentic proactive causality of social cognitive theory.

The diathesis-stress model has been widely adopted as the guiding metatheory for understanding the variable impact of traumatic stressors. In this conceptual framework, external stressors constitute risk factors that act on personal predispositions to produce psychosocial effects. Depending on theoretical orientations, the diathesis or predispositions may be primarily cognitive, constitutional or a blend of these different types of vulnerabilities. The diathesis-stress model is often combined with epidemiological risk-buffer models. Protective factors are posited as conditions that can buffer the adverse effects of stressors. This metatheory is heavily cast in reactive terms with personal vulnerabilities reacting to environmental stressors.

Social cognitive theory adopts an agentic model of adaptation and change rather than a reactive dispositional one (Bandura, 1997, 2001a). To be an agent is to influence one's functioning and one's life circumstances. Individuals play a proactive role in their adaptation, rather than simply undergo experiences in which environmental stressors act on their personal vulnerabilities. Within this agentic perspective, resilience to adversity relies more on personal enablement than on environmental protectiveness. Protectiveness shields individuals from harsh

realities or weakens their impact. Enablement equips them with the personal resources to cultivate their competencies and to select and construct environments that promote successful adaptation. This is the difference between proactive shaping of life circumstances and reactive adaptation to the state of affairs.

At the intraindividual level, people are enabled rather than merely buffered by social supports. In the epidemiological risk-protective approach, adverse outcomes are studied as a function of the number of risk factors and the number of protective factors that mitigate their negative effect. The agentic conceptual scheme specifies the mechanisms through which risk and protective factors produce their effects. For example, social support is considered to be an especially important protective factor. It has been shown to reduce stress, depression, and enhance health. These beneficial effects are usually attributed to a buffering function. Social support, however, is more than just a protective cushion against environmental onslaughts. Supporters model coping attitudes and skills, provide incentives for engagement in beneficial activities, and motivate others by showing that difficulties are surmountable by perseverant effort. The enabling function of social support can enhance self-efficacy.

Mediational analyses have been conducted on a variety of studies that include diverse populations, diverse spheres of functioning, populations and cultural milieus. The analyses confirm that social support produces beneficial outcomes only to the extent that it raises perceived self-efficacy to manage environmental demands (Benight, Swift, Sanger, Smith, & Zeppelin, 1999; Cheung & Sun, 2000; Cutrona & Troutman, 1986; Duncan & McAuley, 1993; Major, Mueller, & Hildebrandt, 1985).

Other lines of research conducted from the agentic perspective demonstrate that self-efficacy is not only a mediator of social support but an establisher of it. Social support is not a self-forming entity waiting around to buffer people. They have to go out and find supportive relationships and cultivate and maintain them. The stronger the sense of social efficacy the greater the success in establishing supportive relationships (Holahan & Holahan, 1987a,b). Social support that relieves stress through social dependence on the supporter may be a buffer but operate as a disabler of coping capabilities. Thus, an agentic process analysis not only advances understanding of how social support works in ameliorating stress reactions, but provides theoretically-based guidelines on how to structure social support to optimize its benefits.

## **8. Mediational role of perceived coping self-efficacy in posttraumatic recovery**

The role of self-efficacy in posttraumatic recovery has been examined across diverse types of traumatizations. Persistent posttraumatic stress has a multiplicity of determinants with complex relations among them. Causal complexity, therefore, requires multivariate analyses of causal structures to help disentangle the unique contribution of self-efficacy to the psychosocial aftermath of traumatic experiences.

A trauma is not an isolated transient event. For example potential loss of life, physical injuries, and property destruction in natural disasters present pervasive and prolonged stressors. Disaster victims suffer stress not only from the catastrophic event itself, but from the continuing adaptational strains caused by the devastation it leaves in its wake. The casualties may include personal physical injuries, the death or injury of family members, extensive property damage to

one's residence and neighboring environment, and in many instances the loss of one's very livelihood through destruction of the employment base of the community. These adversities create continuing life stressors.

Because most disasters wreak widespread havoc, the trauma is collective not just personal. Survivors find themselves engulfed in a community in severe shock, which can further potentiate the traumatic experience. Dealing with governmental relief agencies for material aid creates a further source of strain (Bolin, 1982). It requires a resilient sense of efficacy to persevere with recovery efforts in the face of such daunting problems and enduring hardships.

## 9. Military traumatization

The psychosocial aftermath of traumatic experiences in military combat has been the subject of special attention through the years because of the prevalence and enduring seriousness of traumatic battle experiences. The effects of battlefield traumatizations on perceived self-efficacy have been examined longitudinally by Solomon and colleagues in Israeli soldiers who suffered breakdowns in military combat (Solomon, Benbenishty, & Mikulincer, 1991; Solomon, Weisenberg, Schwarzwald, & Mikulincer, 1988). The traumas severely decimated the soldiers' perceived efficacy to cope with combat situations. The lower their perceived efficacy, the more they were plagued by perturbing intrusions and adaptational problems in their subsequent everyday lives. Interestingly, the predictors of efficacy beliefs changed with the passage of time. Initially, the severity of emotional debility during the traumatic incident predicted level of self-efficacy. But over time, the importance of traumatic severity declined, and premilitary coping capabilities and adaptability to current stressors took precedence as predictors. Soldiers who received immediate frontline treatment and returned to their combat units had a higher sense of efficacy and less posttraumatic stress reactions following the war than those who were evacuated to distal treatment facilities and never returned to the combat situation.

Re-engagement with traumatic situations in actuality or cognitively is an important part of recovery. However, it is not merely re-experiencing a traumatic event. The event must be confronted in a way that restores a sense of control through reconstrual or improved coping that alleviates stress reactions and behavioral impairments. Indeed, renewed successful coping with an intense threat is an effective way of restoring a sense of personal efficacy (Williams & Falbo, 1996). In the military situation, however, the possibility cannot be ruled out that the outcomes accompanying different treatments partly reflect selection of who gets shipped back and who stays in combat.

Solomon's informative research program focused solely on perceived efficacy to cope with combat situations. Analysis of the role of efficacy beliefs in the persisting after-effects of trauma should be expanded to include people's beliefs in their efficacy to control intrusive thinking, alleviate emotional distress, and to manage the stressors in important domains of current life. The benefits of a multifaceted expanded focus are revealed in the treatment of army veterans suffering from chronic posttraumatic stress (Freuh, Turner, Beidel, Mirabella, & Jones, 1996). Repeated imaginal coping with traumatic combat situations reduced stress reactions. However, cultivation of social and emotional skills through modeling, behavioral rehearsal, and supportive feedback not only further reduced stress reactions, but improved the quality of social and

emotional life. The combined enablement treatment alleviated anxiety, flashbacks, nightmares, autonomic hyperactivity and enhanced overall social functioning.

It should be noted that the terror of combat also provides striking testimony to extraordinary human resilience. Most soldiers withstood the horrors of the battlefield without debilitating impairments either in battle or in their civilian life. But surprisingly, resilience to intense traumatic combat experiences receives little investigatory attention. The selective focus on adaptational failures reflects a more general psychological bias toward risk factors rather than enablement factors (Bandura, 2001b).

The ravages of war take a toll on civilian populations, as well as the combatants. Saigh, Mroueh, Zimmerman, Zimmerman, and Fairbank (1999) assessed diverse spheres of self-efficacy in three groups of Lebanese adolescents. Those who had experienced severe war traumas and suffered posttraumatic stress, those who experienced the same level of traumas but were free of enduring stress reactions, and adolescents who had little exposure to traumas. Traumatized adolescents with PTSD exhibited a lower level of perceived efficacy in diverse aspects of their lives than did traumatized adolescents without PTSD and the non-traumatized adolescents. The latter two groups exhibited a moderately high sense of efficacy and did not differ in this regard.

## 10. Traumatization by natural disasters

Mt. St. Helens erupted with devastating force, spewing volcanic ash and rock debris that wreaked death and destruction as it swept down the mountain side. Murphy (1987) studied the intensity of symptomatic distress among the trauma survivors after the volcanic eruption and 3 years later. Severity of disaster loss, social support and perceived self-efficacy were singled out as especially relevant predictive factors. Bereavement and destruction of one's home constituted the most severe disaster loss. In stepwise regression analysis, magnitude of disaster loss and perceived efficacy to surmount the devastation predicted severity of distress disorder shortly after the volcanic destruction. Three years later, however, the loss suffered was no longer a predictor, but self-efficacy accounted for even more of the variance in distress than it did originally. Social support did not affect distress at either period. Thus, disaster survivors who believed in their capabilities to manage life circumstances were not chronically overwhelmed with distress.

These findings are in accord with those from other forms of traumatization that a traumatic event is necessary but insufficient to produce chronic stress (Baum, Cohen, & Hall, 1993). Individuals with a low sense of control that puts them at the mercy of circumstances and who cannot turn off perturbing ruminations are the ones who continue to experience elevated stress over the disaster years later. When people cannot control perturbing unwanted thoughts, they keep reliving the traumatic experience.

Hurricane Andrew struck South Florida with massive destructive force leaving as many as 1 million victims in its devastated wake without many of the basic necessities of life. Benight and colleagues tested a causal model designed to explain the differential impact of the traumatic event on the residents (Benight et al., 1999). The model included three major factors as determinants of acute and long-term distress. One of the contributing factors was the magnitude of the loss of material resources experienced by the residents, involving dwellings, automobiles,

furnishings, pets, sentimental possessions, and missed work. Serious losses serve as perpetual stressors (Freedy, Saladin, Kilpatrick, Resnick, & Saunders, 1994; Hobfoll, 1991).

According to Hobfoll's (1991) theory, traumatic stress results in rapid resource depletion. It does so because it occurs unexpectedly, makes excessive demands for which no effective strategies have been developed, and leaves a mental image that is easily evoked by cues associated with the event. The resource loss theory combines material loss with psychological debilitation. This creates interpretive ambiguity as to whether obtained relationships reflect the influence of material loss, psychological debilitation, or some combination of these two factors. Therefore, tests of social cognitive theory remove the confound by confining resource loss to magnitude of material loss. Disaggregation of material and psychological debilitations permits analysis of the extent to which resource loss affects posttraumatic stress directly or mediational through its impact on psychological determinants.

In addition to resource loss, self-efficacy to cope with the aftermath of the hurricane was included as a second factor in a study by Benight et al. (1999) as both a direct and mediating determinant of posttraumatic stress. Belief of personal efficacy was measured by the Coping Self-Efficacy Scale tailored to aftermaths of natural disasters. The scale assessed perceived capability to manage a host of taxing problems including maintaining one's daily livelihood, obtaining financial resources through employment and social assistance, negotiating insurance and federal claims, dealing with contractors and landlords, protecting one's property, restoring the routines of everyday life, maintaining familial and social relationships, and regulating emotional states of anger, anxiety, and depression. In analysis of the psychometric properties of this self-efficacy scale with hurricane victims, coping efficacy made unique contribution to variance in aversive intrusive thoughts and avoidance behavior after controlling for level of resource loss, social support, and optimistic orientation (Benight, Ironson, & Durham, 1999).

The third contributing factor concerned the strategies people use to cope with the disaster wrought by the hurricane. These include active problem-solving coping designed to change existing realities or turning inward to alleviate the distress over them (Lazarus & Folkman, 1984).

The structural paths of influence are presented in Fig. 1. The impact of resource loss on level of distress in the acute phase is partly mediated by perceived coping self-efficacy (Benight et al., 1999). Belief that one can exercise some measure of control over the daunting challenges reduces distress not only concurrently, but in the long term, as well after controlling for level of acute distress and mode of coping in the acute phase. People of high self-efficacy also eschew the more escapist, self-ameliorative modes of coping. Proactive coping reduces the likelihood of longer-term distress, inward self-ameliorative coping does not.

In comparative tests the theoretical model that includes the self-efficacy determinant provides a much better fit to the empirical data than an alternative model in which distress is the product solely of magnitude of resource loss or the combined effect of resource loss and mode of coping. As already noted, the impact of resource devastation on enduring distress is entirely mediated through personal agentic factors, rather than exerts its effects independently. Thus, individuals who have a resilient sense of efficacy to manage the demands of the disastrous aftermath and adopt a problem-solving mode of coping to weather the trauma.

The influential role of self-efficacy in managing the hurricane stressor is further underscored in comparison of the psychobiological reactions of medically vulnerable males with HIV

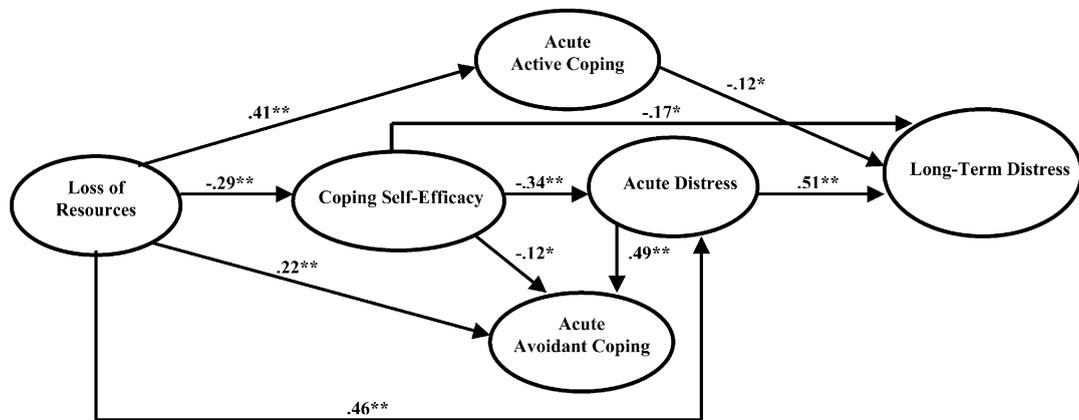


Fig. 1. Analysis of the structural paths of influence of resource loss, active and avoidant coping, and perceived coping self-efficacy on acute and long-term distress measured following Hurricane Andrew (Benight et al., 1999).

infection with that of healthy men (Benight et al., 1997). Stress is an important contributor to many biological dysfunctions (Herbert and Cohen, 1993; O'Leary, 1990). Perceived controllability appears to be the key organizing principle in explaining these biological effects. Exposure to stressors with ability to control them has no negative physical impact, whereas exposure to the same stressors without the ability to control them has adverse biological effects (Maier, Laudenslager, & Ryan, 1985). The same is true for perceived controllability. It is the perception of environmental demands as overwhelming one's coping capabilities that becomes the stressful reality. Experimental analyses of the microrelation between perceived coping self-efficacy and biological reactivity show that perceived self-inefficacy to manage stressors activates autonomic, catecholamine and opioid systems that can impair immune function (Bandura, 1997).

In the study under discussion, perceived self-efficacy to manage the myriad tasks for recovery from a destructive hurricane predicted severity of posttraumatic stress in both groups of men after controlling for level of life threat during the hurricane, amount of physical damage suffered, income, education, and immunologic status. A high sense of coping efficacy served as a protective factor against development of posttraumatic stress. However, self-efficacy varied in its enabling and buffering role in how HIV-infected and healthy males reacted physiologically to the calamitous stressor. A low sense of efficacy was accompanied by a dysfunctional pattern of neuroendocrine reactivity in HIV-infected males, but not in the healthy sample. Having to manage a terminal illness as well as the havoc wrecked by a hurricane presents a much more severe stressor. Taxing stressors provide greater opportunity for a resilient sense of self-efficacy to exert its enabling and buffering effects.

That perceived coping self-efficacy functions as a key mediator of whether disastrous events produce enduring distress is further replicated with residents from the barrier islands of Florida ravaged by Hurricane Opal (Benight, Swift, Sanger, Smith, & Zeppelin, 1999). Hurricane Opal, a category 3 hurricane, not only played havoc with people's lives but changed the landscape by obliterating a good part of the pre-existing shoreline.

The impact of this disastrous event was assessed with the instrument devised by Horowitz, Wilner, and Alvarez (1979) to measure two major aspects of posttraumatic stress, namely aversive thought intrusion and avoidance. Intrusions include repeated episodes of perturbing unwanted thoughts and images, flashbacks by reminders of the event, and encroachment of perturbing thoughts in sleep routines and dreams. Avoidance included staying away from the reminders of the event, shunning talk about it, denials of the meaning and consequences of the event, and efforts to suppress perturbing thoughts from consciousness.

Fig. 2 presents the structural paths through which resource loss, social support, optimism and coping self-efficacy affect posttraumatic symptoms. The impact of resource loss on trauma-related distress is completely mediated through people's beliefs in their coping capabilities. In accord with the enabling function of social support documented earlier, social support reduces the likelihood of trauma-related stress by raising beliefs in one's self-efficacy rather than directly. Dispositional optimism also operates entirely through self-efficacy belief. Thus, neither social support nor optimism makes an independent contribution to prediction of posttraumatic stress after the influence of perceived self-efficacy is removed. To the extent that social support and optimism have ameliorative effects, it is through belief that one has the capability to restore one's life following the calamity.

Cheever and Hardin (1999) examined the correlates of adolescents' reported health problems who had been exposed to Hurricane Hugo in South Carolina in the previous year. Severity of traumatic exposure was measured in terms of having to move because of hurricane damage to their home, injury or death to a friend or family member, and personal physical injury. High levels of social support and self-efficacy were accompanied by low health problems in the aftermath of the destructive hurricane. Self-efficacy retained its predictiveness after controlling for socioeconomic status, family structure, gender, race, academic achievement, religiosity, and level of social support. These findings on children's reactions to trauma lend support to the generality of the self-efficacy mechanism. Although the self-efficacy relation is based on a cross-sectional analysis, it is in accord with the enabling functional role of self-efficacy replicated prospectively.

Cheever and Hardin replicated the positive self-efficacy function with the same multiple controls in posttraumatic recovery from interpersonal traumatization by physical assault, rape, or

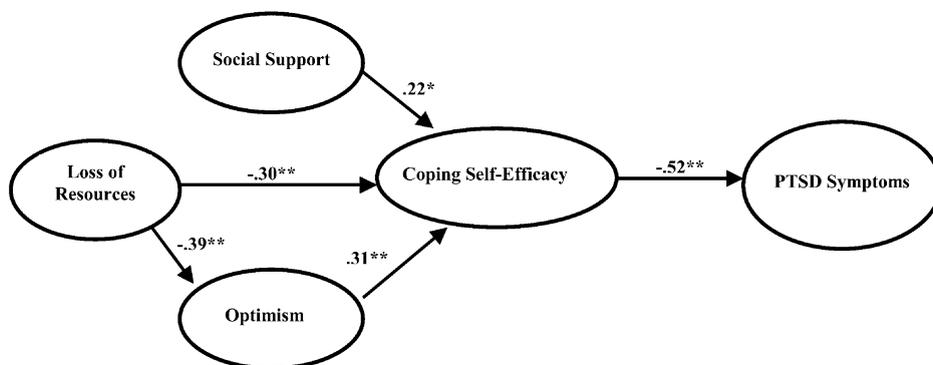


Fig. 2. Path analysis verifying that the impact of resource loss, optimism, and social support on posttraumatic symptoms is entirely mediated through perceived coping self-efficacy (Benight et al., 1999).

being held up with a gun or knife. We shall address self-efficacy enablement in interpersonal traumatization in greater detail later.

A massive 12,000-acre wildfire ravaged a small mountain community in Colorado leaving in its wake a charred landscape, some burned homes, and other property damage. Two months later the same beleaguered community was hit by floodwaters cascading down the scorched hillsides. The deluge took several lives, destroyed water and power supplies, cut off communications, wiped out roads and bridges, and left wreckage everywhere.

In this longitudinal study, residents' perceived coping efficacy, acute distress and stress-related symptoms were assessed at the time of the disaster and a year later (Benight & Harper, 2002). The impact of the acute stress and general symptomatic distress on subsequent posttraumatic stress disorder was entirely mediated by self-efficacy.

## 11. Terrorist attack

The preceding analyses centered on traumatization by destructive natural forces. Other lines of research have examined the generality of the restorative role of perceived coping self-efficacy in traumatization by human design. Terrorism is a social form that is especially traumatizing. The massive bomb that ripped through the Federal Building in Oklahoma City exacted a heavy human toll—168 deaths and many injured survivors and children orphaned or left with a single parent. Rescuers, relatives, and local residents similarly suffered the traumatic stress of this gruesome calamity.

Benight and associates examined the posttraumatic recovery of a sample of victims from workplaces adjacent to the bombed building, most of whom had suffered physical injuries and some required hospitalization (Benight et al., 2000). To add to the trauma, three-quarters of the participants knew individuals who had been injured or killed in the bombing.

The participants' self-efficacy to manage their occupational activities, psychic and emotional life, and perturbing intrusive thoughts and dreams were assessed 2 months after the bombing and a year later. The independent impact of perceived self-efficacy was assessed in the context of a host of other potential contributors to persisting stress.

Perceived self-efficacy accounted for a significant share of the variance in experienced symptoms, intrusion of aversive thoughts, and frequency of posttraumatic stress reactions at both time points after controlling for perceived threat of death, level of social support, income, and loss of resources. Moreover, self-efficacy retained its predictiveness of PTSD after controlling for level of anxiety, depression, hostility, phobic and obsessive-compulsive reactions, and somatization. Income and loss of resources also remained predictors of distress over time.

## 12. Interpersonal traumatizations

Much of the preceding analyses centered on traumatization by natural disasters. Many of the life events that traumatize people, such as physical and sexual assault and other forms of criminal victimization are social in origin. Unlike a natural disaster, which is a one-time event, inter-

personal traumas, such as criminal victimization, pose continuing threats that can reactivate stress reactions.

Sexual and physical assault of women is a prevalent problem in the United States. Because any woman is a potential victim, the lives of many women are distressed and constricted by a sense of inefficacy to cope with the threat of sexual or physical violence. Perceived uncontrollability is not only a source of distress, but also plays a role in posttraumatic recovery from victimization. Kushner and colleagues examined the extent to which severity of assault and the control beliefs of victims of rape and nonsexual criminal attacks predicted development of posttraumatic stress disorder (Kushner, Riggs, Foa, & Miller, 1993). Control beliefs were measured in terms of personal capability to bring one's influence to bear on aversive events and to manage emotional reactions to them. Severity of assault was a significant predictor, but low perceived control contributed to enduring posttraumatic stress after the effect of assault severity was taken into account.

Posttraumatic stress disorders are also common among battered women in abusive relationships (Kemp, Green, Havinitz, & Rawlings, 1995). There are, of course, many factors, personal, social, coercive, economic, and sociostructural ones, that determine whether or not battered women remain with their abusers, return to them after leaving them temporarily, or leave them for good. Lerner and Kennedy (2000) examined self-efficacy as a possible contributing factor. Battered women who remained with their abusers, separated from them for different lengths of time, or severed the abusive relationship rated their self-efficacy to leave their abusers in the face of various impediments and facilitators—when the abusers ask them to stay with promises to change, upon examining their job skills and future prospects, considering their commitment to the relationship, feeling depressed, having social support, and considering commonalities with other battered women.

The stronger the self-efficacy, the greater the likelihood that battered women will leave their abusers and remain separated from them. High self-efficacy was accompanied by modes of coping aimed at resolving problems and lesser focus on ameliorating emotional distress created by the abusiveness and lower despondency. The findings of this cross-sectional analysis have clarified some aspects of the role of self-efficacy in the management of abusive relationships, but further research needs to be conducted prospectively.

Benight and Midboe (2002) verified prospectively the beneficial function of belief in one's coping efficacy. Among women who had recently experienced a domestic physical assault they selected either cognitive-behavioral treatment or assignment to a women's advocacy group. For ethical reasons, when women appeared at the domestic violence center following an assault they could choose to have the benefit of cognitive behavior therapy or the support of a women's group, rather than being randomly assigned. The treatment enhanced the women's coping self-efficacy and reduced the posttraumatic disorder, but participation in the advocacy group did not. However, because of the self-selection, these mean differences should be interpreted with caution. For the purpose of the present analysis, it is not the mean differences but the role of perceived efficacy that is of interest. High self-efficacy change was accompanied by lowered posttraumatic symptomatology, reduction in perturbing ruminations and avoidant coping, decreased depression and increased self-esteem.

Unlike natural disasters, interpersonal threats are reduceable, especially if deterred at both the sociostructural level, as well as the individual level. Curbing sexual violence is a case in

point. Ozer and Bandura (1990) addressed this threat at a self-protective level. Women participated in a mastery modeling program in which they learned how to defend themselves against unarmed assailants by disabling them with a powerful strike to vital areas of the body. They mastered the self-defense skills in repeated simulated assaults by assailants wearing heavily padded gear.

Guided mastery instilled both a resilient sense of coping efficacy and thought control efficacy. A strong sense of efficacy that one can cope with social threats made it easier to dismiss perturbing thoughts that intrude on one's consciousness. The same intrusions are viewed as benign when one can easily dismiss them, but as pernicious when one cannot get rid of them. Perceived coping and thought control efficacy, in turn, reduced perceived vulnerability, eliminated ruminative thought, anxiety arousal and avoidant patterns of behavior. These changes had a marked liberating effect. The women expanded the activities they engaged in and reduced the number of everyday activities they avoided out of perceived vulnerability. The perceived efficacy to defend themselves physically was liberating emotionally and psychologically, as well as behaviorally. They were freed from the burden of anxious concern over sexual assault and lived freer and more active lives. The enhanced sense of personal efficacy also enabled them to set firm limits verbally, which helped prevent coercive or assaultive behavior in acquaintance relationships.

Path analysis of the causal structure revealed a dual path of regulation of avoidant behavior and active engagement in activities by enhanced self-efficacy (Fig. 3). In one path of influence, perceived self-protective efficacy reduces perceived vulnerability and increases ability to distinguish between safe and risky situations to regulate behavior with realistically based precaution. These changes reduce avoidant behavior and increase engagement in social and recreational activities. In the second path of influence, perceived cognitive control efficacy reduced perturbing ruminative thoughts, anxiety arousal and avoidant behavior.

In the pretreatment assessment, women who had experienced past forced intercourse and physical assaults expressed a lower sense of efficacy to cope with interpersonal threats, felt more vulnerable to sexual assaults, had greater difficulty distinguishing between safe and risky situations, were less efficacious in turning off intrusive thinking, and more avoidant in their everyday behavior. The pre-existing adverse effects of sexual and physical assaults were enduringly eliminated by the powerful mastery modeling. In the posttreatment and follow-up periods, women who had experienced forced intercourse and physical abuse no longer differed on any cognitive, affective, and behavioral coping indices from those who had not. Some of the women

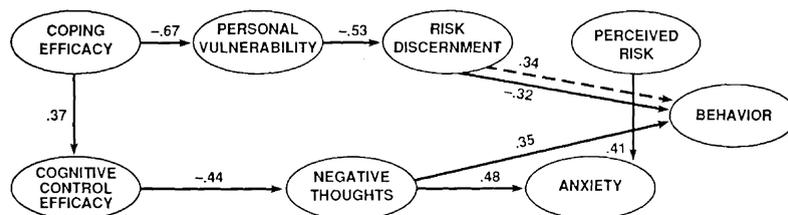


Fig. 3. Analysis of the paths of influence through which perceived coping self-efficacy and perceived self-efficacy to control perturbing thoughts affect the quality of coping behavior. The solid lines to behavior represent avoidant styles of behavior; the dotted lines represent proactive participant behavior (Ozer & Bandura, 1990).

who had the self-protective benefit of guided mastery modeling later experienced an attempted sexual assault. They either disabled or knocked out unarmed assailants.

Victimization surveys reveal that the victims of sexual abuse are often children not just adult women. It is a tragedy of youth. In a study of women victims of childhood sexual abuse, self-efficacy was a significant predictor of level of posttraumatic stress after controlling for severity of childhood sexual abuse, avoidant and positive coping, and cognitive distortion of the environment as uniformly dangerous and the self as totally incompetent (Benight & Lehman, 2002).

Sexual traumatization is a social problem not just a personal one. Studies of the cross-cultural prevalence of rape reveal that violent sexuality is an expression of cultural ideology of male dominance (Sanday, 1997). Rape is prevalent in societies where male supremacy reigns, aggressive sexuality a valued sign of manliness, and women are treated as property. Rape is rare in societies that repudiate aggressive styles of behavior, endorse sexual equality, and treat women respectfully.

Although enabling women with self-protective efficacy can improve their lives, the responsibility for controlling sexual abuse does not lie solely with women. Sexual violence is a societal problem requiring fundamental changes in sex-role ideologies and social practices conducive to sexual assaultiveness. The social remedy requires the exercise of collective efficacy aimed at raising public awareness of detrimental gendered practices and mobilizing public support for needed social changes (Bandura, 1997). In cultures in which women are subjugated, engrossing serial dramas that enable women to have a voice in their personal development and life course raise their status and give them some control over their lives (Bandura, 2002; Singhal & Rogers, 1999).

### 13. Spousal bereavement

Spousal death is another major stressor that impinges on virtually every aspect of life. The bereaved spouse has to cope with not only the emotional distress over the loss, but with the strain of managing a multitude of financial, social, and a host of other demands of everyday life. Bereaved spouses vary in how well they adjust to the loss.

Benight, Flores, and Tashiro (2001) analyzed the extent to which widows self-efficacy to cope with the adaptational strains engendered by their husbands' death by cancer affected the severity and chronicity of the distress. Its independent impact was tested after controlling for the influence of a host of potential contributing factors. These included age, education, financial status, time since spousal death, current life stressors, level of social support, quality of the relationship with the spouse, and anticipatory grieving during the terminal phase of the illness. The self-efficacy scale centered on perceived capability to exercise control over intrusive dejecting thoughts, managing feelings of grief, loneliness, and despondency over the meaning and significance of life, creating a sense of purpose, and maintaining a positive outlook.

The impact of the spousal death was assessed in terms of the extent of aversive intrusive thoughts and avoidant behavior, physical and social functioning, and psychological and spiritual well-being. Most of the potential contributing factors that served as multiple controls were nonpredictive of these various psychosocial outcomes, although marital satisfaction and current

life stressors bore some relation. By contrast, self-efficacy was a uniformly good predictor across all of the psychosocial outcomes. Widows with a strong sense of efficacy were less plagued with aversive ruminations and avoidant behavior. They experienced lower emotional distress and better physical health, which high stress tends to impair.

The maintenance of social connectedness is an important aspect of successful adaptation in later years. Major life changes in social ties are brought about by retirement, relocation, and loss of friends or spouses. Those of high perceived efficacy enlist and cultivate supportive relationships that can bring satisfaction and add meaning to one's life (Holahan & Holahan, 1987a,b). This may partly explain the evidence that widows of high perceived self-efficacy experience higher spiritual well-being.

#### 14. Concluding remarks

The preceding analysis examined converging lines of evidence regarding psychosocial determinants of recovery from diverse types of traumas. The results yield consistent support for perceived coping self-efficacy as a focal mediator of posttraumatic recovery. People who believe they can surmount their traumatization take a hand in mending their lives rather than have their lives dictated by the adverse circumstances. The consistency of findings across diverse types of traumatizations speaks to the generality of the enabling and protective function of beliefs of personal efficacy to manage the impact of calamitous events.

Perceived self-efficacy is more than just a predictor of behavioral functioning and change. This belief system is embedded in the agentic perspective of social cognitive theory that provides principles on how to motivate, enable, and guide people for personal and social change (Bandura, 1997, 2002). The theory specifies the modes of influence for building a resilient sense of efficacy and the processes through which this belief system impacts the quality of psychosocial functioning. In this theoretical scheme, enabling mastery experience is the principal vehicle of personal change. Traumatized individuals avoid reality testing and thus insulate themselves from corrective experiences. Guided mastery with enabling coping aids restores corrective reality testing (Bandura, 1997). It provides disconfirming tests of unrealistic fears and other faulty cognitions. Even more important, it provides affirming efficacy tests that one can exercise some measure of control over what one fears. These enabling experiences are provided by guided enactive attainments, social modeling of effective coping and recovery strategies, and persuasory cognitive modes of influence that promote reappraisals of traumatic experiences and coping capabilities and further affirm a sense of personal control.

Graduated *in vivo* mastery of trauma-related situations and activities restores a sense of coping efficacy with accompanying reductions in stress, perturbing ruminations, and avoidant behavior (Ozer & Bandura, 1990; Solomon, Weisenberg, Schwarzwald, & Mikulincer, 1988). Imaginal mastery of threats also builds coping self-efficacy with similar accompanying benefits (Bandura, Adams, Hardy, & Howells, 1980; Kazdin, 1978). Thus, repeated imaginal reliving of traumatic events without untoward consequences neutralizes their perturbing valence (Bandura, 1969; Foa, Keane, & Friedman, 2000); Lifshitz & Blair, 1960; Rothbaum & Schwartz, 2002). Graded coping with traumatic events presented in immersive virtual reality also holds promise for reducing posttraumatic stress, especially for survivors who have difficulty revivifying their

trauma imaginally (Difede & Hoffman, 2002; Rothbaum, Hodges, Ready et al., 2001). The persuasory mode of influence focuses on correcting exaggerated beliefs about the perilousness of the environment, catastrophic outcome expectations and other dysfunctional cognitions, and profound distrust of personal capabilities to manage one's life circumstances.

A substantial body of research (Bandura, 1997) verifies that perceived self-efficacy is a common mechanism through which the enactive mastery, modeling, and persuasory modes of treatment described above improve psychosocial functioning. Therapeutic experiences for building a resilient sense of efficacy—whether brought about enactively, vicariously, or persuasively—are not inherently instructive. They gain enabling significance through cognitive processing of efficacy-relevant information. Each of the three modes of influence has a distinct set of efficacy indicators. They provide informative guidelines on how to structure therapeutic interventions to enhance their impact. Therapeutic applications of this body of knowledge for the treatment of posttraumatic disorders is a fruitful line for future research.

## References

- Bandura, A. (1969). *Principles of behavior modification*. New York: Holt, Rinehart & Winston.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (2001a). *Social cognitive theory: An agentic perspective*. *Annual review of psychology*, vol. 52 (pp. 1–26). Palo Alto: Annual Reviews, Inc.
- Bandura, A. (2001b). The changing face of psychology at the dawning of a globalization era. *Canadian Psychology*, 42, 12–24.
- Bandura, A. (2002). Environmental sustainability by sociocognitive deceleration of population growth. In P. Schmuck & W. Schultz (Eds.), *The psychology of sustainable development* (pp. 209–238). Dordrecht, The Netherlands: Kluwer.
- Bandura, A., Adams, N. E., Hardy, A. B., & Howells, G. N. (1980). Tests of the generality of self-efficacy theory. *Cognitive Therapy and Research*, 4, 39–66.
- Bandura, A., Blanchard, E. B., & Ritter, B. (1969). Relative efficacy of desensitization and modeling approaches for inducing behavioral, affective, and attitudinal changes. *Journal of Personality and Social Psychology*, 13, 173–199.
- Bandura, A., Reese, L., & Adams, N. E. (1982). Microanalysis of action and fear arousal as a function of differential levels of perceived self-efficacy. *Journal of Personality and Social Psychology*, 43, 5–21.
- Bandura, A., Taylor, C. B., Williams, S. L., Mefford, I. N., & Barchas, J. D. (1985). Catecholamine secretion as a function of perceived coping self-efficacy. *Journal of Consulting and Clinical Psychology*, 53, 406–414.
- Baum, A., Cohen, L., & Hall, M. (1993). Control and intrusive memories as possible determinants of chronic stress. *Psychosomatic Medicine*, 55, 274–286.
- Benight, C. C., Antoni, M. H., Kilbourn, K., Ironson, G., Kumar, M. A., Fletcher, M. A., Schneiderman-Redwine, L., Baum, A., & Schneiderman, N. (1997). Coping self-efficacy buffers psychological and physiological disturbances in HIV+ men following a natural disaster. *Health Psychology*, 16, 248–255.
- Benight, C. C., Flores, J., & Tashiro, T. (2001). Bereavement coping self-efficacy in cancer widows. *Death Studies*, 25, 97–125.
- Benight, C. C., Freyaldenhoven, R., Hughes, J., Ruiz, J. M., Zoesche, T. A., & Lovullo, W. (2000). Coping self-efficacy and psychological distress following the Oklahoma City bombing: A longitudinal analysis. *Journal of Applied Social Psychology*, 30, 1331–1344.
- Benight, C. C., & Harper, M. (2002). Coping self-efficacy as a mediator for distress following multiple natural disasters. *Journal of Traumatic Stress*, 15, 177–186.
- Benight, C. C., Ironson, G., & Durham, B. (1999). Psychometric properties of a hurricane coping self-efficacy measure. *Journal of Traumatic Stress*, 12, 379–386.

- Benight, C. C., Ironson, G., Klebe, K., Carver, C., Wynings, C., Greenwood, D., Burnett, K., Baum, A., & Schneiderman, N. (1999). Conservation of resources and coping self-efficacy predicting distress following a natural disaster: A causal model analysis where the environment meets the mind. *Anxiety, Stress and Coping*, 12, 107–126.
- Benight, C. C., & Lehman, V. (2002). Coping self-efficacy as a predictor of posttraumatic symptoms in incarcerated and non-incarcerated women survivors of childhood sexual abuse. Unpublished manuscript.
- Benight, C. C., & Midboe, A. (2002). Coping self-efficacy as a target variable in the treatment of psychological distress in domestic violence survivors. Unpublished manuscript.
- Benight, C. C., Swift, E., Sanger, J., Smith, A., & Zeppelin, D. (1999). Coping self-efficacy as a prime mediator of distress following a natural disaster. *Journal of Applied Social Psychology*, 29, 2443–2464.
- Bolin, R. C. (1982). *Long-term recovery from disaster*. Boulder: University of Colorado Institute of Behavioral Science.
- Boyer, D. A., Zollo, J. S., Thompson, C. M., Vancouver, J. B., Shewring, K., & Sims, E. (2000). A quantitative review of the effects of manipulated self-efficacy on performance. Poster Session Presented at the Annual Meeting of the American Psychological Society, Miami, FL.
- Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and post-traumatic stress disorder in the community; the 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry*, 55, 626–632.
- Buckley, T. C., Blanchard, E. B., & Neill, W. T. (2000). Information processing and PTSD: A review of the empirical literature. *Clinical Psychology Review*, 28, 1041–1065.
- Cheever, K. H., & Hardin, S. B. (1999). Effects of traumatic events, social support, and self-efficacy on adolescents' self-health assessments. *Western Journal of Nursing Research*, 21, 673–684.
- Cheung, S., & Sun, S. Y. K. (2000). Effects of self-efficacy and social support on the mental health conditions of mutual-aid organization members. *Social Behavior and Personality*, 28, 413–422.
- Churchill, A. C., & McMurray, N. E. (1989). Self-efficacy and unpleasant intrusive thought. Unpublished manuscript.
- Coles, M. E., & Heimberg, R. G. (2002). Memory biases in the anxiety disorders: current status. *Clinical Psychology Review*, 22, 587–627.
- Creamer, M., Burgess, P. M., & McFarlane, A. C. (2001). Post-traumatic stress disorder: finding from the Australian National Survey of Mental Health and Well-being. *Psychological Medicine*, 7, 1237–1247.
- Cutrona, C. E., & Troutman, B. R. (1986). Social support, infant temperament, and parenting self-efficacy: A mediational model of postpartum depression. *Child Development*, 57, 1507–1518.
- Difede, J., & Hoffman, H. G. (2002). Virtual reality exposure therapy for world trade center post-traumatic stress disorder: A case report. *Cyber Psychology & Behavior*, 5, 529–535.
- Duncan, T. E., & McAuley, E. (1993). Social support and efficacy cognitions in exercise adherence: A latent growth curve analysis. *Journal of Behavioral Medicine*, 16, 199–218.
- Foa, E. B. (1997). Psychological processes related to recovery from trauma and an effective treatment for PTSD. *Annals of the New York Academy of Sciences*, 821, 410–424.
- Foa, E. B., Keane, T. M., & Friedman, M. J. (Eds.) (2000). *Effective treatments for PTSD*. New York: Guilford.
- Freedly, J. R., Saladin, M. E., Kilpatrick, D. G., Resnick, H. S., & Saunders, B. E. (1994). Understanding acute psychological distress following natural disaster. *Journal of Traumatic Stress*, 7(2), 257–273.
- Freuh, B. C., Turner, S. M., Beidel, D. C., Mirabella, R. F., & Jones, W. J. (1996). Trauma management therapy: A preliminary evaluation of a multicomponent behavioral treatment for chronic combat-related PTSD. *Behaviour Research and Therapy*, 34, 533–543.
- Geer, J. H., Davison, G. C., & Gatchel, R. I. (1970). Reduction of stress in humans through nonveridical perceived control of aversive stimulation. *Journal of Personality and Social Psychology*, 16, 731–738.
- Glass, D. C., Singer, J. E., Leonard, H. S., Krantz, D., & Cummings, H. (1973). Perceived control of aversive stimulation and the reduction of stress responses. *Journal of Personality*, 41, 577–595.
- Gully, S. M., Incalcaterra, K. A., Joshi, A., & Beaubien, J. M. (2002). A meta-analysis of team-efficacy, potency, and performance: Interdependence and level of analysis as moderators of observed relationships. *Journal of Applied Psychology*, 87, 819–832.

- Heim, C., Newport, D. J., Heit, S., Graham, Y. P., Wilcox, M., Bonsall, R., Miller, A. H., & Nemeroff, C. B. (2000). Pituitary-adrenal and autonomic responses to stress in women after sexual and physical abuse in childhood. *Journal of the American Medical Association*, *284*, 592–597.
- Helzer, J. E., Robins, L. N., & McEvoy, L. (1987). Post-traumatic stress disorder in the general population: Findings of the Epidemiologic Catchment Area study. *New England Journal of Medicine*, *317*, 1630–1634.
- Herbert, T. B., & Cohen, S. (1993). Stress and immunity in humans: A meta-analytic review. *Psychosomatic Medicine*, *55*, 364–379.
- Hobfoll, S. (1991). Traumatic stress: A theory based on rapid loss of resources. *Anxiety Research*, *4*, 187–197.
- Holahan, C. K., & Holahan, C. J. (1987a). Self-efficacy, social support, and depression in aging: A longitudinal analysis. *Journal of Gerontology*, *42*, 65–68.
- Holahan, C. K., & Holahan, C. J. (1987b). Life stress, hassles, and self-efficacy in aging: A replication and extension. *Journal of Applied Social Psychology*, *17*, 574–592.
- Holden, G. (1991). The relationship of self-efficacy appraisals to subsequent health related outcomes: A meta-analysis. *Social Work in Health Care*, *16*, 53–93.
- Holden, G., Moncher, M. S., Schinke, S. P., & Barker, K. M. (1990). Self-efficacy of children and adolescents: A meta-analysis. *Psychological Reports*, *66*, 1044–1046.
- Horowitz, M. J., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine*, *41*, 209–218.
- Jerusalem, M., & Mittag, W. (1995). Self-efficacy in stressful life transitions. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 177–201). Cambridge University Press: New York.
- Kazdin, A. E. (1978). Covert modeling: The therapeutic application of imagined rehearsal. In J. L. Singer, & K. S. Pope (Eds.), *The power of human imagination: New methods in psychotherapy. Emotions, personality, and psychotherapy* (pp. 255–278). Plenum: New York.
- Kemp, A., Green, B. L., Havanitz, C., & Rawlings, E. I. (1995). Incidence and correlates of posttraumatic stress disorder in battered women. *Journal of Interpersonal Violence*, *10*, 43–55.
- Kent, G. (1987). Self-efficacious control over reported physiological, cognitive and behavioural symptoms of dental anxiety. *Behaviour Research and Therapy*, *25*, 341–347.
- Kent, G., & Gibbons, R. (1987). Self-efficacy and the control of anxious cognitions. *Journal of Behavior Therapy & Experimental Psychiatry*, *18*, 33–40.
- Kushner, M. G., Riggs, D. S., Foa, E. B., & Miller, S. M. (1993). Perceived controllability and the development of posttraumatic stress disorder (PTSD) in crime victims. *Behavior Research and Therapy*, *31*, 105–110.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lerner, C. F., & Kennedy, L. T. (2000). Stay-leave decision making in battered women: Trauma, coping and self-efficacy. *Cognitive Therapy and Research*, *24*, 215–232.
- Lifshitz, K., & Blair, J. H. (1960). The polygraphic recording of a repeated hypnotic abreaction with comments on abreaction psychotherapy. *Journal of Nervous and Mental Disease*, *130*, 246–252.
- Litt, M. D., Nye, C., & Shafer, D. (1993). Coping with oral surgery by self-efficacy enhancement and perceptions of control. *Journal of Dental Research*, *72*, 1237–1243.
- Maier, S. F., Laudenslager, M. L., & Ryan, S. M. (1985). Stressor controllability, immune function, and endogenous opiates. In F. R. Brush, & J. B. Overmeier (Eds.), *Affect, conditioning, and cognition: Essays on the determinants of behavior* (pp. 183–201). Erlbaum: Hillsdale, NJ.
- Major, B., Mueller, P., & Hildebrandt, K. (1985). Attributions, expectations, and coping with abortion. *Journal of Personality and Social Psychology*, *48*, 585–599.
- Moritz, S. E., Feltz, D. L., Fahrbach, K. R., & Mack, D. E. (2000). The relation of self-efficacy measures to sport performance: a meta-analytic review. *Research Quarterly for Exercise and Sport*, *71*, 280–294.
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, *38*, 30–38.
- Murphy, S. A. (1987). Self-efficacy and social support mediators of stress on mental health following a natural disaster. *Western Journal of Nursing Research*, *9*, 58–86.
- Newport, D. J., & Nemeroff, C. B. (2000). Neurobiology of posttraumatic stress disorder. *Current Opinions in Neurobiology*, *10*, 211–218.

- O’Leary, A. (1990). Stress, emotion, and human immune function. *Psychological Bulletin*, *108*, 363–382.
- Ozer, E. M., & Bandura, A. (1990). Mechanisms governing empowerment effects: A self-efficacy analysis. *Journal of Personality and Social Psychology*, *58*, 472–486.
- Paris, J. (2000). Predispositions, personality traits, and posttraumatic stress disorder. *Harvard Review of Psychiatry*, *8*, 175–183.
- Pitman, R. K., Shin, L. M. F., & Rauch, S. L. (2001). Investigating the pathogenesis of posttraumatic stress disorder with neuroimaging. *Journal of Clinical Psychiatry*, *62*(Suppl. 17), 47–54.
- Rothbaum, B. O., Hodges, L. F., & Ready, D., et al. (2001). Virtual reality exposure therapy for Vietnam veterans with posttraumatic stress disorder. *Journal of Clinical Psychiatry*, *62*, 617–622.
- Rothbaum, B. O., & Schwartz, A. C. (2002). Exposure therapy for posttraumatic stress disorder. *American Journal of Psychotherapy*, *56*, 59–75.
- Sadri, G., & Robertson, I. T. (1993). Self-efficacy and work-related behavior: a review and meta-analysis. *Applied Psychology: An International Review*, *42*, 139–152.
- Salkovskis, P. M., & Harrison, J. (1984). Abnormal and normal obsessions—a replication. *Behaviour Research and Therapy*, *22*, 549–552.
- Sanday, P. R. (1997). The socio-cultural context of rape: A cross-cultural study. In L. L. O’Toole, & J. R. Schiffman (Eds.), *Gender violence: Interdisciplinary perspectives* (pp. 52–66). New York: New York University Press.
- Sanderson, W. C., Rapee, R. M., & Barlow, D. H. (1989). The influence of an illusion of control on panic attacks induced via inhalation of 5.5% carbon dioxide-enriched air. *Archives of General Psychiatry*, *46*, 157–162.
- Silva, R. R., Alpert, M., Munoz, D. M., Singh, S., Matzner, F., & Dummit, S. (2000). Stress and vulnerability to posttraumatic stress disorder in children and adolescents. *American Journal of Psychiatry*, *157*, 1229–1235.
- Singhal, A., & Rogers, E. M. (1999). *Entertainment-education: A communication strategy for social change*. Mahwah, NJ: Lawrence Erlbaum.
- Solomon, Z., Benbenishty, R., & Mikulincer, M. (1991). The contribution of wartime, pre-war and post-war factors to self-efficacy: A longitudinal study of combat stress reaction. *Journal of Traumatic Stress*, *4*, 345–361.
- Solomon, Z., Weisenberg, M., Schwarzwald, J., & Mikulincer, M. (1988). Combat stress reaction and posttraumatic stress disorder as determinants of perceived self-efficacy in battle. *Journal of Social and Clinical Psychology*, *6*, 356–370.
- Spiegel, D. (1993). Dissociation and trauma. In M. D. Lutehrville (Ed.), *Dissociative disorders: a clinical review*. Baltimore: Sidran Press.
- Stajkovic, A. D., & Lee, D. S. (2001). A meta-analysis of the relationship between collective efficacy and group performance. Paper presented at the national Academy of Management meeting, August, 2001, Washington, DC.
- Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: a meta-analysis. *Psychological Bulletin*, *124*, 240–261.
- Van der Kolk, B. A., McFarlane, A. C., & Weisaeth, L. (1996). *Traumatic stress: effects of overwhelming experience on mind body and society*. New York: Guilford Press.
- Williams, S. L. (1990). Guided mastery treatment of agoraphobia: Beyond stimulus exposure. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.), *Progress in behavior modification*, vol. 26 (pp. 89–121). Newbury Park, CA: Sage.
- Williams, S. L., & Falbo, J. (1996). Cognitive and performance-based treatments for panic attacks in people with varying degrees of agoraphobic disability. *Behaviour Research and Therapy*, *34*, 253–264.
- Witvliet, C. V. (1997). Traumatic intrusive imagery as an emotional memory phenomenon: A review of research and explanatory information processing theories. *Clinical Psychology Review*, *17*, 509–536.
- Yehuda, R. (2001). Biology of posttraumatic stress disorder. *Journal of Clinical Psychiatry*, *62*(Suppl. 17), 41–46.